Current Research in Green and Sustainable Chemistry 4 (2021) 100171

Contents lists available at ScienceDirect

Current Research in Green and Sustainable Chemistry

journal homepage: www.elsevier.com/journals/current-research-in-green-and-sustainable-chemistry/2666-0865

Rhizoctonia bataticola: From plant pathogen to a potential source of pharmaceutically relevant metabolites

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ARTICLE INFO

Keywords:
Rhizoctonia bataticola
Antioxidant
Antimicrobial activity
Metabolic profiling

ABSTRACT

Rhizoctonia bataticola is an anamorphic phytopathogenic fungus which acts as facultative plant pathogens causing diseases to commercially important crops. The fungal metabolite analysis for pharmaceutical importance, mycotoxin characterization and taxonomy of industrially and medically important fungi is in need. Therefore, in the present work isolation and characterization of metabolites from *Rhizoctonia bataticola* and their biological activities were evaluated. The extract of *Rhizoctonia bataticola* showed strong antibacterial activity against gram-positive *S. aureus* and gram-negative *E. coli* bacteria. The increased in concentration of fungal extract reports increased in antibacterial and antioxidant activity. The extract of solid biomass was analyzed by LC-MS and first time reported 33 compounds including Dadezin, Genkwanin, Pentoxifylline alcohol, Dihydrodeoxystreptomycin, 8-Cyclopentyltheophyllin, Protorifamycin 1, Leukotriene D4, Protoveratrine A, Phedimetrazine as important ones. Among the reported compounds most of the compounds shows pharmacological properties like antileukemic activity, cardioprotective, anticancer, antifungal activity, antimicrobial activity, antihypertensive, anti-hypogonadal, and radical scavenging activities. Therefore, reported metabolite from fungal extract supports the biological activities. However further isolation and characterization of bioactive compounds from *Rhizoctonia bataticola* emerge as a potent source of bioactive compounds with potent bioactivities and can be help in solving bacterial multi-drug resistance in human pathogenic bacteria.

1. Introduction

Rhizoctonia bataticola is an anamorphic phytopathogenic fungi which act as facultative plant pathogens causing diseases to commercially important crop. It belongs to a ceratobasidiaceae family and has hyphae and sclerotia (hyphal propagules). It is well known to cause diseases viz., leaf blight, stem blight, wilt, seedling decay, root rot, seedling blight, charcoal rot, stalk rot, and fruit rot in crop plants [1]. The fungus *Rhizoctonia* is a taxonomic complex entity composed of morphologically similar groups [2]. The *Rhizoctonia* mainly associated to roots as a soil borne fungi. If host plant is absent then they behave like saprophytes and grow on dead and decay organic materials. Therefore, this fungus has reported in forest as well as agricultural soil throughout the world and majorly involved in economic loss of crop yield. It was reported that *R. bataticola* are important pathogen for many legumes and causes root rot and seedling blight when seedlings face severe other stress conditions [3]. *R. Bataticola* caused disease to chickpea and well known as a Dry root rot (DRR). It is a serious threat to chickpea production and it results in 10–25% reduction in crop yield [1]. The climate change is the one of the important factors for its higher spread and development in new area [4]. For successful parasitism it synthesized cellulase, hemicellulase, pectinase, protease as hydrolytic enzymes and other secondary metabolites. To know theses metabolites for to decide control measures and their importance to control others plant and animal pathogens is prerequisites. In spite of the importance of fungal metabolites, thorough assessment of their diverse metabolic landscape using metabolomic approaches is still in its initial stage and unexplored.

Number of metabolites from several types of *Rhizoctonia* has been isolated and identified and mostly belonging to fatty acids, steroids, phenolics, alkaloids, cyclopeptides etc. Sclerotial exudates of *R. Solani* represent a potential bioactive source and their metabolite composition are complex mixtures composed of phenolics, carboxylic acids,

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https://doi.org/10.1016/j.crgsc.2021.100171
Received 17 August 2021; Received in revised form 8 September 2021; Accepted 18 September 2021
Available online 24 September 2021

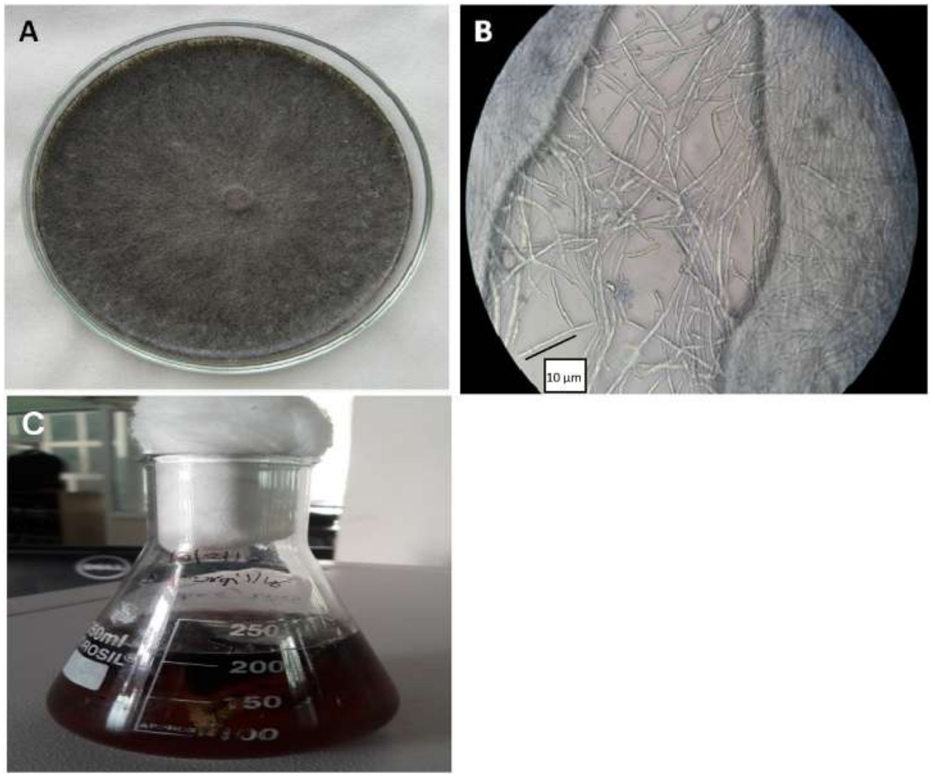

Fig. 1. Culture of *Rhizoctonia bataticola* on A) PDA plate and B) its colonies under the microscope and their sclerotia C) submerged fermentation of the *Rhizoctonia bataticola.*

carbohydrates, fatty acids, and amino acids. These potential metabolites are showed antifungal and phytotoxic activities [5]. *Rhizoctonia* phyloalexins are antimicrobial secondary metabolites that are produced in plants after pathogen attack. In rice plants, 19 phytoalexins have been reported, the rice phytoalexins play an important role in blast disease resistance in plants [6,45]. Metabolites like Nb-acetyltryptamine and 3 dioxopiperazines, cyclo (S-Pro-S-Leu), cyclo (S-Pro-S-Ile), and cyclo (S-Pro-S-Val) were isolated from *Rhizoctonia solani* liquid cultures showed significant bioactivity [7].

Fungal metabolite analysis for pharmaceutical importance, mycotoxin characterization and taxonomy of industrially and medically important fungi is limited. Metabolic profiling of sclerotia of *R. Solani* of different developmental stages showed 116 compounds that were analyzed amongst all this metabolites, a-a-trehalose, D-glucose, 9-(Z)-octadecenoicand 9,12-octadecadienoic acids, xylitol, and glucitol were key metabolites [5]. The fermentation cultures of *Rhizoctonia solani* Kühn. reported ergosterol, 6β-hydroxysitostenone, sitostenone, *m*-hydroxyphenylacetic acid, methyl *m*-hydroxyphenylacetate, *m*-hydroxymethylphenyl pentanoate, (*Z*)-3-methylpent-2-en-1,5-dioic acid and 3-methoxyfuran-2-carboxylic acid as a important bioactive compounds [8]. Amongst them ergosterol, *m*-hydroxyphenylacetic acid and (*Z*)-3-methylpent-2-en-1,5-dioic acid showed moderate antibacterial activity. The *Rhizoctonia* also produces

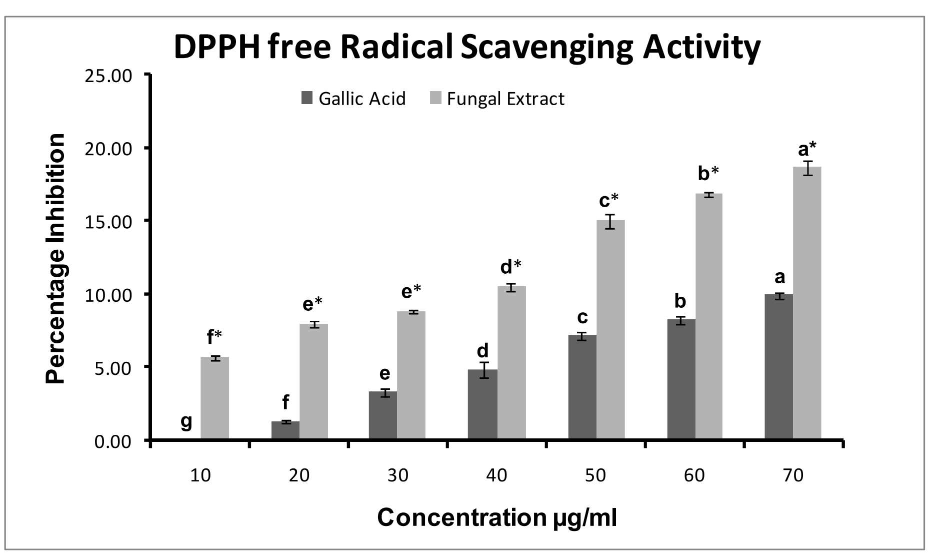

Fig. 2. Antioxidant activity of *Rhizoctonia bataticola.* The small letter denotes the significant difference within different concentration at $p < 0.05$ and * denotes significant difference between standard and fungal extract activity at $p < 0.05$.

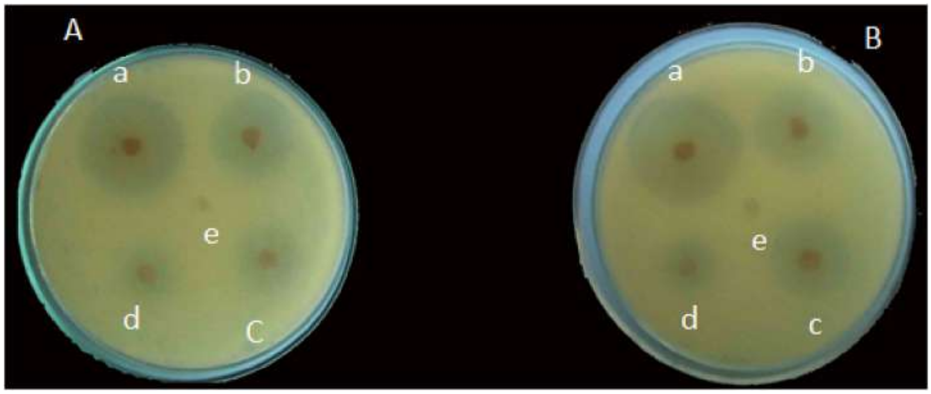

Fig. 3. Antimicrobial activity of *Rhizoctonia bataticola* against A: *E. coli*. B: *S. aureus*. (a = Positive control (Amoxicillin), b = *Rhizoctonia* extract (250 μg/ml), c = *Rhizoctonia* extract (100 μg/ml), d = *Rhizoctonia* extract (50 μg/ml), e = Negative control).

some antioxidant compounds like 3-methoxyfuran-2-carboxylic acid [8]. *Rhizoctonia* sp., an endophytic fungus isolated from the leaf of *Cynodon dactylon* showed presence of rhizoctonic acid, monomethylsulochrin, ergosterol and 3b,5a,6b-trihydroxyergosta-7,22-diene compounds showed antibacterial action against *Helicobacter pylori* strains [9]. There is urge need to do research for identification and characterization of *R. bataticola* biomolecules on which very limited literature is available. Therefore, the present work reports the isolation and characterization of the metabolites from *R. bataticola* and their biological activities.

2. Material and Methods

2.1. Isolation of fungi

The fungus used in this study was isolated from the roots of rice plant. Roots were collected from Shirgaon, Maval, MS, India and stored in sterilized bags and vials. The roots were washed properly in running tap water for 2–3 min and small pieces of ~0.5 cm of diameter was cut using flame-sterilized surgical blade. Then the root pieces were surface sterilized by immersing in 70% ethanol for 1 min, followed by 4% sodium hypochlorite (v/v) for 2 min The surface sterilized roots were washed in sterile distilled water for 1 min and then blot on sterile blotting paper. The surface sterilized roots were then placed in Petri dish containing potato dextrose agar (supplemented with chloramphenicol 150 mg/L) [10,44]. Plates were incubated in BOD incubator at 27 °C for 5–7 days. The petri plates were monitored every day for the growth of fungi.

Fungal isolates were identified based on its morphological (mycelial pigmentation, Colony growth, Colony diameter and texture) and reproductive characters using standard identification manual. Isolated fungal specimens were Authenticated from National Fungal Culture Collection of India (NFCCI)- Agharkar Research Institute (ARI), Pune, INDIA.

2.2. Preparation of soybean broth for submerged fermentation

For submerged fermentation process soybean extracted liquid media was used. Soybeans (250 gm) were soaked in 1L of water over-night. Then mixture was heated to 100 °C for 60 min. The cooled mixture was filtered through the muslin cloth and filtrate was centrifuge at 3000 rpm at 4 °C for 30 min. The supernatant was collected and filtered through the Whatman filter paper no.1. Then filtrate was sterilized in autoclaved at 121 °C for 20 min.

Table 1
Antimicrobial activity of Rhizoctonia bataticola extract against *E. coli.* and *S. aureus* in term of inhibition zone diameter in millimeter.

Treatment	*E. coli*	*S. aureus*
(a) Amoxicillin	23.6 ± 0.8^a	24.3 ± 0.7^a
(b) *Rhizoctonia* extract 250 μg/ml	17.6 ± 0.8^b	19 ± 0.5^b
(c) *Rhizoctonia* extract 100 μg/ml	14 ± 0.4^c	13.7 ±1^c
(d) *Rhizoctonia* extract 50 μg/ml	11 ± 0.5^d	9.7 ± 0.8^d

Values are means ± S.E, where n = 3, small letter denotes the significant difference at $p < 0.05$.

2.3. Submerged fermentation

The isolated pure culture grown on soybean extract broth 150 ml approximately 10 × 10 fungal colonies from the plate was aseptically inoculated in the flask. The flasks incubated in the shaker-incubator at 200 rpm for 5–7 days and in BOD incubator in steady phase for 2–3 days at 27 °C. After the incubation and fungal grown in the soybean extract, solid biomass was separated by filtration through Whatman no.1 filter paper. The collected solid biomass further dried in hot air oven at 50 °C for 5 days. After proper drying, the dried fungal biomass was homogenised in mortar and pestle till to get thin powder. The dried fungal biomass suspended in methanol and this extract was reduced and concentrated under roteva evaporator at 55 °C for 30 min. The concentrated extract was resuspended in 20 ml of methanol and used for further bioactivities and LC-MS analysis.

2.4. Antioxidant activity

Antioxidant activity was been carried out by DPPH assay [11]. The 10, 20, 30, 40, 50, 60 and 70 μg/ml of standard Gallic acid and fungal extract were used for assay. In the different concentrations 1 ml of freshly prepared DPPH (1 mM) dissolved in methanol was added and vortexed thoroughly. Finally, the solution was incubated in dark place for 30 min. After the incubation, the absorbance of stable DPPH was recorded at 517 nm. The DPPH (containing no sample) was used as a control. Activity was expressed as the percentage of inhibition that was calculated using the equation: DPPH radical scavenging activity (%) = (Ac - As)/Ac x 100. Where, Ac: was the control absorbance of DPPH radical + methanol; As: was the sample absorbance of DPPH radical + *Rhizoctonia* extract or standard Gallic acid.

2.5. Antimicrobial activity

Antimicrobial activities were performed using specific culture media and various incubation conditions. In this well-known procedure, nutrient agar plates were inoculated with standardized inoculums of the test microorganism *Escherichia coli* and *Staphylococcus aureus* as we taken. Then, filter paper discs (about 6 mm in diameter), containing the test compound as Amoxicillin and given fungal extract at a 250, 100 and 50 μg/ml are placed on the middle of plate agar surface. The petri dishes are incubated overnight in incubator at 30 ± 2 °C. Generally, antimicrobial agent diffuses into the agar and inhibits germination and growth of the test microorganism and inhibition growth zones were measured.

Table 2
Metabolites reported in Rhizoctonia bataticola biomass extract and their biological activity.

Sr.No.	Compound Name	RT	Mass	Molecular Formula	Biological activity	Reference
	m-Chlorohippuric acid	0.739	178.0539	$C_9 H_8 N O_3$	Antimicrobial	[22]
	Isoamyl nitrate	0.95	117.0781	$C_5 H_{11} N O_2$	Dopaminergic effect	[27]
	Lupanine	0.956	248.1846	$C_{15} H_{24} N_2 O$	Sedative	[28]
	3-n-decyl acrylic acid	0.957	212.1758	$C_{13} H_{24} O_2$	–	–
	Hypoxanthine	1.283	136.0386	$C_5 H_4 N_4 O$	Antileukemic activity	[18]
	Pentoxifylline alcohol	5.817	280.1523	$C_{13} H_{20} N_4 O_3$	Non-alcoholic steatohepatitis	[29]
	8-Cyclopentyltheophyllin	6.062	248.1263	$C_{12} H_{16} N_4 O_2$	Cardioprotective effect	[19]
	Leukotriene D4	8.027	496.2528	$C_{25} H_{40} N_2 O_6 S$	Chemotactic and chemokinetic activity	[30]
	Sulfolithocolyglycine	8.033	513.2793	$C_{26} H_{43} N O_7 S$	–	–
	Daidzein	8.32	254.0578	$C_{15} H_{10} O_4$	Antioxidant activity	[20]
	Asn His Ser	8.407	356.1449	$C_{13} H_{20} N_6 O_6$	–	–
	Genkwanin	8.483	284.0684	$C_{16} H_{12} O_5$	Melanoma b16f10 cell proliferation	[31]
	Phe His	9	302.1368	$C_{15} H_{18} N_4 O_3$	–	–
	Phedimetrazine	9.4	191.1307	$C_{12} H_{17} N O$	Anorectic and for cocaine addiction	[32]
	8-Epideoxyloganin	9.784	374.1579	$C_{17} H_{26} O_9$	–	–
	Di-demethylcitalopram	9.916	296.1337	$C_{18} H_{17} F N_2 O$	–	–
	Dihydrodeoxystreptomycin	10.126	567.29	$C_{21} H_{41} N_7 O_{11}$	Antifungal activity	[25]
	Protorifamycin 1	10.624	639.3116	$C_{35} H_{45} N O_{10}$	–	–
	Protoveratrine A	10.786	793.4399	$C_{41} H_{63} N O_{14}$	Antihypertensive	[33]
	Gly Gly Asp	11.308	247.0803	$C_8 H_{13} N_3 O_6$	–	–
	Traumatic acid	14.332	228.1361	$C_{12} H_{20} O_4$	Reduces oxidative stress and enhances collagen biosynthesis	[34]
	Gln Thr Ile	16.215	360.1983	$C_{15} H_{28} N_4 O_6$	–	–
	Testosterone Undecanoate	16.242	456.3608	$C_{30} H_{48} O_3$	Anti-hypogonadal	[35]
	PGF2alpha isopropyl ester	16.562	396.2876	$C_{23} H_{40} O_5$	Glaucoma treatment	[36]
	1alpha,25-dihydroxy-26,27-dimethyl-22,22,23,23-tetradehydro-24a-homo-20-epivitamin D3/1alpha,25-di	16.704	454.3452	$C_{30} H_{46} O_3$	Cell differentiation-inducing analogues	[37]
	26,27-Dihomo-1alphahydroxy-24-epivitamin D2	16.884	440.2829	$C_{30} H_{48} O_2$	Intestinal calcium transport, bone calcium mobilization, or skeleton mineralization	[38]
	GPGro(16:0/0:0)[U]	17.598	484.2829	$C_{22} H_{45} O_9 P$	–	–
	Glu Leu Val	18.457	359.2027	$C_{16} H_{29} N_3 O_6$	–	–
	Tyr Val Pro	18.552	377.1935	$C_{19} H_{27} N_3 O_5$	–	–
	N10-Formyltetrahydrofolic Acid	20.245	473.1703	$C_{20} H_{23} N_7 O_7$	Antifolate drug	[39]
	(-)N-(1R-methyl-propyl) arachidonoyl amine	20.416	359.3188	$C_{24} H_{41} N O$	Anandamide transporter inhibitor	[40]
	25-azavitamin D3/25-Azacholecalciferol	20.6	385.3343	$C_{26} H_{43} N O$	–	–
	12beta-Hydroxy-3-oxo-5betacholan-24-oic Acid	21.002	390.2771	$C_{24} H_{38}$ O4	Form of vitamin D3	[41]

2.6. LC-MS analysis

The concentrated methanolic extract was used for LC-MS analysis. Liquid Chromatography and Mass Spectrometer (LC-MS) for the metabolite profiling was carried out at Sophisticated Analysis Instrument Facility (SAIF) IIT Bombay. For this assay Methanol extract used and this suspension allowed for the analysis of LC-MS. For the metabolite profiling, Samples were analyzed by Agilent Technologies with TOF/Q-TOF MASS Spectrometer, Model G6550A. From Column details Hypersil gold 3micron 100 × 2.1 mm, Varian Inc, USA 410 Prostar Binary LC with 500 MS IT PDA Detectors. The mobile phases were 0.1 Formic Acid in water and acetonitrile. The flow rate was 0.300 ml/Min, and the injection volume was 3 μl. The operation parameters were as follows Gas Temperature 250 °C; Gas flow 13 I/Min; Nebulizer 35 psig; V cap 3500; Nozzle voltage 100 V.

2.7. Statistical analysis

The antimicrobial and antioxidant activities were performed in the triplicate and data were subjected to one-way analysis of variance (ANOVA) test using the SPSS statistical software version SPSS 20 for statistical analysis. The data was expressed as mean ± standard error (S.E.) and for significant difference mean were compared by Duncan's multiple range tests at $p < 0.05$ significance level. The student *t*-test was performed to find significant difference between antioxidant activity of standard Gallic acid and fungal extract at $p < 0.05$ significance level.

3. Results

3.1. Identification, authentication and submerged fermentation of fungi

The fungi were successfully isolated from the root of the rice plant. Plates of the isolated fungal culture showed profuse growth when incubated in BOD incubator at 27 °C for 5–7 days. The colony colour ranges from greyish to black in colour with branched mycelial hyphae was observed in the mass. The cylindrical and hyaline colony growth is observed in the culture (Fig. 1). The diameter of the colony mycelium is ranges from 31 × 4 μm in size. Fungal sclerotia were highly irregular and are connected by thick-walled mycelium. The morphological and reproductive characters of fungal isolates have confirmed the fungus species was *Rhizoctonia bataticola*. The fungus specimen was authenticated from NFCCI, Agharkar Research Institute Pune, and it was authenticating as *Rhizoctonia bataticola* (Taubenth.) E. J. Butler Family- Ceratobasidiaceae. The isolated fungus showed proper growth on soybean media. Then culture of *Rhizoctonia* was successfully transferred on the soybean extract liquid medium and showed better growth in the shaker-incubator (Fig. 1). The properly growth mycelium solid biomass was separated and prepared biomass extract was reduced and concentrated under roteva evaporator and resuspended in methanol. This methanolic extracts were used for bioactivities and LC/MS analysis.

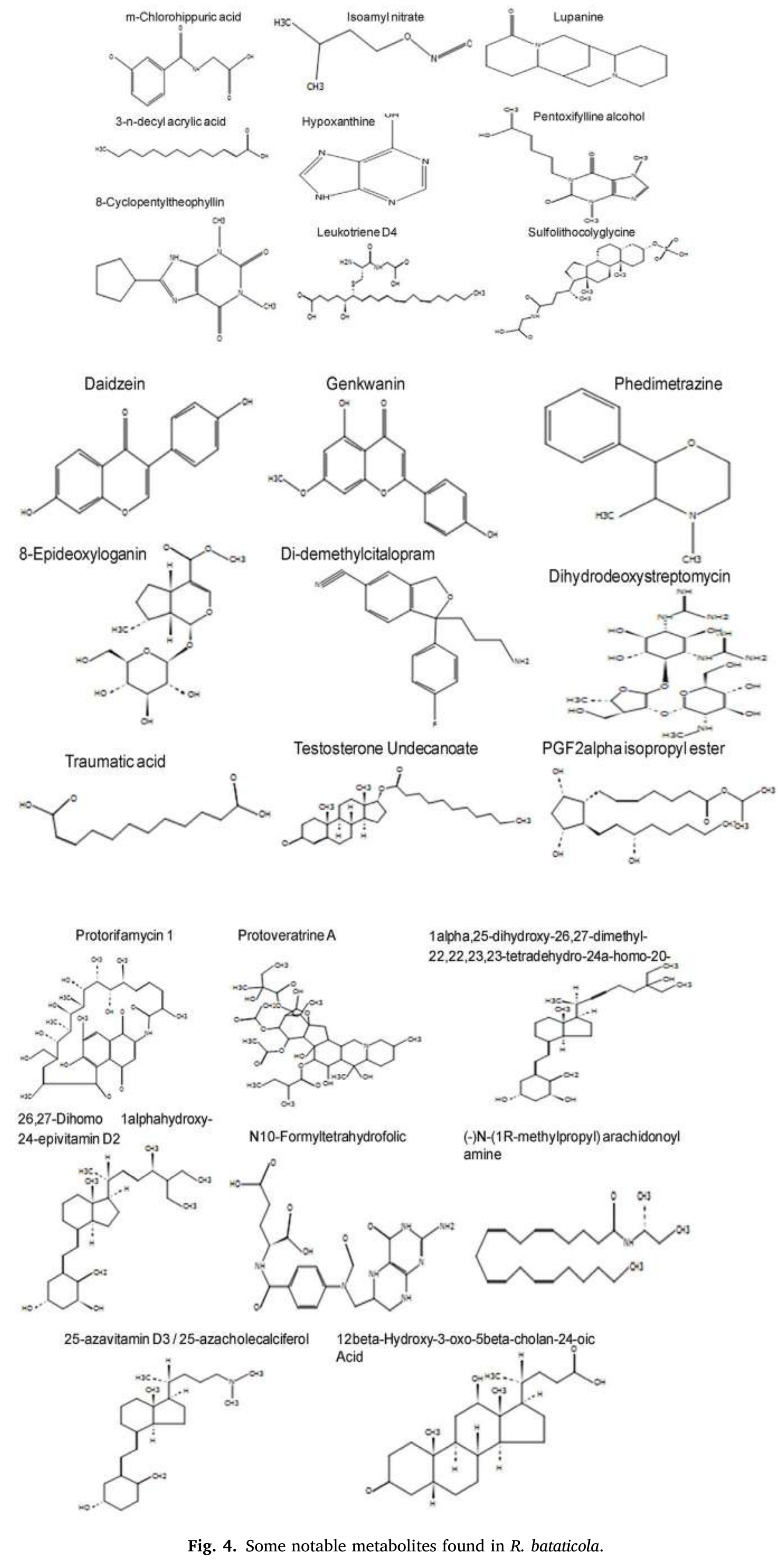

Fig. 4. Some notable metabolites found in *R. bataticola*.

3.2. Antioxidant activity

The Fungal extract shows substantial antioxidant ability than the standard Gallic acid. The significant increased in percentage inhibition was reported while increasing fungal extract concentrations (Fig. 2). The 70 μg/ml fungal extract showed 18.5 ± 0.5% inhibition. In compared to the standard Gallic acid inhibition activity at 10, 20, 30, 40, 50, 60 and 70 μg/ml same concentration of fungal extract reported 56, 6, 2.6, 2.2, 2.1, 2 and 1.9-fold respectively increased in inhibition activity.

3.3. Antimicrobial activity

The result showed that the *Rhizoctonia bataticola* showed strong antibacterial activity against Gram-Positive (*S. aureus*) and Gram-negative (*E. coli*) bacteria (Fig. 3). *Rhizoctonia bataticola* significantly inhibit the growth of *S. aureus and E. coli*. The *Rhizoctonia bataticola* 250 μg/ml extract concentration showed 17.6 ± 0.8 mm in diameter of inhibition zone against *E. coli* and 19 ± 0.5 mm in *S. aureus*. The 100 μg/ml concentration extract showed 14 ± 0.4 mm diameter of inhibition zone against *E. coli* and 13.7 ± 1 mm in *S. aureus* while 50 μg/ml concentrations extract showed 11 ± 0.5 mm diameter of inhibition zone against *E. coli* and 9.7 ± 0.8 mm in *S. aureus.* The increased in concentration of *Rhizoctonia bataticola* extract showed increased in diameter of inhibition zone (Table 1).

3.4. Metabolic profiling of Rhizoctonia bataticola

The concentrated methanolic extracts of *Rhizoctonia bataticola* biomass were used for LC-MS analysis (Supplementary Fig. 1). The extract of *Rhizoctonia bataticola* analyzed by LC-MS showed 33 compounds includes m-Chlorohippuric acid, Isoamyl nitrate, Lupanine, 8-Cyclopentyltheophyllin, Daidzein, Genkwanin, Dihydrodeoxystreptomycin, Protorifamycin 1, Protoveratrine A etc. (Table 2) (Fig. 4). The most of the compounds was well known and reported antimicrobial, sedative, anticancer, antileukemic, cardioprotective, antioxidant, antifungal, antihypertensive etc. activities (Table 2).

4. Discussion

The present study focuses on the characterization of *Rhizoctonia* which associated with the plants and their body contents bioactive compound which could be plays significant role in different type of bioactivities. The *Rhizoctonia bataticola* is isolated from root of the rice plant on PDA Plate. Plates of the isolated fungal culture showed profuse growth when incubated in BOD incubator at 27 °C for 5–7 days. The colony colour ranges from grayish to black in colour with branched mycelial hyphae was observed in the mass. The cylindrical and hyaline colony growth is observed in the culture. The diameter of the colony mycelium is ranges from 31 × 4 μm in size. Fungal sclerotia were highly irregular and are connected by thick-walled mycelium. The various studies on *R. bataticola* reported variability in their growth pattern, growth rate, colony color, mycelia characters, morphology of the sclerotia and sclerotia initiation time [1,12–15]. Therefore, the fungus was also authenticated as *Rhizoctonia bataticola* (Taubenth.) E. J. Butler Family- Ceratobasidiaceae from proper source.

DPPH is the most stable free radical which has the capacity to accept the electron from antioxidant molecules. The anomalous charge on the nitrogen atom in the structure DPPH accepts the proton from antioxidant compounds and widely used to evaluating the antioxidant activity of fungal extract [11]. The antioxidant activity of the *Rhizoctonia bataticola* was carried out and which showed significant result compare with the control. The increased in concentration of fungal extract reports increased in antioxidant activity. The antioxidant activity was also reported in *Rhizoctonia solani* fungal extract and metabolites [16]. In this work we first time reported antioxidant activity of *Rhizoctonia bataticola* fungal extract. This indicates that the *Rhizoctonia* has strong antioxidant ability and also made it survival in the host plant to optimize themselves from the ROS generated by *Rhizoctonia bataticola*.

The antibacterial activity of the sample was tested against *E. coli* and *S. aureus* showed significant zone of inhibition. The increased in concentration of *Rhizoctonia bataticola* extract showed increased in diameter of inhibition zone (Table 1). The antimicrobial potential was also reported in *Rhizoctonia solani* fungal extract and metabolites [8,17]. In this work we first time reported antimicrobial potential of *Rhizoctonia bataticola* fungal extract. Therefore, *Rhizoctonia bataticola* may have a high potential in solving bacterial multi-drug resistance in human pathogenic bacteria.

LC-MS analysis for Metabolite profiling of *Rhizoctonia* showed 33 Compounds and most of them could be the important source of bioactive compounds. This is the first report of analysis of *Rhizoctonia bataticola* and it might be important source of natural compounds. The compounds like Dadezin, Genkwanin, Pentoxifylline alcohol, Dihydrodeoxystreptomycin, 8-Cyclopentyltheophyllin, Protorifamycin 1, Leukotriene D4, Protoveratrine A, Phedimetrazine etc. showed pharmacological properties like antileukemic activity, cardioprotective, anticancer, antifungal activity, antimicrobial activity, antihypertensive, antihypogonadal, and antioxidant [18–26,42,43]. These reported compounds were supported the result of antioxidant and antimicrobial activity of *Rhizoctonia bataticola.*

5. Conclusion and prospects

Therefore, this study suggests bio-prospecting of this fungus for pharmaceutical applications. The further isolation, purification and characterization of identified potent bioactive molecules will pave way for their use for different functionalities. Such information also could be further exploited in crop protection for the production or synthesis of new antifungal agents or for designing selection and genetic engineering programs to obtain more efficient strains of the mycoparasite with improved toxicological profiles.

CRediT authorship contribution statement

Hiralal Sonawane: Conceptualization, Methodology, Formal analysis, Data curation, Writing – original draft, Visualization, Investigation, Supervision, Validation, Writing – review & editing. **Swapnil Ghule:** Methodology, Formal analysis, Data curation, Validation, Writing – original draft, Visualization, Writing – review & editing. **Siddharam Math:** Formal analysis, Visualization, Data curation, Validation, Writing – original draft, Writing – review & editing. **Deepak Shelke:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Ganesh Nikalje:** Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

The authors are thankful to the principal Prof. Ramkrishna More Arts, Commerce and Science College for providing laboratory facility.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.crgsc.2021.100171.

References

[1] M.R. Ratul, H.B. Singh, Rhizoctonia *bataticola*: a serious threat to chickpea production, Int. J. Chem. Stud. 6 (2018) 715–723.

[2] J.R. Parmeter, H.S. Whitney, Taxonomy and nomenclature of the imperfect state, in: J.R. Parmeter Jr. (Ed.), *Rhizoctonia solani*, Biology and Pathology, University of California Press, California, 1970, pp. 7–19.

[3] S.F. Hawang, B.D. Gossen, K.F. Chang, G.D. Turnbull, R.J. Howard, S.F. Blade, Etiology, impact and control of *Rhizoctonia* seedling blight and root rot of chickpea on the Canadian prairies, Can. J. Plant Sci. 83 (2003) 959–967.

[4] S. Savary, A. Nelson, H. Adam, J. Sparks, L. Willocquet, E. Duveiller, G. Mahuku, International agricultural research tackling the effects of global and climate changes on plant diseases in the developing world, Plant Dis. 95 (2011) 1204–1216.

[5] K.A. Aliferis, S. Jabaji, 1H NMR and GC-MS metabolic fingerprinting of developmental stages of *Rhizoctonia solani* sclerotia, Metabolomics 6 (2010) 96–108, https://doi.org/10.1007/s11306-009-0180-4.

[6] S. Katsumata, H. Toshima, M. Hasegawa, Xylosylated detoxification of the rice flavonoid phytoalexin sakuranetin by the rice sheath blight fungus *Rhizoctonia solani*, Molecules 23 (2018) 276, https://doi.org/10.3390/molecules23020276.

[7] M.S.C. Pedras, Y. Yang, J. Liu, A.T.M. Yudelsy, Metabolites produced by the phytopathogenic fungus *Rhizoctonia solani*: isolation, chemical structure determination, syntheses and bioactivity, Z. Naturforsch. 60c (2005) 717–722.

[8] X. Liang, W. Xiao-han, L. Rui-ya, L. Shi-qiong, G. Ze-jian, W. Ming-an, L. Yang, Z. Li-gang, Secondary metabolites of rice sheath blight pathogen *Rhizoctonia solani* Kühn and their biological activities, J. Integr. Agric. 14 (2015) 80–87, https://doi.org/10.1016/S2095-3119(14)60905-9.

[9] Y.M. Ma, Y. Li, J.Y. Liu, Y.C. Song, R.X. Tan, Anti-Helicobacter pylori metabolites from Rhizoctonia sp. Cy064, an endophytic fungus in *Cynodon dactylon*, Fitoterapia 75 (2004) 451–456, https://doi.org/10.1016/j.fitote.2004.03.007.

[10] G. Rangaswami, A. Mahadevan, Disease of Crop Plants in India, Prentice-Hall of India Private Limited Publisher, New Delhi, India, 2004, p. 507.

[11] S.B. Kedare, R.P. Singh, Genesis and development of DPPH method of antioxidant assay, J. Food Sci. Technol. 48 (2011) 412–422, https://doi.org/10.1007/s13197-011-0251-1.

[12] T. Prameela, R.H. Singh, Cultural variation of *Macrophomina phaseolina* isolates collected from *Vigna mungo*, Indian Phytopathol. 51 (1998) 292–293.

[13] O.P. Sharma, R.B.L. Gupta, Fungicides in the control of chickpea dry root rot caused by *Rhizoctonia bataticola*, J. Mycol. Plant Pathol. 34 (2004) 321–322.

[14] S. Meena, R.C. Sharma, R. Sujay, Y. Poonam, S. Lokendra D. Ram, Genetic variability in *Macrophomina phaseolina* incident of charcoal rots of maize in India, Indian Phytopathol. 59 (2006) 453–459.

[15] S. Sundravadana, S. Thirumurugan, D. Alice, Exploration of molecular variability in *Rhizoctonia bataticola*, the incitant of root rot disease of pulse crops, J. Plant Protect. Res. 51 (2011) 184–189.

[16] T. Muhsin, Antibacterial, Antitumor and Antioxidant of Bioactive Compounds Extracted from Secondary Metabolites of the Fungus Rhizoctonia solani Kuhn, in: Qatar Foundation Annual Research Forum Proceedings 1, 2013, https://doi.org/10.5339/qfarf.2013.BIOP-01. BIOP-01.

[17] A.A. Konstantinos, J. Suha, Metabolite composition and bioactivity of *Rhizoctonia solani* sclerotial exudates, J. Agric. Food Chem. 58 (2010) 7604–7615, https://doi.org/10.1021/jf101029a.

[18] K. Ogawa, N. Masahiro, N. Fujio, S. Tohru, I. Taisuke, F. Tozo, L.I. Purines, Synthesis and biological activity of hypoxanthine 7-N-oxide and related compounds, Chem. Pharm. Bull. 40 (1992) 612–616.

[19] B. Liang, K.A. Jacobson, Physiological role of the adenosine A3 receptor: sustained cardioprotection, Proc. Natl. Acad. Sci. U. S. A 95 (1998) 6995–6999, https://doi.org/10.1073/pnas.95.12.6995.

[20] P. Foti, D. Erba, P. Riso, A. Spadafranca, F. Criscuoli, G. Testolin, Comparison between daidzein and genistein antioxidant activity in primary and cancer lymphocytes, Arch. Biochem. Biophys. 433 (2005) 421–427.

[21] D. Cheng, Amyl Nitrites: a review of history, epidemiology, and behavioral usage, J. Stu. Res. 2 (2013) 17–21.

[22] H.N. Patel, B.B. Baldaniya, Synthesis, characterizations and antimicrobial activity of oxazolidinone and imidazolidinone derivatives, IJSRST 3 (2017) 211–2016.

[23] H. Pan, H. Wang, Y. Yu, B. Cheng, X. Wang, Y. Li, A superior preparation method for daidzein-hydroxypropyl-β-cyclodextrin complexes with improved solubility and dissolution: supercritical fluid process, Acta Pharm. 67 (2017) 85–97, https://doi.org/10.1515/acph-2017-0005.

[24] Y. Li, J. Hong, H. Li, X. Qi, Y. Guo, M. Han, X. Wang, Genkwanin nanosuspensions: a novel and potential antitumor drug in breast carcinoma therapy, Drug Deliv. 24 (2017) 1491–1500, https://doi.org/10.1080/10717544.2017.1384519.

[25] S. Pawar, V. Kalyankar, B. Dhamangaonkar, S. Dagade, Biochemical profiling of antifungal activity of Betel leaf (*Piper betle* L.) extract and its significance in traditional medicine, J. Adva. Res. Biotech. 2 (2017) 4.

[26] K. Whitfield, A. Rambaldi, J. Wetterslev, C. Gluud, Pentoxifylline for alcoholic hepatitis, Cochrane Database Syst. Rev. 4 (2009), CD007339, https://doi.org/10.1002/14651858.CD007339.pub2.

[27] Y.J. Kim, S.Y. Jeon, Y.H. Kim, J. Shin, J. Yun, K. Han, H.K. Park, H.S. Kim, H.J. Cha, Dopaminergic effects of isobutyl nitrite, Isoamyl nitrite and butyl nitrite, J. Chem. Pharmaceut. Res. 9 (2017) 96–102.

[28] J. Pothier, S.L. Cheav, N. Galand, C. Dormeau, C. Viel, A comparative study of the effects of sparteine, lupanine and lupin extract on the central nervous system of the mouse, J. Pharm. Pharmacol. 50 (1998) 949–954, https://doi.org/10.1111/j.2042-7158.1998.tb04013.x.

[29] W.L. Van, S.W. Koppe, E.M. Brunt, J. Gottstein, K. Gardikiotes, R.M. Green, M.E. Rinella, Pentoxifylline for the treatment of non-alcoholic steatohepatitis: a randomized controlled trial, Ann. Hepatol. 10 (2011) 277–286.

[30] P. Borgeat, P.H. Naccache, Biosynthesis and biological activity of leukotriene B4, Clin. Biochem. 23 (1990) 459–468, https://doi.org/10.1016/0009-9120(90)90272-V.

[31] N.N. Bouzaiene, C. Fadwa, S. Aicha, C. Leila, G. Kamel, Effect of apigenin-7-glucoside, genkwanin and naringenin on tyrosinase activity and melanin synthesis in B16F10 melanoma cells, Life Sci. 144 (2016) 80–85.

[32] E. Solis, J. Suyama, M. Lazenka, L.J. DeFelice, S.S. Negus, B.E. Blough, M.L. Banks, Dissociable effects of the prodrug phendimetrazine and its metabolite phenmetrazine at dopamine transporters, Sci. Rep. 6 (2016) 31385, https://doi.org/10.1038/srep31385.

[33] R.C. Gupta, Reproductive and Developmental Toxicology, second ed., Academic Press, 2017, pp. 1409–1446, https://doi.org/10.1016/B978-0-12-804239-7.18001-1.

[34] A. Jabłońska-Trypuć, W. Pankiewicz, R. Czerpak, Traumatic acid reduces oxidative stress and enhances collagen biosynthesis in cultured human skin fibroblasts, Lipids 51 (2016) 1021–1035, https://doi.org/10.1007/s11745-016-4174-5.

[35] P. Franchimont, P.M. Kicovic, A. Mattei, R. Roulier, Effects of oral testosterone undecanoate in hypogonadal male patients, Clin. Endocrinol. 9 (1978) 313–320, https://doi.org/10.1111/j.1365-2265.1978.tb02216.x.

[36] J.W. Stjernschantz, From PGF2α-isopropyl ester to latanoprost: a review of the development of xalatan, the proctor lecture, Invest. Ophthalmol. Vis. Sci. 42 (2001) 1134–1145.

[37] T. Fujishima, L. Zhaopeng, K. Konno, K. Nakagawa, T. Okano, K. Yamaguchi, H. Takayama, Highly potent cell differentiation-inducing analogues of 1alpha,25-dihydroxyvitamin D3: synthesis and biological activity of 2-methyl-1,25-dihydroxyvitamin D3 with side-chain modifications, Bioorg. Med. Chem. 9 (2001) 525–535, https://doi.org/10.1016/s0968-0896(00)00267-4.

[38] K.L. Perlman, J.M. Prahl, C. Smith, A. Kutner, H.F. DeLuca, 26,27-Dihomo-1 alpha-hydroxy- and 26,27-dihomo-24-epi-1 alpha,25-dihydroxyvitamin D2 analogs that differ markedly in biological activity in vivo, J. Biol. Chem. 269 (1994) 24014–24019.

[39] Pubchem, National center for biotechnology information, PubChem Database. CID=135450591, accessed on, https://pubchem.ncbi.nlm.nih.gov/compound/10-formyltetrahydrofolate. (Accessed 22 July 2020).

[40] J. Kamei, Y. Yoshikawa, A. Saitoh, Effect of N-arachidonoyl-(2-methyl-4-hydroxyphenyl) amine (VDM11), an anandamide transporter inhibitor, on capsaicin-induced cough in mice, Cough 2 (2006) 2, https://doi.org/10.1186/1745-9974-2-2.

[41] D.D. Bikle, Vitamin D metabolism, mechanism of action, and clinical applications, Chem. Biol. 21 (2014) 319–329.

[42] H. Sonawane, S. Arya, V. Ghole, K. Apte, D. Shelke, M. Chaskar, Hypoglycemic and anticataract activity of crude exopolysaccharides of medicinal mushroom *Phellinus badius* on streptozotocin-induced diabetic rats and goat eye lenses respectively, Bioact. Carbohydr. Dietary Fibre 24 (2020), 100241.

[43] H. Sonawane, S. Arya, S. Math, D. Shelke, Myco-synthesized silver and titanium oxide nanoparticles as seed priming agents to promote seed germination and seedling growth of *Solanum lycopersicum*: a comparative study, Int. Nano Lett. (2021) 1–9.

[44] S. Arya, H. Sonawane, S. Math, P. Tambade, M. Chaskar, D. Shinde, Biogenic titanium nanoparticles (TiO_2NPs) from *Tricoderma citrinoviride* extract: synthesis, characterization and antibacterial activity against extremely drug-resistant Pseudomonas aeruginosa, Int. Nano Lett. 11 (1) (2021) 35–42.

[45] S. Arya, M. Sharma, R. Das, J. Rookes, D. Cahill, S. Lenka, Vanillin mediated green synthesis and application of gold nanoparticles for reversal of antimicrobial resistance in Pseudomonas aeruginosa clinical isolates, Heliyon 5 (7) (2019), e02021.

SHST
Horticulture and Forestry Society of Transylvania

More KC *et al.* (2022)
Notulae Scientia Biologicae
Volume 14, Issue 1, Article number 11098
DOI:10.15835/nsb14111098
Research Article

NSB
Notulae Scientia Biologicae

GC-MS analysis and antioxidant potential of wild underutilized medicinally important legume, velvet bean (*Mucuna pruriens* L. DC.)

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Abstract

Mucuna pruriens (L). DC is one of the most promising wild underutilized medicinal legume belonging to family Fabaceae. It is used in ayurvedic as well as various traditional systems of medicine. This plant was widely utilized in treatment of various disorders. Also, it is a rich source of nutrients as well as used as a flavouring agent in bakery industry. The present study was aimed to investigate leaves and seeds antioxidant potential by DPPH assay and phytochemicals by preliminary phytochemical screening and Gas Chromatography-Mass Spectroscopy (GC-MS) analysis in five different solvents. Highest antioxidant activity was found to be 76.96% in seeds extracted with ethanol and 72.50% in leaves extracted with petroleum ether. While preliminary phytochemical screening revealed presence of alkaloids, flavonoids, phenols, tannins, saponins, glycosides, steroids and terpenoids. GC-MS analysis revealed twenty-four and thirty bioactive compounds from the leaves and seeds respectively and it was solvent specific. Antioxidant, antifungal, antimicrobial, anti-malarial, anti-diabetic, anti-cancerous, and hypocholesterolemic properties have been reported to compounds which were found in present study. However, reported bioactive compounds highlight its nutritional importance and validate the use of the plant to cure various disorders by traditional practitioners. While the antioxidant potential and phytochemical investigations will direct their potential for utilization and applicability as a nutraceutical.

Keywords: antioxidants; GC-MS; *Mucuna pruriens*; phytochemicals

Introduction

Herbal remedies were used to treat various diseases from ancient times. The phytoconstituents derived from natural sources create an attention for researchers due to their potential use in therapeutic treatment (Bhusare *et al.*, 2021a). In recent days huge amounts of synthetic medicines are explored but traditional remedies are gaining popularity day by day. Also, structural complexity makes chemical synthesis of important metabolite an unviable option, and makes plants the only source (Bhusare *et al.*, 2021b). However, the

Received: 21 Oct 2021. Received in revised form: 24 Nov 2021. Accepted: 31 Jan 2022. Published online: 10 Feb 2022.
From Volume 13, Issue 1, 2021, Notulae Scientia Biologicae journal uses article numbers in place of the traditional method of continuous pagination through the volume. The journal will continue to appear quarterly, as before, with four annual numbers.

alternative eco-friendly herbal medicines are gaining huge attention due to ease of availability and their potential benefits (Philomena, 2011; Sahoo and Manchikant, 2013). The plant derived phytoconstituents classified into two categories like primary and secondary metabolites depending upon their role and properties. The primary metabolite includes amino acids, proteins, lipids and carbohydrates etc. which play an important role in growth and development of plants (Jan *et al.*, 2021). Whereas, the secondary metabolites *viz* alkaloids, essential oils, flavonoids, tannins, terpenoids, saponins, phenolic compounds, cardiac glycosides playing crucial role in plant defence mechanism against different stresses like biotic and abiotic stress (Edeoga *et al.*, 2005). Moreover, these primary metabolites act as an important food source for growth and development of human being and secondary compounds have been used as medicines, flavourings, or relaxing drugs in human life (Savithramma *et al.*, 2011; Umdale *et al.*, 2020; Umdale *et al.*, 2021; Sonawane *et al.*, 2021). The biotic and abiotic factors significantly influencing crop plants leads to radical decreases in crop production (Shelke *et al.*, 2017). On the other hand, ever increasing global population increases food demand day by day. To accomplish global food demands, wild plants gain popularity as an important food source (Duguma, 2020). Wild plants have higher abiotic and biotic stress resistance than cultivated crop plants and also a rich source of nutrients (Nikalje *et al.*, 2019). Moreover, these plants have a traditional history of their utilization as a food. Noteworthy there utilization along with cultivated crop plants helps to realize the global nutritional food demands.

A) B)

Figure 1. A) Flowering twig and B) seeds of *Mucuna pruriens* (L). DC

The *Mucuna pruriens* (L). DC is one of the most promising medicinal plants used in the ayurvedic system, and in various traditional medicinal systems of different countries (Simmons, 2018; Lampariello *et al.*, 2012). It is commonly known as velvet bean and belongs to the family Fabaceae (Figure 1) (Mishra and Wagner, 2006). This plant possesses vital applications such as sedative, to relieve urinary tract infections, treatment of chest complaints, to treat snake bite intoxication and used in flavouring agent in cakes, sweet breads and candy (Devhade *et al.*, 2015). Also, it is a rich source of nutrients (Shanmugavel and Krishnamoorthy, 2018). It was utilized as a herbal drug to treat male infertility and nervous disorders (Lampariello *et al.*, 2012). This plant is also utilized for treatment of Parkinson's disease (PD) (Longhi *et al.* 2011). There are many reports on neurodegenerative diseases including PD causes due to lack of antioxidants. Noteworthy, free radicals generated in cells cause more than forty-five different diseases (Tripathi and Upadhyay, 2002). However, various plants are a rich source of antioxidants. The various metabolites from plants are mainly associated with antioxidant activity and have medicinal significance. Therefore, the present investigation aims to reveal metabolites from wild underutilized medicinally important legume *Mucuna pruriens* (L.) DC. leaves and seeds and their bioactive potential for medicinal significance.

Materials and Methods

Collection of plant material

The plant material of *Mucuna pruriens* (L.) DC. was collected from Sant Gadge Baba Amravati University Campus, Amravati (M.S) India. According to the phonological calendar the frequent visits were made to field habitat for collection of samples.

Identification of plant material

Identification of plant material was done with the help of standard flora; The Flora of British India, Flora of Amravati District (Hooker, 1875; Dhore, 1986). The herbarium specimens were prepared for individual plants and submitted to the Department of Botany, Sant Gadge Baba Amravati University, Amravati.

Sample preparation

The dry pods and fresh leaves were collected from *Mucuna pruriens* (L.) DC. Further seeds were removed from dry pods. The immature and infected or having diseased condition seeds were sorted out. The fresh and clean seeds were cut into small pieces by using a knife and small pieces of seeds were grind by electric mixture grinder. Further grind seeds and fresh leaves were crushed in liquid nitrogen. Prepared leaves and seeds powder were stored in an airtight plastic container and preserved in the refrigerator for further experimentation.

Extraction

The 10-gram powder was filled in the thimble (made up of filter paper) and extracted successively with petroleum ether, chloroform, acetone, ethanol, and methanol solvent in 180 ml for 24 hours using Soxhlet extraction assembly. The temperature of the apparatus was maintained at the boiling point for each solvent. The extractions were carried out using above different solvents with specific characteristics and in order of increasing values of their polarity. The obtained extracts were filtered through Whatman filter paper no.42 for free and clear extract. These extracts were evaporated and concentrated up to 10 ml. The resultant 10 ml extract was again filtered and stored in small sterile airtight bottles at 4 °C temperatures in the refrigerator.

Evaluation of Antioxidant activity by DPPH

A stable free radical DPPH (1, 1-diphenyl-2-picrilhydrazyl) was used to calculate the antioxidant activity, the effect of test samples on DPPH radical was estimated according to the procedure described by Von Gadow *et al.* (1997). A 50 µl sample (10 mg ml^{-1}) was reacted with 2 ml of 0.06 Mm DPPH (HiMedia, India) prepared in methanol solution. The decrease in absorbance at 515 nm was continuously recorded in a spectrophotometer for 16 minutes at room temperature. The methanolic solution of standard ascorbic acid was tested at 10 mg/ml concentration. The percentage of DPPH radical scavenging ability of the sample was calculated from the absorbance value at the end of 16 min duration. All determinations were performed in triplicate. The percentage inhibition of the DPPH radical by the samples was calculated according to the formula of Yen and Duh (1994).

Inhibition percentage = [(AC (0) - AA (t)/ AC(0))] × 100

Where: AC (0) is the absorbance of the control at t = 0 min;

AA (t) is the absorbance of the antioxidants at t = 16 min.

Preliminary phytochemical screening

The preliminary phytochemical screening was performed for all the extracts as per standard method (Peach and Tracy, 1955; Harborne, 1998; Tiwari *et al.*, 2011) for testing the different chemical groups such as alkaloids, flavonoids, phenol, tannins, glycosides, saponins, terpenoids and steroids present in petroleum ether, chloroform, acetone, ethanol, methanol and water extracts. For every chemical group two tests were selected for confirming their presence in the above solvent extract. Alkaloids detected by Mayer's reagents and Wagner reagents test, phenols detected by ferric chloride and lead acetate test, terpenoids and steroids were detected by using Salkowski test, tannins were detected by gelatine and lead acetate test, flavonoids detected by alkaline and lead acetate test, glycoside were detected by using killer-killani and sodium hydroxide test, saponin detection were performed by froth and foam test. All these tests were performed with six different solvent extracts obtained from each powder sample.

*Gas Chromatography-Mass Spectroscopy (*GC-MS*) analysis*

The extracts derived from five different solvents viz. petroleum ether, chloroform, acetone, ethanol, and methanol were worked out at Department of Sophisticated Analytical Instrument Facility (SAIF), Indian Institute of Technology (IIT) Bombay, Powai, Mumbai, Maharashtra, India. The aliquots (2 µl) were analysed using the GC–MS system (Agilent technologies 7880) equipped with the HP5 column (30 mm length, 0.25 mm I.D., 0.32 µ film thickness). The helium was used as a carrier gas with 1 ml min^{-1} flow rate. Injector temperature was set at 100 °C. The oven temperature was programmed from 50 °C to 280 °C at 10 °C/ minute to 200 °C then 10 °C /3 minute to 250 °C ending with a 5-minute isothermal at 280 °C. The sample was injected in split mode as 50:1. The electron ionization and detector were used to obtain mass spectra (MS) of compounds at 70eV.

Identification of compounds

The identification of compounds was based on retention time, fragmentation patterns along with these m/z values. The mass spectra of the unknown compound obtained from sample extract by GC-MS were matched with mass spectra of the known compounds stored in the database of National Institute Standard and Technology (NIST) library. Their structures were defined by the percent (%) similarity values and the name, molecular weight, molecular formula and structure of the compounds were identified. The biological activity was determined by comparing with Dr. Duke's Phytochemical and Ethno-botanical database (Duke's, 2013). For quantitative analysis the relative quantity of each compound was calculated by formula as follows (https://www.nist.gov/).

$$\text{The relative quantity of compounds} = \frac{chromatographic\ peak\ area\ of\ each\ compound}{total\ peak\ area\ of\ all\ chromatographic\ peaks} \times 100$$

Statistical analysis

The antioxidant activities were performed in the triplicate and data were subjected to one-way analysis of variance (ANOVA) test using the SPSS statistical software version SPSS 20 for statistical analysis. The data was expressed as mean ± standard error (S.E.). The mean was compared by Duncan's multiple range tests for significant difference between various solvent at $p < 0.05$ significance level. While student t tests were performed to find significant difference between leaves and seeds antioxidant activity at $p < 0.05$ significance level (Bhusare *et al.*, 2018). Principal component analyses (PCA) were done using the PAST statistical package (Manker *et al.*, 2021). PCA was performed to visualize metabolites difference among used solvents.

Results and Discussion

The awareness about the biological activities of herbal medicines is increasing day by day owing to its cost effectiveness and lesser side effects. Herbal medicines are found to be safer than synthetic medicines because the phytochemicals in the plant extracts targets the biochemical pathways (Philomena, 2011; Sahoo and Manchikant, 2013; Moreira *et al.*, 2014). The medicinal plant species have been used all over the world for the treatment and prevention of various ailments. Medicinal plants are also known to have antioxidants and antimicrobial compounds that can be utilised for sustained resistance of existing antibiotics (Verpoorte, 1998; Kasote *et al.*, 2015; Casagrande *et al.*, 2018). It is now very well understood that each and every part of the plants possesses one or the other natural constituent having an impact of medicinal values (Savithramma *et al.*, 2011; Zia-Ul-Haq *et al.*, 2012; Jahanban-Esfahlan *et al.*, 2019). Similarly, in the present study, leaf and seed extracts of *Mucuna pruriens* exhibited potential free radical scavenging activity. The various compounds act as antioxidants and play an important role to control free radicals generated in cells due to various chemical reactions (Longhi *et al.*, 2011). These generated free radicals can cause 45 different diseases in humans (Tripathi and Upadhyay, 2002; Kehrer and Klotz, 2015; Phaniendra *et al.*, 2015). Plants are an important source of antioxidants which control the free radicals. However, maximum antioxidant activity of *Mucuna pruriens* in the form of percentage of inhibition were exhibited and it was found to be 76.96% in seeds extracted with ethanol, followed by 72.50% in leaves extracted with petroleum ether (Figure 2). Similarly, 54.49% and 43.08% of inhibition were observed in methanolic and chloroform extract of *Mucuna pruriens* leaves respectively, the moderate antioxidants scavenging potential observed in seed extracts were found to be 63.38% in petroleum ether, 32.53% in acetone extracts.

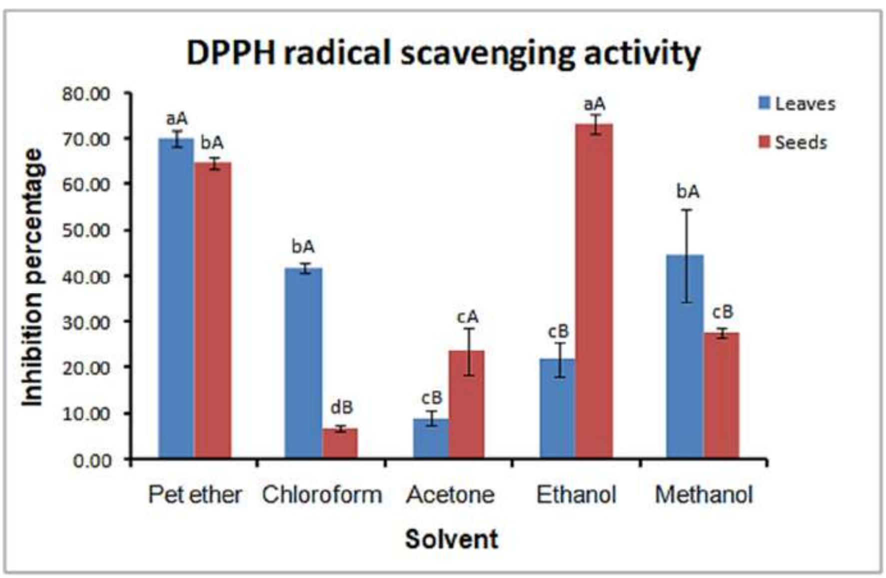


Figure 2. The DPPH radical scavenging activity of leaves and seeds extracts of *Mucuna pruriens* (L.) DC
The small letter on error bars denotes the significant difference between various solvents and capital letter denotes significant difference between leaves and seeds at significance level 0.05.

The preliminary phytochemical screening of leaves and seed extracts of *Mucuna pruriens* revealed the presence of different phytoconstituents and it was found to be variable in different solvents (Tables 1 and 2). The leaves and seed extracted in six different solvents namely petroleum ether, chloroform, acetone, ethanol, methanol and water have shown presence of alkaloids, flavonoids, phenols, tannins, saponins, glycosides, steroids and terpenoids. However, the leaves extracted in ethanol and methanol show significant results for flavonoids, phenols, tannins, saponins and glycosides. With the exception of saponins, steroids and terpenoids, other phytoconstituents like flavonoids, phenols, tannins and glycosides were also observed in ethanolic and methanolic seed extracts. Likewise, Dhawan and Gupta (2017) studied the comparison of different solvents for phytochemical extraction potential from leaves of *Datura metel*. All these phytochemicals derived from leaves were also observed in aqueous extracts except phenols and glycosides. Seeds extracted with water also showed the presence of alkaloids, flavonoids, phenols, tannins and saponins. The leaves extracted with ethanol and acetone has not shown the presence of alkaloids in preliminary screening. However, seed extracted with acetone showed presence of flavonoids, phenols, tannins, glycosides, steroids and terpenoids. The common secondary metabolites which were considered in preliminary phytochemical screening are not observed in petroleum ether and chloroform extracts of leaves but seeds extracted in petroleum ether and chloroform showed presence of tannins, saponins, steroids and terpenoids. The plants synthesized secondary metabolites are the important source for pharmaceutical industries (Revathi *et al.*, 2014; Kabera *et al.*, 2014; Phaniendra *et al.*, 2015).

Table 1. Preliminary phytochemical screening of leaves extracts of *Mucuna pruriens* (L.) DC.

Phyto-chemicals	Phytochemical test	Solvents					
		Pet. Ether	Chloro-form	Acetone	Ethanol	Methanol	Water
Alkaloids	Mayers reagents	-	-	-	-	+	++
	Wagner reagent	-	-	-	-	+	++
Flavonoids	Alkaline reagent	-	-	+	+++	+++	++
	Lead acetate	-	-	++	++	++	++
Phenols	Ferric chloride	-	-	+	+++	+++	-
	Lead acetate	-	-	+	+++	+++	++
Tannins	Gelatine	-	-	-	++	++	+
	Lead acetate	-	-	+	+++	+++	+++
Saponins	Froth	-	-	-	++	++	+++
	Foam	-	-	-	++	++	+++
Glycosides	Sod. hydroxide	-	-	++	+++	++	-
	Killer Killani	-	-	+	++	+++	-
Steroids	Salkowski	-	-	-	+	+	++
Terpenoids	Salkowski	-	-	-	+	+	+++

(+++) = Highly present, (++) = Moderately Present, (+) = Present, (-) = Absent

Table 2. Preliminary phytochemical screening of seeds extracts of *Mucuna pruriens* (L.). DC.

Phyto-chemicals	Phytochemical tests	Solvents					
		Pet. Ether	Chloro-form	Acetone	Ethanol	Methanol	Water
Alkaloids	Mayers reagents	-	-	-	+	+	++
	Wagner reagent	-	-	-	+	+	++
Flavonoids	Alkaline reagent	-	-	+	++	+++	++
	Lead acetate	-	-	+	++	++	++
Phenols	Ferric chloride	-	-	+	+++	++	++
	Lead acetate	-	-	+	+++	++	++
Tannins	Gelatine	+	-	+	++	++	++
	Lead acetate	+	-	+	++	++	+++
Saponins	Froth	+	+	-	-	-	+++
	Foam	+	+	-	-	-	+++
Glycosides	Sod. hydroxide	-	-	+	+++	++	-
	Killer Killani	-	-	+	++	++	-
Steroids	Salkowski	+	+	+	-	-	-
Terpenoids	Salkowski	+	+	+	-	-	-

(+++) =Highly present, (++) = moderately present, (+) = present, (-) = absent

The mass spectrum derived from GC-MS was interpreted by using the database of National Institute Standard and Technology (NIST). The mass spectrum of observed unknown compounds was identified with the spectrum of known components of the NIST library. The bioactive principles along with their retention time (RT), relative percentage (%), class, molecular formula, molecular weight (MW) and biological activities are presented in (Tables 3 and 4) and chromatogram in Figures 3 and 4. From the observations it was revealed that the phytoconstituents extracted in five different solvents showed bioactive potential.

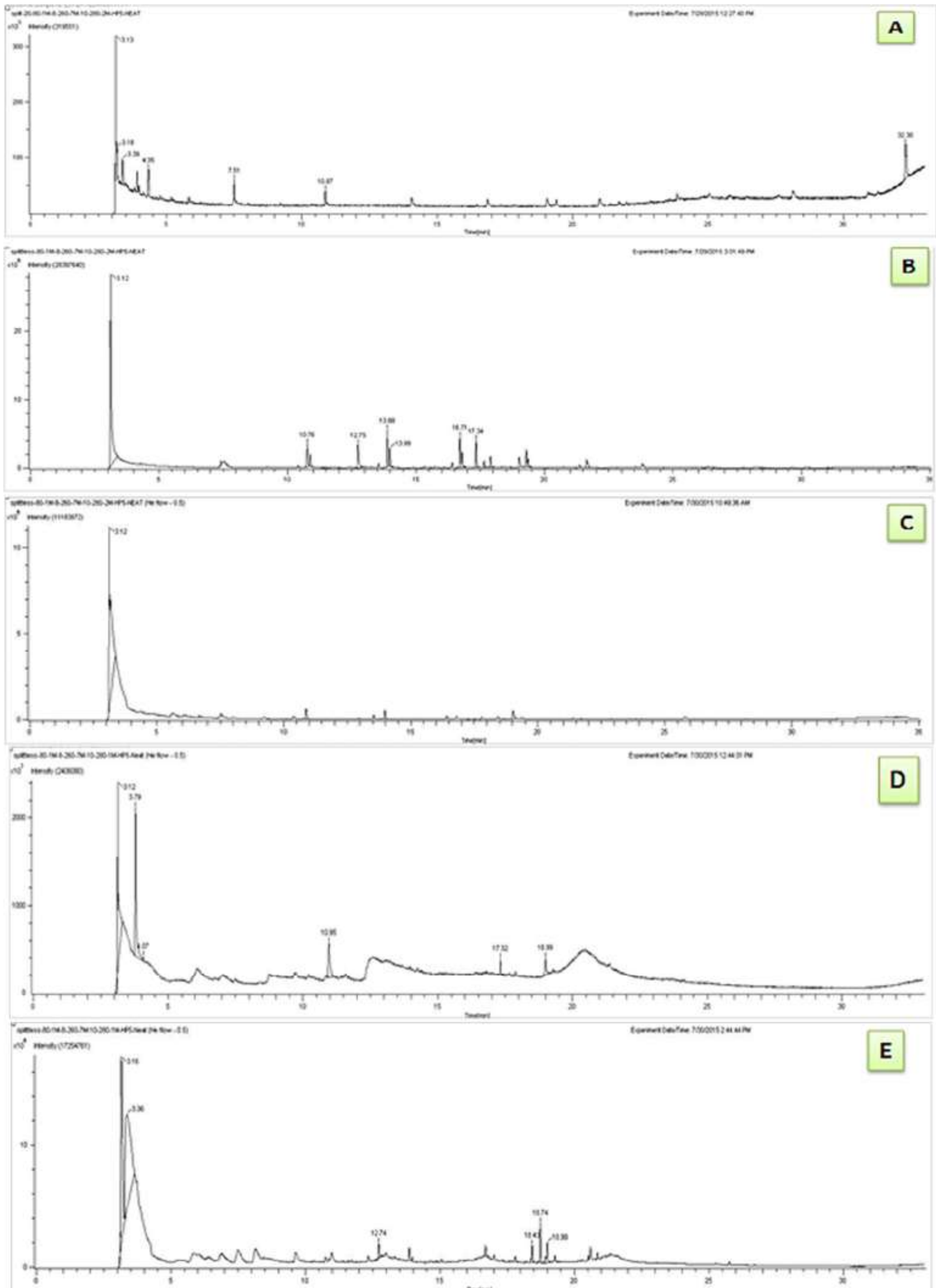


Figure 3. Gas Chromatography-Mass Spectrometry (GC-MS) chromatograms of A) petroleum ether B) chloroform C) acetone D) ethanol E) methanol leaves extract.

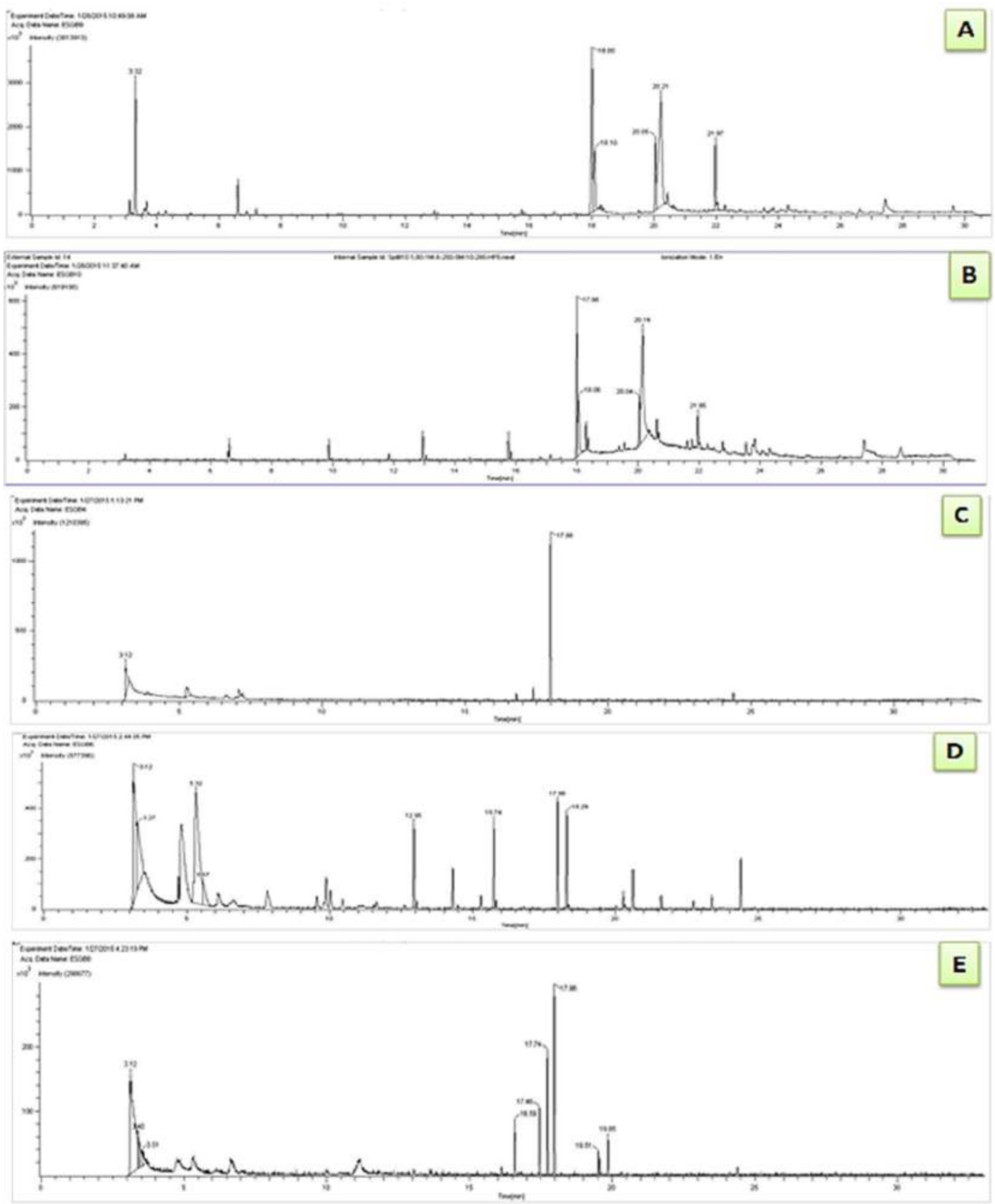


Figure 4. Gas Chromatography-Mass Spectrometry (GC-MS) chromatograms of A) petroleum ether B) chloroform C) acetone D) ethanol E) methanol seeds extract

Leaves methanolic extract were showed 2.25% of Benzenepropanoic acid, 3,5-bis (1, 1-dimethylethyl)-4-hydroxy-methyl ester compound has antioxidant, antibacterial and antifungal potential (Bashir *et al.*, 2012) which were also reported in *Azadiracta indica* leaves extracted in hexane (Akpuaka *et al.*, 2013; Airaodion *et al.*, 2019). 1-Tetradecene found in *Mucuna pruriens* leaves chloroform extract showed 5.34% with anti-tuberculosis and antifungal potential as per earlier investigation in *Croton bonplandianum* leaves extracted in chloroform (Kalaivani *et al.*, 2013). Tetradecane extracted in chloroform from leaves of *Mucuna pruriens* were found to be 2.60% and in acetone extract 3.94 with antioxidant, antimicrobial and preservative properties earlier reported in *Azadiracta indica* leaves extracted in hexane (Akpuaka *et al.*, 2013; Airaodion *et al.*, 2019).

Phenol 2,4-bis[1,1-dimethyl ethyl] present in chloroform leaves extract of *Mucuna pruriens* contained 6.11% and methanol extract 2.05% with antioxidant and antimicrobial properties as reported in fungus *Monochaetia kansensis* by Yogeswari *et al.* (2012). 1-Hexadecene observed in chloroform leaves extracts of *Mucuna pruriens* where 2.97% is an antibacterial agent observed in fungus *Monochaetia kansensis* by Yogeswari *et al.* (2012). Nonadecane obtained from chloroform leaves extracts of *Mucuna pruriens* showed 2.93% with antioxidant properties previously observed in *Epiphyllum oxypetalum* leaves alcoholic extract (Dandekar, 2015). Hexadecane identified in leaves acetone extracts of *Mucuna pruriens* were 2.63% identified as antioxidant and antimicrobial compounds reported in hexane extract of Malaysian red algae by Zakaria *et al.* (2011). 9,12,15-Octadecatrienoic acid methyl ester derived from *Mucuna pruriens* leaves methanolic extract contained 1.55% as a potent anti-inflammatory anti-arthritic, anti-coronary, cancer preventive significance (Ganesh and Mohankumar, 2017). Compound obtained from leaves extracted in petroleum ether are 2-Phenyl-hex-5-en-5-ol (3.20%), Guanidine, methyl (10.80%), Benzamide, N-[2-[4-[[5-[3,3-dimethyloxiranyl]-4-hydroxy-3-methyl-2 pentenyl]oxy]phenyl]ethyl] (15.83%), 2,4,5-Trihydroxypyrimidine (7.30%), Nonane (5.16%) possess remarkable therapeutic potential like antioxidant, antimicrobial, antidiabetic, antiviral, antiinflamatory and antifungal activity. In addition ethanolic extracts revealed the occurrence of 4-Methyl [trimethylene] silyloxyoctane (3.94%), α -D-Glucopyranoside, O-α-D-glucopyranosyl-[1,fwdarw3]-β-D-fructofuranosyl (2.63%) with preservative potential previously reported in ethanolic extract of whole plant shade dried *Mussaenda frondosa* (Gopalkrishanan and Vadivel, 2011). Benzofuran, 2, 3-dihydro (3.14%) found in methanolic extract showed antioxidant and anti-inflammatory properties also mentioned in *Burguiera cylindrica* leaves extracted in ethanol (Revathi *et al.*, 2014).

Table 3. Bioactive compounds identified in different solvent extract of *Mucuna pruriens* (L.). DC. leaves

S.N.	RT	Phytochemicals	Rel. %	Class	MF	MW	Biological activity
Petroleum ether							
1	3.18	2-phenyl-hex-5-en-3-ol	3.20	Phenol	$C_{12}H_{16}O$	176	Not reported
2	3.39	Guanidine, methyl	10.80	Purine base	$C_2H_7N_3$	73	Anticancer, Antibiotic, Anti-diabetic (Saczewski and Balewski, 2009)
3	3.93	Acetic acid, sodium salt	12.14	Carboxy-Licacid	$C_2H_3NaO_2$	82	Antibacterial, Antifungal, Antioxidant (Sallam, 2007)
4	4.35	Benzamide,N-[2-[4-[5-[3,3-dimethyloxiranyl]-4-hydroxy -3-methyl-2-pentenyl]oxy] phenyl]ethyl	15.83	Amine	$C_{25}H_{31}NO_4$	409	Not reported
5	7.51	2,4,5-Trihydroxypyrimidine	7.30	Amine	$C_4H_4N_2O_3$	128	Antioxidant, Antimicrobial (Milanović *et al.*, 2020; Olayinka *et al.*, 2015)
6	10.87	Nonane	5.16	Alkane	C_9H_{20}	122	Not reported
Chloroform							
7	7.39	1-Dodecene	0.98	Alkene	$C_{12}H_{24}$	168	Antioxidant, Antimicrobial (Sallam, 2007)
8	10.76	1-Tetradecene	5.34	Alkene	$C_{14}H_{28}$	196	Antifungal, Antituberculosis (Kalaivani *et al.*, 2013)
9	10.88	Tetradecane	2.60	Alkane	$C_{14}H_{30}$	198	Antioxidant, Antimicrobial (Akpuaka *et al.*, 2013; Faridha Begum *et al.*, 2016)

10	12.75	Phenol 2,4-bis[1,1-dimethyl ethyl]	6.11	Alkylate Phenol	$C_{14}H_{22}O$	206	Antioxidant, Antimicrobial (Yogeswari *et al.*, 2012)
11	13.99	1-Hexadecene	2.97	Alkene	$C_{16}H_{32}$	224	Antibacterial (Zakaria *et al.*, 2011)
12	16.80	Nonadecane	2.93	Alkane	$C_{19}H_{14}$	268	Antioxidant (Dandekar, 2015)
13	21.64	1-Docosene	2.76	Alkene	$C_{22}H_{44}$	308	Antioxidant, Antimicrobial (Golubović *et al.*, 2014)
Acetone							
14	3.17	2-Pentanone,4-hydroxy-4-methyl	35.52	Ketone	$C_6H_{12}O_2$	116	Not reported
15	10.87	Tetradecane	3.94	Alkane	$C_{14}H_{30}$	198	Antioxidant, Antimicrobial (Akpuaka *et al.*, 2013; Faridha Begum *et al.*, 2016)
16	13.98	Hexadecane	2.63	Alkane	$C_{16}H_{34}$	226	Antimicrobial, Antioxidant (Faridha Begum *et al.*, 2016)
Ethanol							
17	3.79	2-2-Dimethyl butanedioic acid	35.52	Carboxy-licAcid	$C_6H_{10}O_4$	146	Not reported
18	10.95	4-Methyl [trimethylene] silyloxyoctane	3.94	Silicon Ether	$C_6H_{26}OSi$	214	Not reported
19	17.33	ά -D-Glucopyranoside, O-ά- D glucopyranosyl [1,fwdarw3]-β-D fructofuranosyl	2.63	Sugar	$C_{18}H_{32}O_{16}$	504	Not reported
Methanol							
20	3.36	2-Pentanone.4-methoxy-4-methyl	47.12	Ketone	$C_7H_{14}O_2$	130	Not reported
21	8.15	Benzofuran.2-3-dihydro	3.14	Coum-arine	C_8H_8O	120	Antioxidant, Anti-inflammatory (Andiappan *et al.*, 2017)
22	12.73	Phenol 2,4-bis[1,1-dimethyl ethyl]	2.05	Phenol	$C_{14}H_{22}O$	206	Antioxidant, Antimicrobial (Faridha Begum *et al.*, 2016)
23	18.73	Benzenepropanoic acid. 3.5-bis(1,1-dimethylethyl) -4-hydroxy–methyl ester	2.25	Ester	$C_{18}H_{28}O_3$	292	Antibacterial, Antifungal (Bashir *et al.*, 2012)
24	20.59	9,12,15-octadecatrienoic acid methyl ester	1.55	Fatty acid	$C_{19}H_{32}O_2$	292	Anti-arthritic, Cancer, preventive (Ganesh and Mohankumar, 2017)

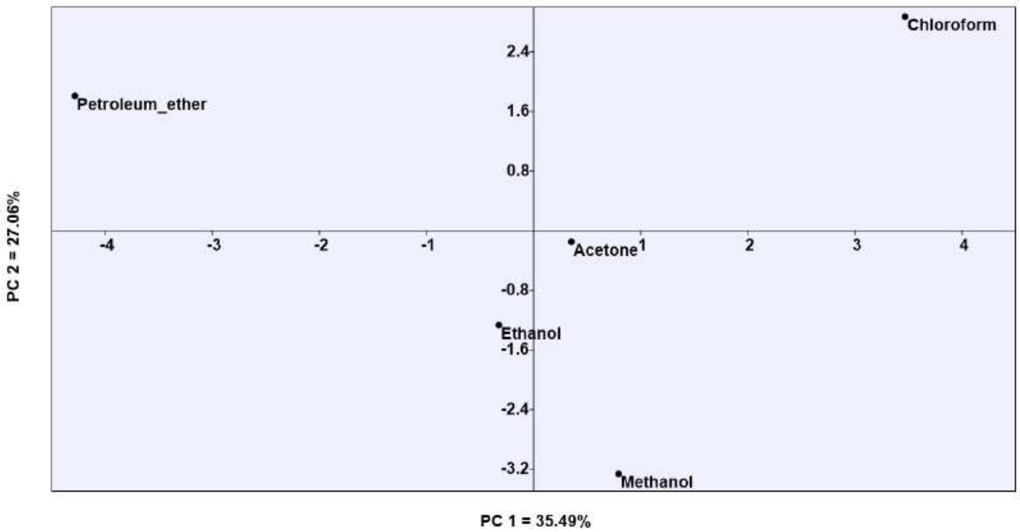
RT= Retention Time, **Rel%** =Relative Percent, **MF** =Molecular Formula, **MW** = Molecular Weight

Table 4. Bioactive compounds identified in different solvent extract of *Mucuna pruriens* (L.). DC. Seeds

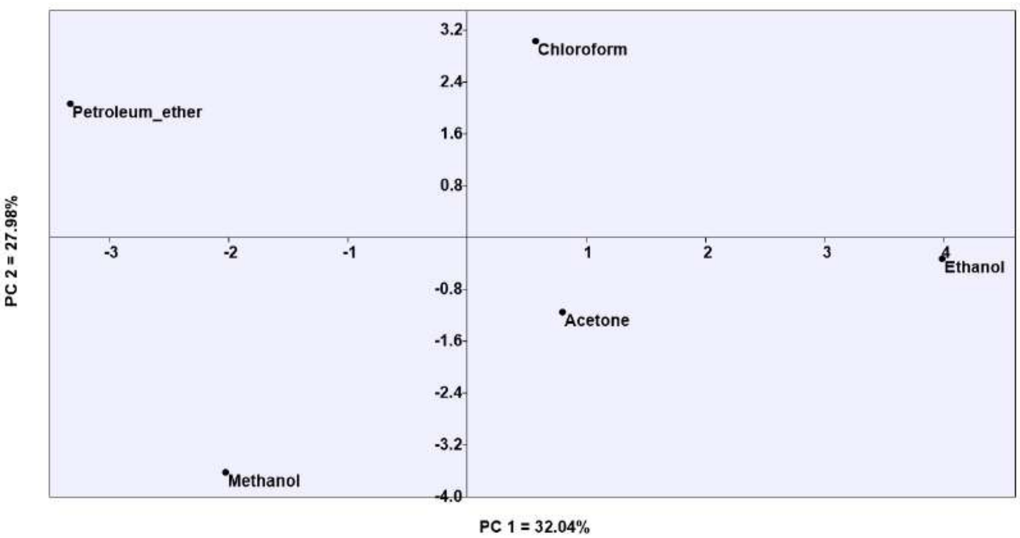
S.N.	RT	Phytochemicals	Rel%	Class	MF	MW	Activity
Petroleum ether							
1	3.32	Oxalic acid cyclohexyl pentyl ester	13.37	Carbo-xylic	$C_{13}H_{22}O_4$	242	Antioxidant, Antibacterial (Devhade *et al*., 2015)
2	6.61	Azulene	3.93	Aromatic hydro-carbon	$C_{10}H_8$	128	Antioxidant, Antimicrobial (Shanmugavel and Krishnamoorthy, 2018)
3	18.10	n-Hexadecanoic acid	11.28	Fatty acid	$C_{16}H_{32}O_2$	256	Antibacterial, Antifungal (Devhade *et al*., 2015)
4	20.05	Decanamide,N-[2-hydroxy ethyl]	7.92	Amine	$C_{12}H_{25}NO_2$	215	Anticonvul-sant (Chandrasekaran *et al.* 2011)
5	20.21	9,12-octadecadienoic acid[zz]	39.08	Fatty acid	$C_{18}H_{32}O_2$	280	Antioxidant, Cancer Preventive (Lampariello *et al.* 2012)
6	21.97	Octanamide,N-[2-hydroxy ethyl]	7.12	Amine	$C_{10}H_{21}NO_2$	187	No reported
Chloroform							
7	6.61	Azulene	3.37	Aromatic hydro-carbon	$C_{10}H_8$	128	Antioxidant, Antibacterial (Shanmugavel and Krishnamoorthy, 2018)
8	12.94	Oxalic acid, allyldodecyl ester	4.32	Carbo-xylic acid	$C_{17}H_{30}O_4$	298	No reported
9	15.74	Oxalic acid, allyltridecyl ester	4.29	Carbo-xylic acid	$C_{18}H_{32}O_4$	312	No reported
10	18.06	n-Hexadecanoic acid	5.71	Fatty Acid	$C_{16}H_{32}O_2$	256	Antioxidant, Antimicrobial (Devhade *et al*., 2015)
11	20.04	Valeric acid,3-tridecyl ester	9.35	Carbo-xylic acid	$C_{18}H_{36}O_2$	298	No reported
12	20.14	1-octadecyne	19.08	Alkyne	$C_{18}H_{34}$	250	No reported
13	23.80	β-Tocopherol	3.39	Vitamin E	$C_{28}H_{48}O_2$	416	Antioxidant, Antimicrobial (Syeda *et al*., 2011)
Acetone							
14	5.26	2-Cyclohexen-1-one, 3,5-dimethyl	10.65	Cyclic alkene	$C_8H_{12}O$	124	Not reported
15	7.09	1H-Pyrazole,4,5-dihydro-5,5-dimethyl-4-isopropylidene	4.60	Aromatic amine	$C_8H_{14}N_2$	138	No reported
16	7.20	5-Methyl-1-heptanol	2.02	Alcohol	$C_8H_{18}O$	130	Antimicrobial (Mannaa and Kim, 2018)
17	24.38	1,2-Benzenedicarboxylic acid, mono(2-ethylhexyl) ester	2.23	Carbo-xylic acid	$C_{16}H_{22}O_4$	278	Antioxidant, Anticancer, Antidiabetic (Pietro *et al*., 2010; Bagavathi and Ramasamy, 2012; Balachandran *et*

							al., 2012)
Ethanol							
18	4.84	Propane,1,1,3-triethoxy	2.89	Ether	$C_9H_{20}O_3$	176	No reported
19	5.30	2-Cyclohexen-1-one, 3,5-dimethyl	9.90	Cyclic alkene	$C_8H_{12}O$	124	Not reported
20	12.95	Oxalic acid, allyldodecyl ester	6.62	Fatty acid	$C_{17}H_{30}O_4$	298	No reported
21	14.31	2-Buten-1-one,1-(2,2,5a -trimethylperhydro-1 -benzoxiren-1-yl)	3.58	Ketone	$C_{13}H_{20}O_2$	208	No reported
22	15.74	Oxalic acid, allyltridecyl ester	6.88	Fatty acid	$C_{18}H_{32}O_4$	312	No reported
23	18.29	Pentadecanoic,2,6,10,14-tetramethyl-,methyl ester	8.45	Fatty acid	$C_{20}H_{40}O_2$	312	Antibacterial (Nurettin *et al.*, 2006)
24	23.38	Fumaric acid, 2dimethylaminoethyl heptyl ester	1.33	Carbo-xylic	$C_{15}H_{27}NO_4$	285	No reported
25	24.39	1,2-Benzenedicarboxylic acid, mono (2-ethylhexyl) ester	4.44	Carboxy lic Acid	$C_{16}H_{22}O_4$	278	Antioxidant, Anticancer, Antidiabetic (Pietro *et al.*, 2010; Bagavathi and Ramasamy, 2012; Balachandran *et al.*, 2012)
Methanol							
26	3.12	2-Pentanone.4-methoxy-4-methyl	47.64	Ketone	$C_7H_{14}O_2$	130	No reported
27	16.59	Benzoic acid,3,4dimet oxy- , 4-[ethyl[2-[4-methoxy phenyl]-1,methylethyl]amino]but yl ester	4.67	Aromatic acid	$C_{25}H_{35}NO_5$	429	Antimicrobial and preservative (Revathi *et al.*, 2014)
28	17.46	Tridecanoic acid, methyl ester	5.27	Fatty acid	$C_{14}H_{28}O_2$	228	Antioxidant, Antibacterial (Devhade *et al.*, 2015)
29	17.74	Benzene propanoic acid,3,5,bis [1,1-dimethyethyl]-4 hydroxy, methyl ester	9.11	Aromatic acid	$C_{18}H_{28}O_3$	292	Antibacterial Antifungal (Bashir *et al.*, 2012)
30	19.85	Octadecanoic acid methyl ester	1.77	Acid	$C_{19}H_{38}O_2$	294	Antioxidant, Antimicrobial, (Edeoga *et al.*, 2005)

RT= Retention Time, **Rel%** =Relative Percent, **MF**= Molecular Formula, **MW** = Molecular Weight.



(A)



(B)

Figure 5. Principal component analysis of metabolites reported in (A) leaves and (B) seeds various solvent extracts

The seeds petroleum ether extract shows presence of 9, 12-octadecadienoic acid [zz] with 39.08% having antioxidant anti-cancerous and hypocholesterolemic potential as earlier recorded in GC-MS analysis of *Cassia italica* leaf methanol extract by Sermakkani and Thangarpandia (Sermakkani and Thangarpandia, 2012). Oxalic acid cyclohexyl pentyl ester (13.37%) shows antioxidant and antibacterial properties, η-Hexadecanoic acid constituted 11.28% possess antibacterial and antifungal activity (Hema *et al.*, 2011). Moreover, seeds chloroform extracts contain 5.71%, with antioxidant, antifungal, hypocholesterolemic, antimicrobial, anti-malarial, haemolytic and nematicidal properties (Hema *et al.*, 2011; Pietro *et al.*, 2010). Decanamide, N-(2-hydroxyethyl) obtained from petroleum ether extracts was found to be 7.92% with anticonvulsant potential; Pentadecanoic acid, 2,6,10,14-tetramethyl- methyl ester was obtained from seeds ethanolic extract contained 6.93% and 8.45% respectively with antioxidant, antimicrobial and antifungal properties (Chandrasekaran *et al.* 2011). 1, 2-Benzene dicarboxylic acid, mono (2-ethylhexyl) ester (4.44%) identified in seeds ethanolic extracts paying crucial role in therapeutic treatments as antifungal, anti-retroviral, antidiabetic, anti cancerous, antioxidant, antimicrobial and anti-inflammatory agents (Bagavathi and Ramasamy, 2012; Balachandran *et al.*, 2012; Phaniendra *et al.*, 2015; Airaodion *et al.*, 2019). Tridecanoic acid methyl ester (5.27%) reported as antibacterial, antifungal and antioxidant potential, Octadecanoic acid methyl ester (1.77%) derived from seeds methanolic extract shows antimicrobial, antifungal and antifungal agent (Chandrasekaran *et al.*, 2011). Azuline (3.37) and beta-tocopherol (3.39) belong to seed chloroform extract showing antioxidant and antifungal properties (Venkata Raman *et al.* 2012). The seeds methanolic extracts showed presence of Benzoic acid,3,4-dimethoxy-4-[ethyl[2-[4-methoxyphenyl]-1-methylethyl]amino]butyl (4.67%) having antimicrobial and preservative potential (Revathi *et al.*, 2014). The Benzenepropanoic acid, 3,5-bis (1, 1-dimethylethyl)-4-hydroxy-methyl ester (9.11%) compound also reported in seed methanolic extract has antioxidant, antibacterial and antifungal potential which were also reported in *Azadirachta indica* leaves extracted in hexane (Akpuaka *et al.*, 2013; Airaodion *et al.*, 2019).

Principal component analyses were performed to visualize the metabolites variation in leaves and seeds under various solvents (Figure 5). PCA analysis revealed that PC 1 accounted 35.49% and 32.04% variance and the PC 2 27.06% and 27.98% variance in leaves and seeds respectively. Each solvent lies apart from each other on PCA plot of leaves and seeds revealed solvent dependent metabolites variations. However, different metabolites were reported in various solvent extracts showed solvent specific extraction of metabolites (Dhawan and Gupta, 2017). In the present investigation; majority of promising phytoconstituents was been identified in leaves and seeds; the biological properties of which could not be ascertained they are 2-2-Dimethyl butanedioic acid (35.52%), 4-Methyl [trimethylene] silyloxyoctane (3.94%), 2-Pentanone.4-methoxy-4-methyl (47.12%), Octanamide, N-[2-hydroxy ethyl] (7.12%), Oxalic acid, allyldodecyl ester (4.32%), Oxalic acid, allyltridecyl ester (4.29%), Valeric acid,3-tridecyl ester (9.35%), 1-octadecyne (19.08%), 2-Cyclohexen-1-one, 3,5-dimethyl (10.65%), 1H-Pyrazole,4,5-dihydro-5,5-dimethyl-4-isopropylidene (7.09%), Propane,1,1,3-triethoxy (2.89%), 2-Cyclohexen-1-one, 3,5-dimethyl (9.90%), Oxalic acid, allyldodecyl ester (6.62%), 2-Buten-1-one,1-(2,2,5a-trimethylperhydro-1-benzoxiren-1-yl) (3.58%), Oxalic acid, allyltridecyl ester (6.88%), Fumaric acid, 2dimethylaminoethyl heptyl ester (1.33%). However, these compounds were also reported in various plants (Dhawan and Gupta, 2017; Casagrande *et al.*, 2018; Airaodion *et al.*, 2019).

Conclusions

The phytoconstituents derived from leaves and seeds extracts showed various biological properties. From the present study it was revealed that the leaves and seeds of *Mucuna pruriens* (L). DC. are one of the key sources for nutraceutical and various bioactive compounds. The phytochemical profiling revealed bioactive potential of *Mucuna pruriens* (L). DC. leaves and seeds. However, further purification of compounds and compound specific biological activity study is in need to explore its medicinal applicability for mankind. It is also necessary to develop a proper cultivation protocol for their better utilization.

Authors' Contributions

KCM: Designed the experiments, analysed the data and finalized the manuscript, DBS: Analysed data and prepared draft manuscript, ST: Performed the experiments, collected and analysed the data, PG: Analysed data and prepared draft manuscript, HBS: Analysed data and prepared draft manuscript: All authors read and approved the final manuscript.

Ethical approval (for researches involving animals or humans)

Not applicable.

Acknowledgements

The authors are thankful to the Department of Sophisticated Analytical Instrument Facility (SAIF), Indian Institute of Technology (IIT) Bombay, Powai, Mumbai and Department of Botany, Sant Gadge Baba Amravati University, Amravati (M.S.) India for providing laboratory facilities to carry out the experiments.

Conflict of Interests

The authors declare that there are no conflicts of interest related to this article.

References

Airaodion AI, Olatoyinbo PO, Ogbuagu U, Ogbuagu EO, Akinmolayan JD, Adekale OA, Airaodion EO (2019). Comparative assessment of phytochemical content and antioxidant potential of *Azadirachta indica* and *Parquetina nigrescens* leaves. Asian Plant Research Journal 1-14. *https://doi.org/10.9734/aprj/2019/v2i330045*

Akpuaka A, Ekwenchi MM, Dashak DA, Dildar A (2013). Biological activities of characterized isolates of n-hexane extract of *Azadirachta indica* A. Juss (Neem) leaves. Natural Sciences 11:141-147.

Andiappan L, Rajendran S, Vediappen P (2017). Synthesis and biological evaluation of new benzofuran carboxamide derivatives. Journal of Saudi Chemical Society 21:277-285. *https://doi.org/10.1016/j.jscs.2015.06.008*

Bagavathi PE, Ramasamy N (2012). GC-MS analysis of phytocomponents in the ethanol extract of *Polygonum chinense* L. Pharmacognosy Research 1(4):11-14. *https://doi.org/10.4103/0974-8490.91028*

Balachandran C, Lakshmi RS, Duraipandiyan V, Ignacimuthu S (2012). Antimicrobial activity of *Streptomyces* sp. (ERI-CPDA-1) isolated from oil contaminated soil from Chennai, India. Bioresource Technology 129.

Bashir A, Ibrar K, Shumaila B, Sadiq A (2012). Chemical composition and antifungal, phytotoxic, brine shrimp cytotoxicity, insecticidal, and antibacterial activities of the essential oils of *Acacia modesta*. Journal of Medicinal Plants Research 6:4653-4659. *https://doi.org/10.5897/JMPR12.016*

Bhusare BP, Ahire ML, John CK, Nikam TD (2021a). *Uraria picta*: A comprehensive review on evidences of utilization and strategies of conservation. Journal of Phytology 13:41-47. *https://doi.org/10.25081/jp.2021.v13.7028*

Bhusare BP, John CK, Bhatt VP, Nikam TD (2021b). Colchicine induces tetraploids in in vitro cultures of *Digitalis lanata* Ehrh.: Enhanced production of biomass and cardiac glycosides. Industrial Crops and Products 174:114167. *https://doi.org/10.1016/j.indcrop.2021.114167*

Bhusare BP, John CK, Bhatt VP, Nikam TD (2018) In vitro propagation of *Digitalis lanata* Ehrh. through direct shoot regeneration A source of cardiotonic glycosides. Industrial crops and products 121:313-319. *https://doi.org/10.1016/j.indcrop.2018.05.019*

Casagrande M, Zanela J, Júnior AW, Busso C, Wouk J, Iurckevicz G, Malfatti CRM (2018). Influence of time, temperature and solvent on the extraction of bioactive compounds of *Baccharis dracunculifolia*: *In vitro* antioxidant activity, antimicrobial potential, and phenolic compound quantification. Industrial Crops and Products 125:207-219. *https://doi.org/10.1016/j.indcrop.2018.08.088*

Chandrasekaran M, Senthilkumar A, Venkatesalu V (2011). Antibacterial and antifungal efficacy of fatty acid methyl esters from the leaves of *Sesuvium portulacastrum* L. European Review for Medical and Pharmacological Sciences 15:775-780.

Dandekar R, Fegade B, Bhaskar VH (2015). GC-MS analysis of phytoconstituents in alcohol extract of *Epiphyllum oxypetalum* leaves. Journal of Pharmacognosy and Phytochemistry 4:149-154.

Devhade JB, Kalwaghe SS, Devade MJ (2015). *Mucuna nivea* DC. A member of Fabaceae: Preliminary phytochemical analysis. The Pharma Innovation Journal 4:96-98.

Dhawan D, Gupta J (2017). Research article comparison of different solvents for phytochemical extraction potential from *Datura metel* plant leaves. International Journal of Biological Chemistry 11(1):17-22. *https://doi.org/10.3923/ijbc.2017.17.22*

Dhore MA (1986). Flora of Amravati District With special reference to the distribution of free species, PH. D Thesis, PUB (2002) Amravati University, Amravati.

Duke's (2013). Phytochemical and ethno botanical databases, phytochemical and ethnobotanical databases. *www.ars-gov/cgi-bin/duke/*

Duguma HT (2020). Wild edible plant nutritional contribution and consumer perception in Ethiopia. International Journal of Food Science 2958623:16. *https://doi.org/10.1155/2020/2958623*

Edeoga HO, Okwu DE, Mbaebie BO (2005). Phytochemical constituents of some Nigerian medicinal plants. African Journal of Biotechnology 4:685-688. *https://doi.org/10.5897/AJB2005.000-3127*

Faridha Begum I, Mohankumar R, Jeevan M, Ramani K (2016). GC-MS Analysis of bio-active molecules derived from *Paracoccus pantotrophus* FMR19 and the antimicrobial activity against bacterial pathogens and MDROs. Indian Journal of Microbiology 56:426-432. *https://doi.org/10.1007/s12088-016-0609-1*

Ganesh M, Mohankumar M (2017). Extraction and identification of bioactive components in *Sida cordata* (Burm. f.) using gas chromatography-mass spectrometry. Journal of Food Science and Technology 54:3082-3091. *https://doi.org/10.1007/s13197-017-2744-z*

Golubović T, Palić R, Kitić D, Stojanović G, Zlatković B, Ristić M, Pavlović D (2014). Composition, antioxidant and antimicrobial activities of methanol extracts of some *Acinos miller* species. Natural Product Communications 9:731-735. *https://doi.org/10.15835/nbha48111782*

Gopalkrishanan S, Vadivel E (2011). GC-MS analysis of some bioactive constituents of *Mussaenda frondosa* L. International Journal of Pharma and Bio Sciences 2:313-320.

Harborne JB (1998). Phytochemical Methods A Guide to Modern Techniques of Plant Analysis, 1st edn. Chapman and Hall; London, UK.

Hema R, Kumaravel S, Alagusundaram (2011). GC/MS determination of bioactive components of *Murraya koenigii*. Journal of American Science 7:1.

Hooker JD (1875). The flora of British India. Nature 12:3-5. *https://doi.org/10.1038/012003a0*

Jahanban-Esfahlan A, Ostadrahimi A, Tabibiazar M, Amarowicz R (2019). A comparative review on the extraction, antioxidant content and antioxidant potential of different parts of walnut (*Juglans regia* L.) fruit and tree. Molecules 24(11):2133. *https://doi.org/10.3390/molecules24112133*

Kabera JN, Semana E, Mussa AR, He X (2014). Plant secondary metabolites: biosynthesis, classification, function and pharmacological properties. Journal of Pharmacy and Pharmacology 2(7):377-392.

Kalaivani MK, Bhavana J, Sumathy A (2013). GC-MS analysis of chloroform extract of *Croton bonplandianum*. International Journal of Pharma and Bio Sciences 4:613-617.

Kasote DM, Katyare SS, Hegde MV, Bae H (2015). Significance of antioxidant potential of plants and its relevance to therapeutic applications. International Journal of Biological Sciences 11(8):982. *https://doi.org/10.7150/ijbs.12096*

Kehrer JP, Klotz LO (2015). Free radicals and related reactive species as mediators of tissue injury and disease: implications for health. Critical Reviews in Toxicology 45(9):765-798. *https://doi.org/10.3109/10408444.2015.1074159*

Lampariello LR, Cortelazzo A, Guerranti R, Sticozzi C, Valacchi G (2012). The magic velvet bean of *Mucuna pruriens*. Journal of Traditional and Complementary Medicine 2(4):331-339. *https://doi.org/10.1016/s2225-4110(16)30119-5*

Longhi JG, Perez E, José de Lima J, Cândido LMB (2011). *In vitro* evaluation of *Mucuna pruriens* (L.) DC. antioxidant activity. Brazilian Journal of Pharmaceutical Sciences 47:3. *https://doi.org/10.1590/S1984-82502011000300011*

Mankar GD, Wayase UR, Shelke DB, Raskar KB, Nikam TD, Barmukh RB (2021b). Time-dependent determinative biochemical traits for salt tolerance mechanism in mungbean (*Vigna radiata* (L.) R. Wilczek). Journal of Experimental Biology and Agricultural Sciences 9(2):152-171. *http://dx.doi.org/10.18006/2021.9(2).152.171*

Mannaa M, Kim KD (2018). Biocontrol activity of volatile-producing *Bacillus megaterium* and *Pseudomonas protegens* against *Aspergillus* and *Penicillium* spp. predominant in stored rice grains: Study II. Mycobiology 46:52-63. *https://doi.org/10.1080/12298093.2018.1454015*

Milanović Z, Tošović J, Marković S, Marković Z (2020). Comparison of the scavenging capacities of phloroglucinol and 2,4,6-trihydroxypyridine towards $HO^{\cdot}$ radical: a computational study. RSC Advance 10:43262-43272. *https://doi.org/10.1039/D0RA08377A*

Mishra L, Wagner H (2006). Lipid derivatives from *Mucuna pruriens* seeds. Indian Journal of Chemistry 45: 801-804.

Moreira DDL, Teixeira SS, Monteiro MHD, De-Oliveira ACA, Paumgartten FJ (2014). Traditional use and safety of herbal medicines. Revista Brasileira de Farmacognosia 24:248-257. *https://doi.org/10.1016/j.bjp.2014.03.006*

Nikalje GC, Shelke DB, Yadav K, Suprasanna P (2019). Halophytes: prospective plants for future. Hasanuzzaman M *et al.* (Eds). Ecophysiology, Abiotic Stress Responses and Utilization of Halophytes. *https://doi.org/10.1007/978-981-13-3762-8_10*

Nurettin Y, Canan G, Osman U, Ahmet Y, Serdar U, Kamil C, Salih T (2006). Composition and antimicrobial activities of volatile components of *Minuaritia meyeri*. Turkish Journal of Chemistry 30:70-76.

Olayinka OA, Jessica TI, Taiwo FO, Anuoluwa AA (2015). Exploration of the chemistry and biological properties of pyrimidine as a privilege pharmacophore in therapeutics. International Journal of Biological Chemistry 9:148-177. *https://doi.org/10.3923/ijbc.2015*

Peach K, Tracy MV (1955). Modern Methods of Plant Analysis. Springer-Verlag, Heidelberg.

Phaniendra A, Jestadi DB, Periyasamy L (2015). Free radicals: properties, sources, targets, and their implication in various diseases. Indian journal of clinical biochemistry 30(1):11-26. *https://doi.org/10.1007/s12291-014-0446-0*

Philomena G (2011). Concerns regarding the safety and toxicity of medicinal plants an overview. Journal of Applied Pharmaceutical Science 1:40-44.

Pietro Z, Maurizio S, Maurizio B, Antonella M, Sergio R, Carmen F, Felice S (2010). Essential oil composition of stems and fruits of *Caralluma europaea* N.E.Br. (Apocynaceae). Molecules 15:627-638.
https://doi.org/10.3390/molecules15020627

Revathi P, Jeyaseelansenthinath T, Thirumalaikolundhusubramaian P (2014). Preliminary phytochemical screening and GC-MS analysis of ethanolic extract of mangrove plant-*Bruguiera cylindrica* (rhizho) L. International Journal of Pharmacognosy and Phytochemical Research 6:729-740.

Saczewski F, Balewski Ł (2009). Biological activities of guanidine compounds. Expert Opinion on Therapeutic Patents 19:1417-1448. *https://doi.org/10.1517/13543770903216675*

Sahoo N, Manchikant P (2013). Herbal drug regulation and commercialization: an Indian industry perspective. Journal of Alternative and Complementary Medicine 19:957-963. *https://doi.org/10.1089/acm.2012.0275*

Sallam KI (2007). Antimicrobial and antioxidant effects of sodium acetate, sodium lactate, and sodium citrate in refrigerated sliced salmon. Food Control 18:566-575. *https://doi.org/10.1016/j.foodcont.2006.02.002*

Savithramma N, LingaRao M, Suhrulatha D (2011). Screening of medicinal plants for secondary metabolites. Middle-East Journal of Scientific Research 8:579-584.

Sermakkani M, Thangarpandia V (2012). GC-MS analysis of *Cassia italica* leaf methanol extract. Asian Journal of Pharmaceutical and Clinical Research 5:90-94.

Shanmugavel G, Krishnamoorthy G (2018). Nutraceutical and phytochemical investigation of *Mucuna pruriens* seed. The Pharma Innovation Journal 7:273-278.

Shelke DB, Pandey M, Nikalje GC, Zaware BN, Suprasanna P, Nikam TD (2017). Salt responsive physiological, photosynthetic and biochemical attributes at early seedling stage for screening soybean genotypes. Plant Physiology and Biochemistry 118:519-528. *https://doi./org/10.1016/j.plaphy.2017.07.013*

Simmons AD (2018). Parkinson's Disease. Rakel D (Ed). Integrative Medicine (Fourth Edition). Elsevier, pp 143-151. *https://doi.org/10.1016/B978-0-323-35868-2.00015-3*

Sonawane H, Ghule S, Math S, Shelke D, Nikalje G (2021). *Rhizoctonia bataticola*: From plant pathogen to a potential source of pharmaceutically relevant metabolites. Current Research in Green and Sustainable Chemistry 4:100171. *https://doi.org/10.1016/j.crgsc.2021.100171*

Syeda FA, Habib-Ur R, Choudahry MI, Atta-Ur-Rahman (2011). Gas chromatography-mass spectrometry (GC-MS) analysis of petroleum ether extract (oil) and bioassays of crude extract of *Iris germanica*. International Journal of Genetics and Molecular Biology 3:95-100.

Tiwari P, Kumar B, Kaur M, Kaur G, Kaur H (2011). Phytochemical screening and extraction: A Review. Internationale Pharmaceutica Sciencia 1:98-106.

Tripathi YB, Upadhyay AK (2002). Effect of the alcohol extract of the seeds of *Mucuna pruriens* on free radicals and oxidative stress in albino rats. Phytotherapy Research 16:534-538. *https://doi.org/10.1002/ptr.962*

Umdale S, Ahire M, Aiwale V, Jadhav A, Mandada P (2020). Phytochemical investigation and antioxidant efficacy of wild, underutilized berries of economically important Indian Sandalwood (*Santalum album* L.). Biocatalysis and Agricultural Biotechnology 27:101705. *https://doi.org/10.1016/j.bcab.2020.101705*

Umdale S, Mahadik R, Otari P, Gore N, Mundad P, Ahire M (2021). Phytochemical composition, and antioxidant potential of *Frerea indica* Dalz.: A critically endangered, endemic and monotypic genus of the Western Ghats of India. Biocatalysis and Agricultural Biotechnology 35:102060. *https://doi.org/10.1016/j.bcab.2021.102080*

Venkata Raman B, La S, Pardha SM, Narashimha Rao B, Naga Vamsi Krishna A, Sudhakar M, Radhakrishnan TM (2012). Antibacterial, antioxidant activity and GC-MS analysis of *Eupatorium odoratum.* Asian Journal of Pharmaceutical and Clinical Research 5:99-106.

Verpoorte R (1998). Exploration of nature's chemo diversity: the role of secondary metabolites as leads in drug development. Drug Discovery Today 3:232-238.

Von Gadow A, Joubert E, Hansmann CF (1997). Comparison of antioxidant activity of aspalathin with that of other plant phenols of Rooibosed tea (Aspalathonlinearis), α-tocopherol, BHT and BHA. Journal of Agricultural and Food Chemistry 45:632-638. *https://doi.org/10.1021/jf960281n*

Yen GC, Duh PD (1994). Scavenging effect of methanolic extracts of peanut hulls on free-radical and active-oxygen species. Journal of Agricultural and Food Chemistry 42:629-632. *https://doi.org/10.1021/jf00039a005*

Yogeswari S, Ramalakshmi S, Neelavathy R, Muthumary J (2012). Identification and comparative studies of different volatile fractions from *Monochaetia kansensis* by GCMS. Global Journal of Pharmacology 6:65-71.

Zakaria NA, Ibrahim D, Shaida SF, Supardy NA (2011). Phytochemical Composition and Antibacterial Potential of Hexane Extract from Malaysian Red Algae, *Acanthophora spicifera* (Vahl) Borgesen. World Applied Sciences Journal 15:496-501.

Zia-Ul-Haq M, Shahid SA, Ahmad S, Qayum M, Khan I (2012). Antioxidant potential of various parts of *Ferula assafoetida* L. Journal of Medicinal Plants Research 6(16):3254-3258. *https://doi.org/10.5897/JMPR12.141*

Indian Journal of Natural Products and Resources
Vol. 13(2), June 2022, pp. 163-169
DOI: 10.56042/ijnpr.v13i2.47499

Antioxidant and antimicrobial potential of *Canavalia gladiata* (Jacq.) DC. leaves and seeds: GC-MS based metabolic profiling

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Received 15 March 2021; Revised 22 May 2022

Canavalia gladiata (Sword Bean; family Fabaceae) is a fast-growing climber crop that has been widely cultivated in tropical and subtropical areas for its edible seeds and legumes. It has also been used as grain legume and medicinal plant in China for thousands of years. The metabolites from leaves and seeds of *C. gladiata* were extracted in petroleum ether and chloroform. Further, extracts were subjected to GC-MS analysis for metabolite profiling. Total of 31 phytoconstituents were identified; 14 compounds were reported to have biological activities. The Tridecane reported from leaves and seeds petroleum ether extract showed 10.67 and 2.72% of relative quantity of compound respectively and has antioxidant and antimicrobial activity. Octasiloxane,1,1,3,3,5,5,7,7,9,9,11,11,11,15,15-hexadecamethyl (3.42%) found in petroleum ether leaves extracts showed antimicrobial activity. Moreover, 1- Hexadecane constituted 10.23% in seeds and 3.71% relative quantity in leaves extracted with chloroform showed antibacterial activity. The seeds and leaves extracted with chloroform reported 1-Tetradecene in 6.59 and 6.03% relative quantity respectively has antifungal potential. While Phenol 2, 4-bis [1, 1-dimethylethyl] reported in leaves (6.12%) and seeds (6.47%) chloroform extract act as antioxidant and antimicrobial agents. The 1-Nonadecene in seeds (3.47%) and leaves (2.14%) chloroform extracts showed antifungal activity while 1-Docosene in seeds (2.98%) and leaves (1.71%) of chloroform extract showed antimicrobial potential. Nonadecane constituted 3.06% in seeds and 2.78% in leaves chloroform extracts and has antioxidant potential. The present study revealed that the leaves and seeds of *C. gladiata* are a good source of antioxidants and other biologically active ingredients. However, petroleum ether and chloroform extracted different metabolites from seeds and leaves. Therefore, these findings highlighted the importance of solvent in phytochemical extractions and further bioactivity of *C. gladiata* metabolites creates an attention of researchers for their use in the field of paramedical industries and herbal medicine.

Keywords: Antimicrobial activity, Antioxidant, Bioactive compounds, *Canavalia gladiata*, GC-MS analysis.
IPC code; Int. cl. (2021.01)- A61K 36/00, A61K 36/48, A61K 127/00, A61K 131/00, A61P 31/00, A61P 39/00

Introduction

From ancient time, the villagers have been using plants to cure various diseases due to promising source of phytoconstituents and therapeutic properties of the plants[1-2]. The plants derived medicinal compounds are the major source for pharmaceutical industries to develop new drugs and medicines for curing challenging health issues and diseases[3]. The antioxidants of the plants have great potential to detoxify the effect of oxidants or free radicals; most of the human diseases are arising due to less level of natural antioxidants in the body[4-5]. The isolation and identification of plant-derived bioactive compounds is a present need to fight against various environmental stresses[6]. The natural antioxidant gain popularity over synthetic antioxidants in food and pharmaceutical industries due to their effective nature. The edible and non-edible plants are rich sources of polyphenolic compounds and they have been reported with a variety of biological effects including antioxidant activity[8-9].

Canavalia gladiata (Jacq.) DC. (family Fabaceae) is widely cultivated in tropical regions like Africa, South and Southeast Asia (Sri Lanka, India, Indonesia, China, Korea and Japan). It is called 'sword bean' since its fruits have a shape similar to a straw cutter[10]. The *C. gladiata* is considered as being an underutilized legume although it has a good nutraceutical and medicinal potential as well as good agronomical status for cultivation[11]. It is commonly grown in Asia but has now spread to the tropical region of West Indies, Africa, South America, and Australia as a supplement of carbohydrates, proteins, vitamins, and minerals[11-12]. It has been used to treat nausea, vomiting, back pain, abdominal discomfort,

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hiccups and asthma in Korea[12]. The metabolites such as urease, hemagglutinin, canavanine, and *Canavalia* gibberellin I and II are reported from plant and among these, canavanine and its isoform have known effects on T cell proliferation and immune enhancement[13-14]. It also has anti-allergic, anti-inflammatory, antibacterial, anticancer, antioxidant, hepato-protective, and immunomodulatory activity[12-15]. Gan *et al.*, has reported that *C. Gladiate* contains the highest amount of antioxidant polyphenols among 42 edible beans utilized in China, and its seed coats are rich in gallotannins (gallic acids), which is a distinctive attribute among legume polyphenols[16]. Usually, different solvents are used for extracting metabolites from various parts of the plants. Besides, extraction and yield of phytochemicals mainly depends on the type of solvents and the method of extraction used[17]. There is a research gap on *C. Gladiate* on investigation of secondary metabolites from different plant parts with variable use of solvents for extraction. Therefore, this study also focussed on solvent dependent plant metabolites extraction and plant part dependent variability in isolated metabolites.

The literature survey exhibited meagre information on metabolites of seed and leaves of *C. gladiata.* Therefore, the present investigation focused on the identification of metabolite from leaves and seeds of *C. gladiata.*

Materials and Methods

Collection and identification of plant material

The mature fresh leaves and green pods of *C. gladiata* (Fig. 1) were collected in the month of December 2016 from Sant Gadge Baba Amravati University Campus, Amravati (India). It was identified and authenticated from the Department of Botany, Sant Gadge Baba Amravati University, Amravati with the help of standard floras; the flora of British India, Flora of Amravati District[18], (Specimen voucher no. SGBAU/BOT/107/2016).

Sample preparation

The seeds were removed from mature green pods and immature, diseased seeds were sorted out. The fresh and clean seeds were crushed into liquid nitrogen till a fine powder was obtained. The mature disease-free leaves were separated and cleaned under running tap water followed by distilled water. It was blot dried using tissue paper. These leaves were crushed into liquid nitrogen. The resultant fine powder was soaked into 180 mL of petroleum ether and chloroform (Himedia, India). The mixture was

Fig. 1 — *Canavalia gladiata*, a) habitat, b) flowering twig, c) pods, and d) seeds

shaken on rotary shaker for 24 hours followed by sonication for 25 minutes (CD-4820 Ultrasonic cleaner). To the mixture, 2 g of sodium sulphate was added and the mixture was then filtered using Whatman filter paper no. 1 pre-wetted with respective solvent. The filtrates were further filter through 0.2 µm syringe micro-filters with PTFE membrane, Sigma Aldrich and stored in small sterile airtight bottles at 4 °C temperature for further experiment[19].

GC-MS analysis

The seed and leaves extracts derived from petroleum ether and chloroform were analysed at the Department of Sophisticated Analytical Instrument Facility (SAIF), Indian Institute of Technology (IIT) Bombay, Maharashtra (India). Exactly 2 µL of previously concentrated extract was employed for GC-MS (Model AccuTOFGCV; Specifications: EI/ CI Source: Time of Flight Analyser: Mass range -10 - 2000 amu: Mass resolution - 6000) analysis. The analysis was carried out using an Agilent 7880 with 30 mm column of 30 mm length 0.25 mm I.D., 0.32 µ film thickness. The helium gas was used as the carrier gas at constant flow rate of 1 mL/min. Injector temperature was set at 100 °C. The oven temperature was programmed from 50 to 280 °C at 10 °C/min up to 200 °C, and then at 10 °C /3 min up to 250 °C ending with a 5-minute isothermal at 280 °C. The sample was injected in split mode as 50: 1. The MS was taken at 70 eV[19].

Identification of compounds

The chromatogram, retention times, fragmentation patterns along with m/z value base peak, mass peak, and peak intensities were obtained through GC-MS analysis. The identification of compounds was based on retention time, fragmentation patterns along with the m/z values. The mass spectra of the unknown compound obtained from sample extract by GC-MS were matched with mass spectra of the known compounds stored in the database of the National Institute Standard and Technology (NIST) library. Their structures were defined by the per cent similarity values. The name, molecular weight, molecular formula, and structure of the compounds were identified. The biological activities of compounds were determined by comparing with Dr. Duke's Phytochemicals and Ethno-botanical database[20].

For quantitative analysis, the relative quantity of each compound was calculated by formula as follows[20].

$$\text{Relative quantity of compounds} = \frac{\text{Chromatographic peak area of each compound}}{\text{Total peak area of all chromatographic peaks}} \times 100$$

Results and Discussion

The assessment of bioactive potential of medicinal plants has become a prime importance due to continuous increase in health challenges in the world. The plants have an ability to withstand the changing environmental conditions and fighting against variable environmental stresses. As reported by Gan *et al.* the 'Red sword bean' coats are an excellent natural source of gallotannins and their gallotannin-rich extracts can be utilized as a natural antioxidant and antibacterial agents with potential health benefits as well as application in food industry[16]. The present study was conducted to evaluate the metabolites bioactive properties of *C. gladiata* leaves and seeds extracted with petroleum ether and chloroform by GC-MS analysis (Fig. 2-5). Total of 31 phytoconstituents were extracted from the samples

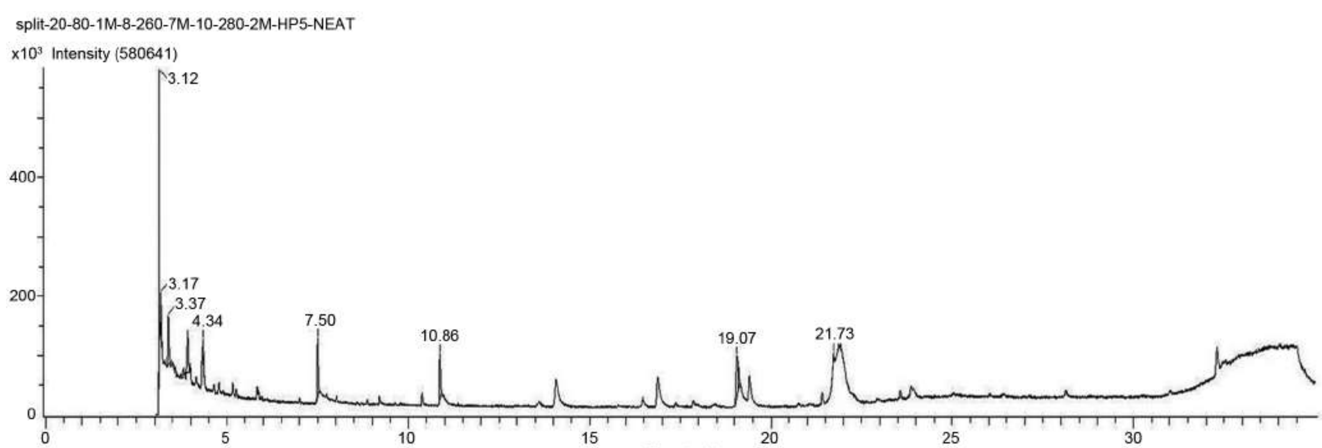

Fig. 2 — Chromatogram obtained from petroleum ether extract of *Canavalia gladiata* leaves by GCMS

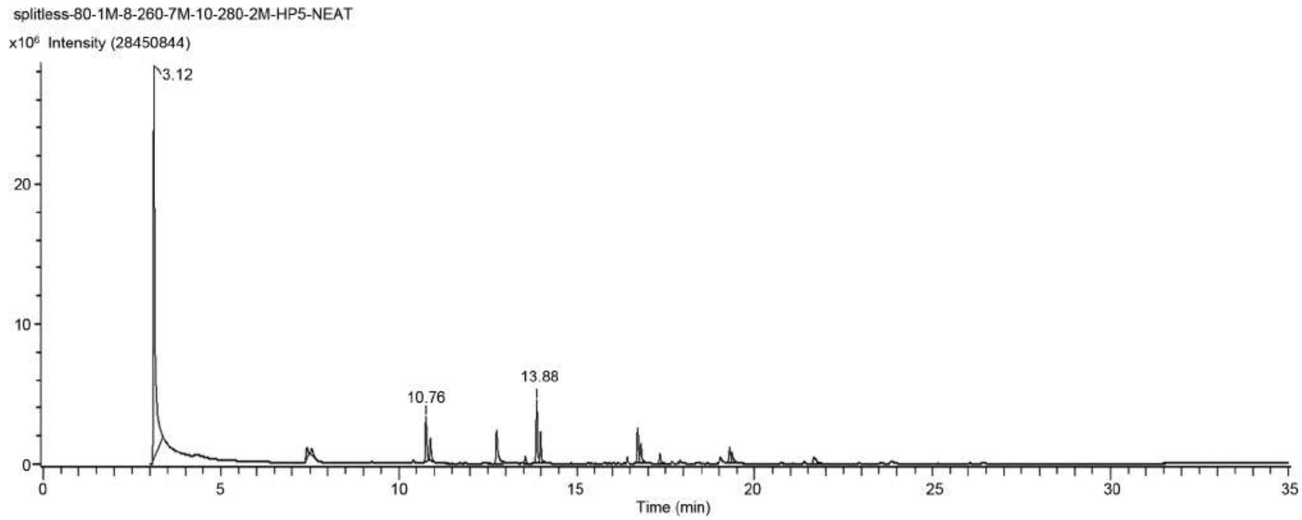

Fig. 3 — Chromatogram obtained from chloroform extract of *Canavalia gladiata* leaves by GCMS

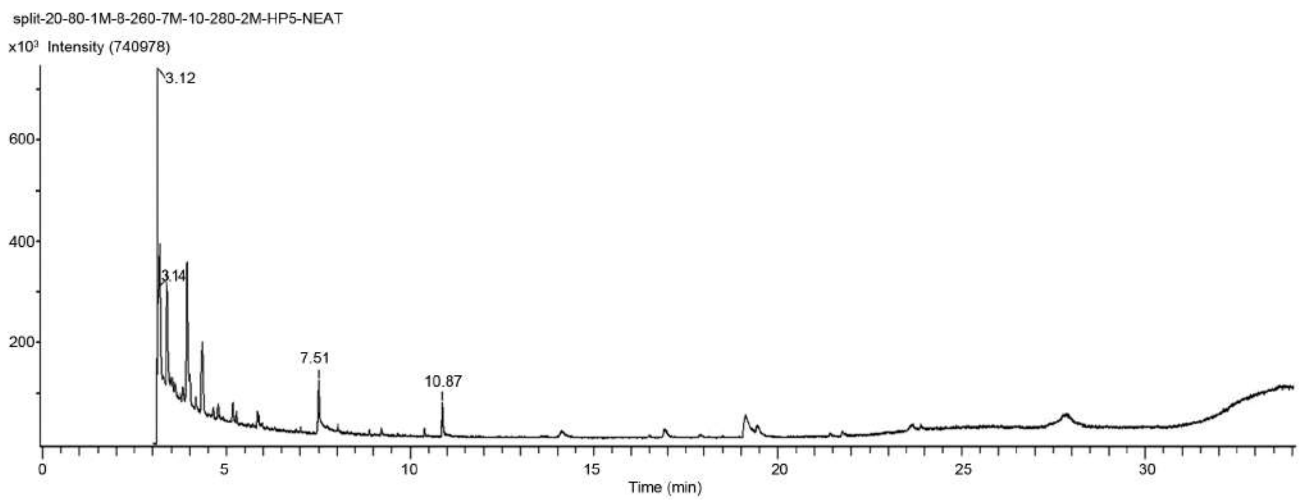

Fig. 4 — Chromatogram obtained from petroleum ether extract of *Canavalia gladiata* seeds by GCMS

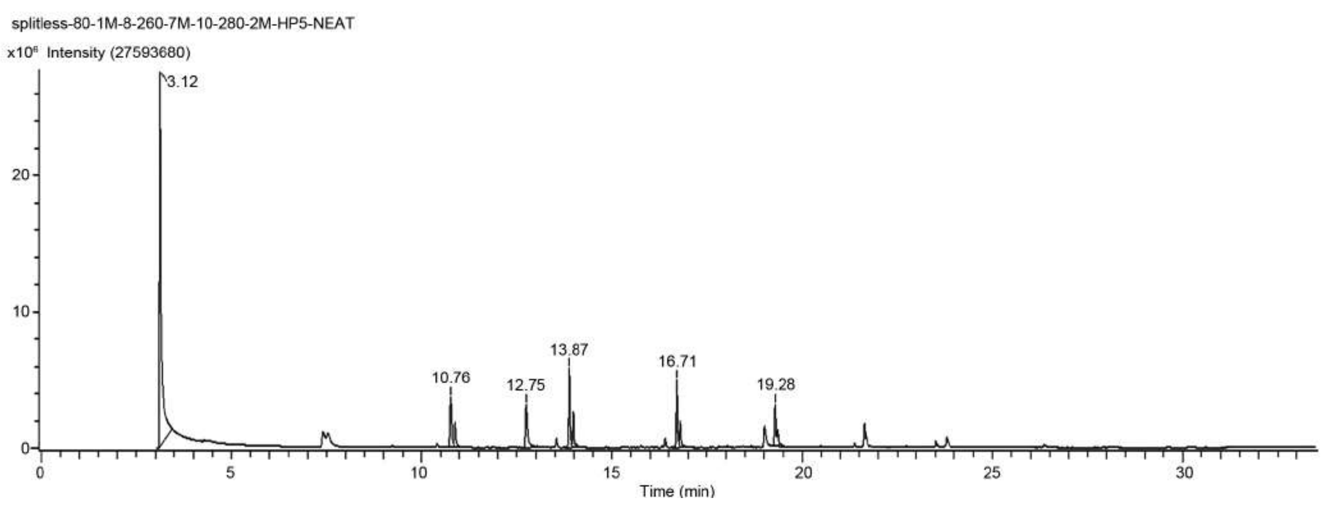

Fig. 5 — Chromatogram obtained from chloroform extract of *Canavalia gladiata* seeds by GCMS

under study (Table 1-4). About 14 different compounds were identified with bioactive potential showing antioxidant and antimicrobial properties. Tridecane was extracted from leaves petroleum ether found to be 10.67%, whereas, the seeds extract showing 2.72% having antioxidant and antimicrobial activity[21]. Moreover, 1- Hexadecane constituted 10.23% in seeds and 3.71% in leaves extracted with chloroform, has been reported to have antibacterial activity[22]. 'Jack bean' (*Canavalia ensiformis* (L.) D.C.) is a potential source of flavonoids, especially kaempferol as earlier demonstrated by Babushok *et al.*[23]. Another phytoconstituent namely, 1-Tetradecene observed in the seeds (6.59%) and leaves (6.03%) extracted with chloroform has been shown to possess anti-tuberculosis and antifungal potential[24]. Phenol 2, 4-bis [1, 1-dimethylethyl] present in the leaves (6.12%) and seeds (6.47%) extracted with chloroform has also

Table 1 — Bioactive compounds identified in petroleum ether leaves extracts of *Canavalia gladiata* (Jacq.) DC.

S. No.	RT	Phytochemicals	Rel %	Class	MF	MW	Activity
1	10.86	Tridecane	10.67	Alkane	$C_{14}H_{30}$	198	Antioxidant, Antimicrobial[21]
2	16.85	Hexadecane	5.17	Alkane	$C_{16}H_{34}$	226	Antioxidant, antimicrobial[22]
3	21.63	Silane,dimethyl [docosyloxy]butoxy	3.21	Silicon ether	$C_{28}H_{60}O_2Si$	456	Antimicrobial[31]
4	32.47	Octasiloxane,1,1,3,3,5,5,7,7,9,9,11,11,1 1,15,15-hexadecamethyl	3.42	Silicon ether	$C_{20}H_{48}O_7Si_8$	577	Antimicrobial[29]
5	3.17	1,6-Anhydro-3,4-dideoxy-β-D-manno-hexapyranose	8.43	Sugar	$C_6H_{10}O_3$	130	Not reported
6	3.37	4-Heptanol	11.79	Alcohol	$C_6H_{16}O$	116	Not reported
7	3.92	Benzene (1,3,3-Trimethylnonyl)	8.66	Aromatic Hydro-carbon	$C_{18}H_{30}$	246	Not reported
8	4.34	Benzene 1,3,5 Trimethyl	4.17	Aromatic Hydro-carbon	C_9H_{12}	120	Not reported
9	7.50	3-Hexanone,2,4-dimethyl	11.91	Ketone			Not reported

RT=Retention time, Rel%=Relative percent, MF=Molecular formula, MW=Molecular weight

Table 2 — Bioactive compounds identified in chloroform leaves extracts of *Canavalia gladiata* (Jacq.) DC.

S. No.	RT	Phytochemicals	Rel. %	Class	MF	MW	Activity
1	7.41	1-Dodecene	1.65	Alkene	$C_{12}H_{24}$	168	Antioxidant, antimicrobial[32]
2	7.54	Oxalic acid,4-chlorophenyl tetradecyl ester	1.63	Carbo-xylic acid	$C_8H_7ClO_2$	170	Not reported
3	10.76	1-Tetradecene	6.03	Alkene	$C_{14}H_{28}$	196	Antituberculosis Antifungal[24]
4	12.75	Phenol,2,4-bis[1,1-dimethylethyl]	6.12	Phenol	$C_{14}H_{22}O$	206	Antioxidant, antimicrobial[22,25]
5	13.88	1-Hexadecene	3.71	Alkene	$C_{16}H_{32}$	224	Antibacterial[22]
6	13.98	Nonadecane	2.78	Alkane	$C_{19}H_{14}$	268	Antioxidant[28]
7	19.30	1-Nonadecene	2.14	Alkene	$C_{19}H_{38}$	266. 50	Anticancer, antifungal[26,33]
8	21.66	1-Docosene	1.71	Alkane	$C_{22}H_{44}$	308	Antimicrobial, Anticarcinoma[21,22]

RT=Retention time, Rel%=Relative percent, MF=Molecular formula, MW=Molecular weight

Table 3 — Bioactive compounds identified in petroleum ether seed extracts of *Canavalia gladiata* (Jacq.) DC.

S. No.	R.T.	Phytochemicals	Rel. %	Class	MF	MW	Activity
1	3.14	Bicyclo [2,1,1,]hexane-2-ol,2-ethenyl	18.02	Terpene	$C_8H_{12}O$	124	Not reported
2	3.38	4-Heptanol,3-methyl	16.54	Alcohol	$C_8H_{18}O$	130	Not reported
3	4.34	Benzene1,2,3-trimethyl	9.19	Aromatic Hydro-Carbon	C_9H_{112}	120	Not reported
4	5.83	Heptane,2,6-dimethyl	3.23	Alkane	C_9H_{20}	128	Not reported
5	7.51	3-Hexanone, 2,4-dimethyl	6.93	Ketone	$C_8H_{16}O$	128	Not reported
6	10.87	Tridecane	2.72	Alkane	$C_{14}H_{30}$	198	Antioxidant, Antimicrobial[21]

RT=Retention time, Rel%=Relative percent, MF=Molecular formula, MW=Molecular weight

Table 4 — Bioactive compounds identified in chloroform seed extracts of *Canavalia gladiata* (Jacq.) DC.

S. No.	R.T.	Phytochemicals	Rel. %	Class	MF	MW	Activity
1	7.41	1-Dodecene	1.62	Alkene	$C_{12}H_{24}$	168	Antioxidant, antimicrobial[32]
2	7.53	Oxalic acid,4-chlorophenyl tetradecyl ester	2.93	Ester	$C_8H_7ClO_2$	170	Not reported
3	10.76	1-Tetradecene	6.59	Alkene	$C_{14}H_{28}$	196	Anti-tuberculosis, antifungal[24]
4	10.88	Tetradecane	3.30	Alkane	$C_{14}H_{30}$	198	Antioxidant, preservative[34]
5	12.76	Phenol 2,4-bis[1,1-dimethylethyl]	6.47	Phenol	$C_{14}H_{22}O$	206	Antimicrobial, antioxidant[22,25]
6	13.88	1-Hexadecene	10.23	Alkene	$C_{16}H_{32}$	224	Antibacterial[22]
7	13.98	Nonadecane	3.47	Alkane	$C_{19}H_{14}$	268	Antioxidant[28]
8	16.40	Heptadecane,3-methyl	0.73	Alkane	$C_{18}H_{38}$	254	Antifungal[33]
9	19.28	1-Nonadecene	3.06	Alkene	$C_{19}H_{38}$	266	Anticancer, antifungal[26]
10	21.63	1-Docosene	2.98	Alkene	$C_{22}H_{44}$	308	Antimicrobial, Anticarcinoma[21]

RT=Retention time, Rel%=Relative percent, MF=Molecular formula, MW=Molecular weight

been shown to have antioxidant and antimicrobial properties[22,25]. 1-Nonadecene found to be 3.47% in the seeds and 2.14% in the leaves chloroform extracts has shown to possess anticancer and antifungal activities[26]. The antitumor potential of *C. gladiata* has been evaluated against Daltons Lymphoma Ascites (DLA) in *in-vitro* and *in-vivo* studies[27]. 1-Docosene was observed as 2.98% in seeds and 1.71% in leaves of chloroform extracts are reported to have antimicrobial and anticarcinogenic potential[21]. Nonadecane constituted 3.06% in seeds 2.78% in leaves chloroform extracts with antioxidant potential[28]. Octasiloxane,1,1,3,3,5,5,7,7,9,9,11,11,11, 15,15-hexadecamethyl found to be 3.42% in petroleum ether leaves extracts possesses antimicrobial activity[29]. The nematotoxic compounds were reported in *Canavalia ensiformis* seeds which are observed to be effective in the control of the root knot nematode *Meloidogyne incognita*[30]. *C. gladiata* has shown antioxidant, tyrosinase inhibition and antibacterial activities[10]. *C. gladiata* extracts may be useful for the development of skin whitening and anti-bacterial agents as reported earlier by Kim *et al.*[10]. The Tridecane, Hexadecane, Silane, dimethyl [docosyloxy]butoxy, Octasiloxane,1,1,3,3,5,5,7,7,9,9, 11,11,11,15,15-hexadecamethyl, 1-Dodecene, 1-Tetradecene, Phenol,2,4-bis[1,1-dimethylethyl], 1-Hexadecene, Nonadecane, 1-Nonadecene, 1-Docosene, Tridecane, Tetradecane, Heptadecane, 3-methyl compounds first time reported in *C. gladiata* has biological activities. The petroleum ether seeds and leaves extract reported Benzene1,2,3-trimethyl, 3-Hexanone, 2,4-dimethyl and Tridecane a similar compound while chloroform seed and leaves extract also showed similar metabolite profiling except Heptadecane, 3-methyl and Tetradecane in seed extract. Therefore, petroleum ether and chloroform showed variation in metabolite extraction.

Conclusion

The present study revealed that the leaves and seeds of *C. gladiata* is a good source of biologically active ingredients. However, petroleum ether and chloroform extracted different metabolites from the seeds and leaves. Therefore, these findings highlighted the importance of solvent in phytochemical extractions and the bioactive potential of *C. gladiata* metabolites highlights their importance in pharmaceutical application. Further study can be extended to screen metabolites and other biological effects. Moreover, these tested plant extracts could be checked for a better understanding of their safety and efficacy. The existence of different bioactive metabolites justifies the application of whole plant as an antimicrobial and antioxidant agent.

Conflict of interest

All authors declared there is no conflict of interest.

References

1 Hameed I H, Altameme H J and Idan S A, Artemisia annua: Biochemical products analysis of methanolic aerial parts extract and anti-microbial capacity, *Res J Pharm Biol Chem Sci*, 2016, **7**(2), 1843–1868.

2 Konappa N, Udayshankar A C, Krishnamurthy S, Pradeep C K, Chowdappa S, *et al.*, GC–MS analysis of phytoconstituents from *Amomum nilgiricum* and molecular docking interactions of bioactive serverogenin acetate with target proteins, *Sci Rep*, 2020, **10**(1), 1-23.

3 Gupta D and Kumar M, Evaluation of *in vitro* antimicrobial potential and GC–MS analysis of *Camellia sinensis* and *Terminalia arjuna*, *Biotechnol Rep*, 2017, **13**, 19–25.

4 Bharti R, Ahuja G, Sujan G and Dakappa S, A review on medicinal plants having antioxidant potential, *J Pharm Res*, 2012, **5**(8), 4278–4287.

5 Benali T, Habbadi K, Khabbach A, Marmouzi I, Zengin G, *et al.*, GC-MS analysis, antioxidant and antimicrobial activities of *Achillea Odorata* Subsp. *Pectinata* and *Ruta Montana* essential oils and their potential use as food preservatives, *Foods*, 2020, **9**(5), 668.

6 Sheeba G and Viswanathan P, GC-MS analysis of phytocomponents in *Spermacoce articularis* L, f. leaf, *Res Pharm*, 2015, **4**(4), 1-7.

7 Moussa A M, Emam A M, Diab Y M, Mahmoud M E and Mahmoud A S, Evaluation of antioxidant potential of 124 Egyptian plants with emphasis on the action of *Punica granatum* leaf extract on rats, *Int Food Res J*, 2011, **18**(2), 535–542.

8 Kähkönen M P, Hopia A I, Vuorela H J, Rauha J P, Pihlaja K, *et al.*, Antioxidant activity of plant extracts containing phenolic compounds, *J Agric Food Chem*, 1999, **47**(10), 3954–3962.

9 Jung J Y and Rhee J K, Roasting and cryogenic grinding enhance the antioxidant property of sword beans (*Canavalia gladiata*), *J Microbiol Biotechnol*, 2020, **30**(11), 1706–1719.

10 Kim H C, Moon H G, Jeong Y C, Park J U and Kim Y R, Anti-oxidant, skin whitening, and antibacterial effects of *Canavalia gladiata* extracts, *Med Biol Sci Eng*, 2018, **1**(1), 11–17.

11 Ekanayake S, Jansz E R and Nair B M, Literature review of an underutilized legume: *Canavalia gladiata* L, *Plant Foods Hum Nutr*, 2000, **55**(4), 305–321.

12 Lyu Y R, Jung S, Lee S W, Yang W K, Kim S H, *et al.*, Efficacy and safety of CAEC (*Canavalia gladiata, arctium lappa* extract complex) on immune function enhancement: An 8 week, randomised, double-blind, placebo-controlled clinical trial, *J Funct Foods*, 2020, **75**, 104259.

13 Murakami T, Kohno K, Kishi A, Matsuda H and Yoshikawa M, Medicinal foodstuffs. XIX. Absolute stereo structures of canavalioside, a new ent-kaurane-type diterpene glycoside, and gladiatosides A1, A2, A3, B1, B2, B3, C1, and C2, new acylated flavonol glycosides, from sword bean, the seeds of *Canavalia gladiata*, *Chem Pharm Bull*, 2000, **48**(11), 1673–1680.

14 Laija S N, Mahesh S P, Smitha L S and Remani P, Lymphocyte proliferation studies of *Canavalia gladiata* lectin/*Canavalia gladiata* lektin'in lenfosit çogalma çalismalari, *J Cell Mol Biol*, 2010, **8**(2), 51.

15 Tayade S N, More K C and Gawande P A, Evaluation of antibacterial potential of *Canavalia gladiata* (JACQ.) DC, *European J Pharm Med Res*, 2020, **7**(8), 535-538.

16 Gan R-Y, Kong K-W, Li H-B, Wu K and Ge Y-Y, Separation, Identification, and bioactivities of the main Gallotannins of red sword bean (*Canavalia gladiata*) Coats, *Front Chem*, 2018, **6**, 1–10.

17 Hayouni E A, Abedrabba M, Bouix M and Hamdi M, The effects of solvents and extraction method on the phenolic contents and biological activities *in vitro* of Tunisian *Quercus coccifera* L. and *Juniperus phoenicea* L. fruit extracts, *Food Chem*, 2007, **105**(3), 1126–1134.

18 Dhore M A, *Flora of Amravati district with special reference to the distribution of tree species*. Ph D Thesis, Amravati University, Amravati, 1986.

19 Keskes H, Belhadj S, Jlail L, Feki A E, Damak M, *et al.*, LC-MS–MS and GC–MS analyses of biologically active extracts and fractions from *Tunisian Juniperus phoenice* leaves, *Pharm Biol*, 2017, **55**(1), 88–95.

20 Duke J A, *Database of biologically active phytochemicals and their activity*, (CRC Press, Boca Raton), 1992, 183.

21 Faridha B I, Mohankumar R, Jeevan M and Ramani K, GC–MS Analysis of bio-active molecules derived from *Paracoccus pantotrophus* FMR19 and the antimicrobial activity against bacterial pathogens and MDROs, *Indian J Microbiol,* 2016, **56**(4), 426–432.

22 Yogeswari S, Ramalakshmi S, Neelavathy R and Muthumary J, Identification and comparative studies of different volatile fractions from *Monochaetia kansensis* by GCMS, *Glob J Pharmacol*, 2012, **6**(2), 65–71.

23 Babushok V I, Linstrom P J and Zenkevich I G, Retention indices for frequently reported compounds of plant essential oils, *J Phys Chem Ref Data*, 2011, **40**(4), 043101.

24 Kuppuswamy K M, Jonnalagadda B and Arockiasamy S, GC-MS analysis of chloroform extract of *Croton bonplandianum*, *Int J Pharm Bio Sci*, 2013, **4**(4), 613-617.

25 Chandrasekar T, Ram M R K, Kumar R V, Prabhu K, Kumar S N, *et al.*, GC-MS analysis, antimicrobial, antioxidant activity of an Ayurvedic medicine, Nimbapatradi Choornam, *J Chem Pharm Res*, 2015, **7**(8), 124–36.

26 Arora S and Meena S, GC-MS profiling of *Ceropegia bulbosa* Roxb. var. bulbosa, an endangered plant from Thar desert, Rajasthan, *Pharma Innov J*, 2017, **568**(11), 568–573.

27 Abeesh P, Rasmi R R and Guruvayoorappan C, Edible sword bean extract induces apoptosis in cancer cells *In vitro* and inhibits ascites and solid tumor development *In vivo*, *Nutr Cancer*, 2020, **73**(6), 1015-1025.

28 Dandekar R, Fegade B and Bhaskar V H, GC-MS analysis of phytoconstituents in alcohol extract of *Epiphyllum oxypetalum* leaves, *J Pharmacogn Phytochem*, 2015, **4**(1), 149–154.

29 Venketesh R, Vidya R and Kalaivani K, Gas chromatography and mass spectroscopy analysis of *Solanum villosum* (Mill) (Solanaceae), *Int J Pharm Sci Res*, 2014, **5**(12), 5283.

30 Rocha T L, Soll C B, Boughton B A, Silva T S, Oldach K, *et al.*, Prospection and identification of nematotoxic compounds from *Canavalia ensiformis* seeds effective in the control of the root knot nematode *Meloidogyne incognita*, *Biotechnol Res Innov*, 2017, **1**(1), 87–100.

31 Sultana S, Khan A, Islam F, Islam F, Alhazmi H A, *et al.*, Antimicrobial and phytochemical screening of an ethanolic extract of the stem bark of *Calotropis procera* (Ait.) R. Br. by GC-MS, *Int J Pharm Pharm Res*, 2016, **7**(3), 30–40.

32 Togashi N, Shiraishi A, Nishizaka M, Matsuoka K, Endo K, *et al.*, Antibacterial activity of long-chain fatty alcohols against *Staphylococcus aureus*, *Molecules*, 2007, **12**(2), 139–148.

33 Kumari N, Menghani E and Mithal R, GCMS analysis & assessment of antimicrobial potential of rhizospheric actinomycetes of AIA3 isolate, *Indian J Tradit Knowl*, 2020, **19**(1), 111–119.

34 Girija S, Duraipandiyan V, Kuppusamy P S, Gajendran H and Rajagopal R, Chromatographic characterization and GC-MS evaluation of the bioactive constituents with antimicrobial potential from the pigmented Ink of *Loligo duvauceli*, *Int Sch Res Notices*, 2014, **2014**, 1–7.

Mankar GD *et al.* (2021)
Notulae Scientia Biologicae
Volume 13, Issue 2, Article number 10936
DOI:10.15835/nsb13210936
Research Article

Morphological, physiological, and biochemical responses to NaCl-induced salt stress in mungbean (*Vigna radiata* L.) varieties

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Abstract

Seventeen mungbean varieties [*Vigna radiata* (L.) R. Wilczek] were subjected to 100-400 mM salinity stress at the germination stage, and the indices of seed germination and early seedling growth were analysed**.** With the increasing salinity, seed germination and seedling growth attributes were affected in all varieties. Principal component analysis and hierarchical cluster analysis of varietal responses on the germination and seeding growth attributes at 400 mM NaCl separated seventeen varieties into four distinct clusters. Principal component analysis at lower salt stress levels indicated that the attributes of germination and early seedling growth are reliable to identify salt-tolerant mungbean varieties. In contrast, only germination attributes are reliable at higher salinity levels. Two salt-susceptible and salt-tolerant varieties were further assessed for NaCl-induced physiological and biochemical changes. Levels of proteins, secondary metabolites, osmolyte, and antioxidants were increased at lower salt concentrations but reduced at higher salt concentrations. Photosynthetic pigments decreased and membrane damage increased under salinity. Varieties that showed tolerance to salt stress can be used in salinity-affected agriculture fields after validating their salt tolerance in field experiments.

Keywords: antioxidants; germination; NaCl; osmolytes; photosynthetic pigments; secondary metabolites

Abbreviations: DW: dry weight; DPPH: 2,2-Diphenyl-1-picrylhydrazyl; FGP: final germination percentage; FW: fresh weight; GI: germination index; GRI: germination rate index; HCA: hierarchical cluster analysis; MCA: multiple correlation analysis; MDA: malondialdehyde content; PCA: principal component analysis; PC: proteins content; RL: root length; STI: salt tolerance index; SL: shoot length; SR: secondary roots; SV: seedling vigor; TGI: Timson germination index; %TWC: percent tissue water content; TPC: total phenolics content; TFC: total flavonoids content; PRC: total proline content; TSC: total sugars content; TFAA: total free amino acid content.

Received: 28 Mar 2021. Received in revised form: 04 Jun 2021. Accepted: 09 Jun 2021. Published online: 23 Jun 2021.
From Volume 13, Issue 1, 2021, Notulae Scientia Biologicae journal uses article numbers in place of the traditional method of continuous pagination through the volume. The journal will continue to appear quarterly, as before, with four annual numbers.

Introduction

Mungbean is an economically important pulse crop grown in many parts of the world. It is an important protein source rich in fibbers, amino acids, fatty acids, vitamins, and minerals. Salt stress is one of the major abiotic stress in mungbean production, which results in a decrease in growth and productivity (Nair *et al.*, 2019). Cations such as Na^+, Ca^{2+}, and Mg^{2+} and anions such as Cl^-, $SO4^{2-}$ and HCO^{3-} are the most common ions present in saline soil. Since the soils deteriorate due to Na^+ in particular and Na^+ and Cl^- both are toxic to plants, NaCl is considered the most critical salt (Yadav *et al.*, 2011). Excess NaCl in the surroundings and inside the cell impairs germination, morpho-physiological, photosynthetic, and biochemical processes and culminates in a threat to the plant's growth and survival (Sehrawat *et al.*, 2019).

Seed germination is an important agronomic and ecological process that determines the growth and productivity of higher plants. Screening of mungbean varieties at seed germination and early seedlings stage for stress tolerance is practical because plants are more susceptible to environmental stresses at the initial stages (Vibhuti *et al.*, 2015). Salinity adversely affects cellular and metabolic processes like photosynthesis, synthesis of proteins, nucleic acids, lipids, and carbohydrates, mechanisms detoxifying reactive oxygen species (ROS), and the levels of secondary metabolites (Parida and Das, 2005). Sustained seed germination, improved root and shoot growth, levels of photosynthetic pigments, and biochemical parameters confer salt tolerance during the initial phase of stand establishment. The crop varieties that are likely to have the mechanisms to avoid or tolerate salinity are precious and required for such harsh environments. Since mungbean varieties have performed differently under salinity stress (Nawaz *et al.*, 2020), a plant-based solution demands a thorough screening of tolerant crop varieties for better yield under a saline environment.

In light of this, the present investigation was undertaken with two objectives- i) identify mungbean varieties tolerant to salt stress during seed germination, and ii) analyse effects of NaCl salt stress on key physiological and biochemical parameters during seed germination and early seedling growth of salt-tolerant and salt-susceptible varieties.

Materials and Methods

Seed collection, growth, and treatment conditions

Healthy seeds of the following seventeen certified varieties of mungbean were procured: 'VBN(Gg)2' and 'VBN(Gg)3' (National Pulses Research Centre, Tamil Nadu Agricultural University, Vamban), 'IPM 401-3', 'IPM 302-2', 'IPM-2K-14-9', 'IPM 2-3', 'IPM 2-14', and 'IPM 99-125' (Indian Institute Of Pulse Research, Kanpur), 'PKU-AKM-4', 'PKU-AKM 12-28', 'PKU-AKM 8802', and 'PKV Greengold' (Pulses Research Unit, Akola), 'DGGV-2' (ICAR-Indian Institute for Pulses Research Regional Research Center, UAS Campus, Dharwad, Karnataka). The seeds of 'Utkarsha', 'Samrat', 'SML 668', and 'Swati 4' were collected from the local market.

Seeds were surface sterilized with 0.1% $HgCl_2$ for three min and subsequently washed five times with distilled water. Ten Seeds were set to germinate on a double-layered germination paper placed in sterile Petri plates (90 mm). The germination paper was moistened with 10 ml of 100 to 400 mM of NaCl solutions. The control was set by moistening the germination paper with 10 ml of distilled water. Petri plates were incubated in the dark at 25±2 °C for ten days. The experiment was performed in triplicate, and each replicate had ten seeds, and germination counts were taken on each day.

Germination attributes

After the germination run of ten days, seed germination was analysed by computing: final germination percentage (FGP), germination rate index (GRI), and germination index (GI) by following Kader (2005) and Timson germination index (TGI) as per Timson (1965).

Growth attributes

Five seedlings were randomly selected on the 11th day. Their growth was measured in terms of shoot length (SL), root length (RL), number of secondary roots (SR), fresh weight (FW), dry weight (DW), percent tissue water content (%TWC) as described by (Shelke *et al.*, 2017), and seedling vigour (SV) as per Abdul-Baki and Anderson (1973).

The multivariate analysis tools such as PCA and HCA are used to differentiate samples having different biological statuses, quality, and origin (Chunthaburee *et al.*, 2015). Therefore, PCA and HCA were used to identify stress-tolerant mungbean varieties. This analysis grouped seventeen varieties into clusters based on their responses under NaCl salt stress. STIs of attributes were subjected to PCA and HCA to evaluate the salt tolerance level in seventeen mungbean varieties. The salt tolerance indices (STIs) were calculated by dividing the value observed on an attribute under a given salinity level by the weight on the same attribute in control (Chunthaburee *et al.*, 2015).

Selection of varieties for photosynthetic and biochemical analysis

The most tolerant and susceptible varieties were selected for photosynthetic and biochemical analyses based on germination and growth attributes in all varieties. IC50 is the inhibitory concentration of salt at which the seed germination is inhibited by 50%. The IC50 treatment of salt stress in the most susceptible variety was used for further experiments along with one concentration below and above the IC50 concentration. Seeds were surface sterilized with 0.1% $HgCl_2$ for three min and subsequently washed five times with distilled water. Ten Seeds were set to germinate on a double-layered germination paper placed in sterile Petri plates (90 mm). The germination paper was moistened with 10 ml of 75, 100, and 125 mM NaCl solutions. The control was set by moistening the germination paper with 10 ml of distilled water. Seedlings were allowed to grow under controlled conditions (25±0.5 °C and 16:8 h Light: dark photoperiod) for up to ten days. After ten days, five seedlings were selected, and the shoots and roots of seedlings were harvested separately for further analysis. The experiment was performed in triplicate, and each replicate had ten seeds.

Photosynthetic pigments and biochemical analysis

The photosynthetic and biochemical parameters were estimated spectrophotometrically on a microprocessor-based UV-Vis spectrophotometer (Bioera, India).

Chlorophyll content was estimated by Arnon's (1949) method. The carotenoid content was estimated by Maclachlan and Zalik's (1963) method. The anthocyanins were estimated by Mancinelli's (1984) method. Protein content was estimated by the Lowry *et al.* (1951) method with bovine serum albumin (BSA) as a standard protein. Malondialdehyde (MDA) (nmol/g dry weight) was estimated by Heath and Packer's (1968)method. Total phenolics were estimated by Swain and Hillis's (1959)method, and gallic acid was used as a standard phenol. Total flavonoids were estimated by the Balbaa *et al.* (1974)method, and rutin was used as a standard flavonoid. The proline content was estimated by the Bates *et al.* (1973)method. Total amino acid content was estimated by Lee and Takahashi's (1966)method, and L-Serine was used as a standard amino acid. Total sugar content was estimated by Scott and Melvin's (1953) method, and D-glucose was used as a standard sugar. The radical scavenging activity (%RSA) was estimated using the Blois (1958) DPPH method.

Statistical analysis

All the experiments were performed with three replicates in a completely randomized block design (CRD). Each replicate had ten seeds. The data were analysed by one-way analysis of variance (ANOVA) using SPSS software version 20. Mean values of treatments were compared using Duncan's multiple range test (DMRT) at $P \leq 0.05$. The data were presented as a mean ± standard deviation. The PCA of salt tolerance indices (STIs) was performed using the PAST statistical package (Hammer *et al.*, 2001). Parameters that showed a higher contribution to PCA were subjected to HCA. Ward's complete linkage clustering method and squared Euclidean distance were used for HCA performed in SPSS software version 20.

Results and Discussion

Effect of salt stress on seed germination

The increasing salt concentration affected all the seed germination attributes (FGP, GI, GRI, and TGI) in all varieties. At 100 mM NaCl, FGP, GI, GRI, and TGI were reduced drastically in 'VBN(Gg)' up to 54%, 56%, 61%, and 56%, respectively. Relatively lesser reductions were observed in all germination parameters in 'IPM 401-3', 'IPM 302-2', 'IPM 99-125', 'PKU-AKM 12-28', 'PKV Greengold', 'DGGV-2', 'PKU-AKM 4', 'PKU-AKM 8802', and 'Samrat'. These varieties showed the highest FGP (100%). 'PKV Greengold' had the highest GRI, GI, and TGI (100%) among those varieties that germinated at 100 mM NaCl. At 200 mM NaCl, 'VBN (Gg)3' showed a significant reduction of 84.61%, 90.47%, 94.49%, 90.47% in FGP, GI, GRI, TGI, respectively. However, 'PKV Greengold', 'PKU-AKM 4', 'PKU-AKM 8802', 'IPM 302-2', and 'Swati-4' showed less reduction without any significant difference. At 300 mM, more than 50% reduction in germination was observed in 'IPM 2-3', 'DGGV-2', 'PKU-AKM 4', 'Swati 4', 'IPM 99-125', and 'VBN(Gg)2'. The highest germination (FGP) was observed in 'PKU-AKM 8802' (96.66%), followed by 'PKU-AKM 12-28' (76.66%). These two varieties showed the highest GI, GRI, and TGI. At 400 mM NaCl, only seed germination indices were calculated. 'VBN(Gg)2' and 'VBN(Gg)3' did not germinate at this highest salt-stress level. Less reduction in FGP was observed in 'PKU-AKM 8802' (46.6%), followed by 'PKU-AKM 12-28' (50%). GI and TGI were reduced by 70.66% in 'PKU-AKM 12-28' and 64.66% in 'PKU-AKM 12-28'. A higher reduction in GI and TGI was observed in all other varieties.

FGP, GI, GRI, and TGI are helpful to analyse the effects of stress on seed germination (Kader, 2005). Reduced seed germination resulted in weak growth and development in 'VBN(Gg)3' and 'VBN(Gg)2' and reflected a crucial determinant for salinity tolerance. Salinity affects water and nutrient uptake during seed germination by creating osmotic and ionic imbalances that reduce germination potential (Pandey and Penna, 2017). Podder *et al.* (2020) have reported a similarly reduced mungbean germination under salinity. Decreased seed germination with increased salt concentration was also reported in wheat (Bagwasi *et al.*, 2020) and rice (Öner *et al.*, 2020). Therefore, germination attributes are the most critical and valuable attributes that reflect time, rapidity, uniformity, and synchronization in seed germination under salt stress.

Effect of salt stress on seedling development

Salt stress causes a detrimental effect on root growth as roots are directly in contact with salt. Root growth directly correlates with other seedling growth attributes such as shoot length, secondary root, and biomass production. Early seedling growth parameters such as SL, RL, SR, SV, FW, DW, and %TWC are helpful attributes for screening salt-tolerant varieties since these attributes are also affected by salinity (Shelke *et al.*, 2017). Various early seedling growth parameters such as SL, RL, SR, SV, FW, DW, TWC% were affected by salt stress. At 100 mM NaCl, SL was reduced by more than 50% in all varieties screened, but a severe reduction was observed in 'IPM 401-3', 'IPM-2K-14-9', and 'Swati-4'. The RL was more reduced in 'PKU-AKM 4' than 'PKV Greengold'. Seedling vigor was dramatically reduced by more than 70% in 'VBN (Gg)3' and 'IPM-2K-14-9', and up to 34% reduction was observed in 'PKV Greengold' and 'IPM995'. SR was reduced by nearly 70% in I'PM 2-14' and 'Swati-4'. More than 50% reduction in FW was observed in almost all varieties. Moreover, a more significant reduction in FW and DW was noted in 'DGGV-2'. TWC was reduced by 2-7%.

At 200 mM NaCl, 84 to 94% reduction in SL was observed in all varieties. 'VBN (Gg)3', 'IPM 2-3', and 'IPM 2-14' showed more than 83% reduction in root length than other varieties. More than 80% reduction in SV was observed in all varieties; however, 'VBN (Gg)3' showed the highest reduction (98%). Secondary roots were not developed in 'VBN(Gg)2', 'VBN(Gg)3', 'IPM 401-3', 'IPM 2-3', 'IPM 2-14', 'PKV Greengold', 'PKU-AKM 4', and 'Samrat'. FW was reduced up to 84-96%. Among these varieties, 'DGGV2' had the least, and 'Swati-4' had a maximum reduction in FW. DW was reduced by 68-91%, with a greater reduction in 'Swati-4' among all varieties screened. TWC% was less reduced in 'DGGV2' than other varieties. A greater reduction in TWC% was observed in 'Swati-4'. At 300 mM NaCl, all the varieties screened showed SL and RL reduced by up to 90%. There was not a significant difference in SL and RL in all the varieties. However, SV was less reduced in 'PKU-AKM 8802' and 'PKU-AKM 12-28' compared to other varieties. At 300 mM, FW was reduced to 95-97% in all varieties without significant differences in FW. The DW was reduced by 7-11% in all varieties. TWC% was reduced between 80-94% except in Utkarsha, which showed up to 66% reduction. At 400 mM NaCl, SL, RL, and SV were not measurable due to poor seedling growth, and only germination indices were the key parameters. At 400 mM NaCl, FW, DW, and TWC% could not be calculated.

These results corroborate those by (Rahneshan *et al.*, 2018) in *Pistacia vera*. The number of secondary roots (SR) differed in different varieties at low salt concentrations. SR was poorly developed in a few varieties with the increased salt concentration. In few varieties, SR was not developed at and above 300 mM NaCl salt stress. The number of secondary roots decreased with increased salinity in soybean varieties and was a deterministic feature under salinity (Shelke *et al.*, 2017). SV was reduced in all varieties at low salinity levels. However, it was reduced by more than 70% in all varieties at 200 mM NaCl. At higher salt concentrations, the differences in the reduction observed in all the varieties were negligible. The highest reduction was observed in 'VBN(Gg)3'. A similar decrease in SV was observed in rice varieties subjected to salt stress (Datir *et al.*, 2020). Seedling fresh weight, dry weight, and tissue water content reduced with increasing salt concentration. The reduction in these attributes affects the absorption of water and essential minerals. It also reduces root pressure, water, and mineral flow, and their transport from root to shoot, and thus the growth and development of plants (Liu *et al.*, 2020). Our results are in line with Rahman *et al.* (2016), who have reported a variety-dependent reduction in SL, RL, DW, FW, and SV with increased salinity. These, therefore, appear to be deterministic features in mungbean varieties as well. A similar result was reported in rice (Datir *et al.*, 2020) and soybean (Shelke *et al.*, 2017).

In summary, a stepwise increase in salinity caused a progressive reduction in seed germination and affected early seedling growth parameters in all mungbean varieties screened in the present investigation. These varieties showed varied responses to salinity stress from low to high salinity levels. For example, at 100 mM NaCl, the 'Samrat' variety was resistant, but it was salt-susceptible at a higher level of 400 mM NaCl. At 100 mM and 200 mM NaCl, germination parameters such as FGP, GI, TGI, GRI, and early seedling growth parameters such as SV, RL, SL, SR, FW, DW, and %TWC are vital parameters to assess salinity responses in different varieties and can be used alternatively. However, at higher salinity levels of 300 mM and 400 mM, only germination parameters such as FGP, GI, TGI, and GRI are critical to assess salt-tolerance response because of poor SL and RL in seedlings. Further, SL, RL, FW, DW, SV were reduced by more than 80% at and above 200 mM NaCl, and SR was absent at and above 300 mM NaCl in all varieties. 'VBN(Gg)3' was highly susceptible at all salinity levels, and it did not germinate at and above 300 mM NaCl. Likewise, 'VBN(Gg)2' also did not germinate at 400 mM NaCl. PKU-AKM 12-28 showed the highest tolerance at all salinity levels.

The results showed significant differences in germination indices across varieties subjected to 400 mM NaCl stress (Table 1). PCA and HCA analyses were performed using germination indices of seedlings of seventeen mungbean varieties exposed to 400 mM NaCl (Table 2) to discriminate them based on their tolerance levels. FGP, GRI, GI, and TGI are essential to understand time, rapidity, uniformity, rate, and synchronization of seed germination (Kader, 2005). The higher the FGP, the higher is the population size. Higher GI is shown by seeds having a greater germination percentage and also a high rate of germination. Thus, if seed germination is higher and faster, it results in a better GRI (Kader, 2005). The Timson germination index (TGI) is an important and widely used parameter to assess the seed germination rate (Timson, 1965). 'VBN(Gg)3' and 'VBN(Gg)2' did not germinate at this salt stress level, and hence their germination indices were zero, while 'PKU-AKM 12-28' and 'PKU-AKM 8802' showed the highest germination indices due to their salt-tolerant nature.

Table 1. Seed germination parameters in seventeen mungbean varieties under control and 400 mM NaCl stress

Variety	NaCl (mM)	FGP (%)	GI	GRI	TGI
'VBN(Gg)2'	0	86.67 ± 5.77	41.67 ± 3.06	7.83 ± 1.04	83.33 ± 6.11
	400	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
'VBN(Gg)3'	0	86.67 ± 5.77	42.00 ± 1.73	8.07 ± 0.12	84.00 ± 3.46
	400	0.00 ±0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
'IPM 401-3'	0	100.00 ±0.00	43.00 ± 0.58	7.17 ± 0.00	86.00 ± 0.00
	400	33.33 ± 5.77	13.00 ± 1.73	1.56 ± 0.10	26.00 ± 3.46
'IPM 302-2'	0	100.00 ±0.00	50.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	33.33 ±15.28	11.33 ± 4.93	1.36 ± 0.63	22.67 ± 9.87
'IPM-2K-14-9'	0	90.00 ±10.00	42.33 ± 4.16	8.36 ± 0.55	84.67 ± 8.33
	400	33.33 ± 5.77	8.67 ± 2.08	1.00 ± 0.22	17.33 ± 4.16
'IPM 2-3'	0	100.00 ±0.00	47.67 ± 0.58	8.83 ± 0.29	95.33 ± 1.15
	400	23.33 ±11.55	4.67 ± 2.31	0.58 ± 0.29	9.33 ± 4.62
'IPM 2-14'	0	100.00 ±0.00	46.67 ± 2.52	9.08 ± 0.52	93.33 ± 5.03
	400	30.00 ±10.00	7.33 ± 0.58	0.95 ± 0.14	14.67 ± 1.15
'IPM 99-125'	0	100.00 ±0.00	44.67 ± 0.58	7.33 ± 0.29	89.33 ± 1.15
	400	33.33 ±15.28	14.00 ± 2.65	2.08 ± 0.14	28.00 ± 5.29
'PKU-AKM 12-28'	0	100.00 0.00	50.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	50.00 ±17.32	14.67 ± 4.04	1.75 ± 0.50	29.33 ± 8.08
'PKV Greengold'	0	100.00 ±0.00	50.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	13.33 ± 5.77	5.67 ± 2.89	0.94 ± 0.77	11.33 ± 5.77
'DGGV-2'	0	100.00 ±0.00	50.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	36.67 ± 5.77	15.33 ± 2.08	2.22 ± 0.19	30.67 ± 4.16
'PKU-AKM-4'	0	100.00 ±0.00	5]0.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	10.00 ± 0.00	4.33 ± 0.58	0.50 ± 0.00	8.67 ± 1.15
'PKU-AKM 8802'	0	100.00 ±0.00	50.00 ± 0.00	10.00 ±0.00	100.00 ± 0.00
	400	53.33 ±11.55	17.67 ± 5.77	2.03 ± 0.82	35.33 ± 11.55
'Utkarsha'	0	96.67 ± 5.77	39.00 ± 3.00	6.14 ± 0.76	78.00 ± 6.00
	400	30.00 ±10.00	6.67 ± 3.06	0.81 ± 0.34	13.33 ± 6.11
'SML 668'	0	100.00 ±0.00	48.00 ± 1.00	9.00 ± 0.50	96.00 ± 2.00
	400	20.00 ±10.00	4.67 ± 1.53	0.56 ± 0.21	9.33 ± 3.06
'Swati 4'	0	100.00 ±0.00	47.33 ± 0.58	8.67 ± 0.29	94.67 ± 1.15
	400	26.67 ± 5.77	5.33 ± 1.15	0.67 ± 0.14	10.67 ± 2.31
'Samrat'	0	100.00 ±0.00	49.67 ± 0.58	9.83 ± 0.29	99.33 ± 1.15
	400	6.67 ± 11.55	1.67 ± 2.89	0.23 ± 0.40	3.33 ± 5.77

FGP: final germination percentage, GI: germination index**,** GRI: germination rate index**,** TGI: Timson germination index. (Values represent mean± standard deviation)

The germination indices were converted to STIs (Table 2) subjected to PCA and HCA. The PCA (Figure 1) showed the discrimination of varieties. PC1 and PC2 described 95.42% and 3.82% of the variance. The eigenvalue of PC1 and PC2 constituted 3.82% and 0.15% of the variation, respectively. PC1 positively correlated with GI (0.99), TGI (0.99), GRI (0.97), and FGP (0.95). PC2 had a positive correlation with only FGP (0.31), and all other parameters showed a negative correlation. The 'PKU-AKM 8802', 'PKU-AKM 12-28', 'DGGV-2', 'IPM 99-125', and 'IPM 401-3' ranked positively with PC1 due to higher germination parameters, whereas 'VBN(Gg)3', 'VBN(Gg)2', and 'Samrat' ranked negatively where all the parameters were suppressed. The STIs of GI, TGI, GRI, and FGP ranged between 0.00 to 0.35, 0.00 to 0.35, 0.00 to 0.22, and

0.00 to 0.53, respectively. The 'VBN(Gg)2' failed to germinate at this NaCl concentration. The highest STIs for germination parameters were observed in 'PKU-AKM 12-28' and 'PKU-AKM 8802'.

Table 2. Stress tolerance indices (STIs) of seed germination parameters of seventeen mungbean varieties under 400 mM NaCl salt stress

Variety	FGP	GI	GRI	TGI
'VBN(Gg)2'	0	0	0	0
'VBN(Gg)3'	0	0	0	0
'IPM 401-3'	0.33	0.3	0.22	0.3
'IPM 302-2'	0.33	0.23	0.14	0.23
'IPM-2K-14-9'	0.37	0.2	0.12	0.2
'IPM 2-3'	0.23	0.1	0.07	0.1
'IPM 2-14'	0.3	0.16	0.1	0.16
'IPM 99-125'	0.4	0.31	0.28	0.31
'PKU-AKM 12-28'	0.5	0.29	0.18	0.29
'PKV Greengold'	0.13	0.11	0.09	0.11
'DGGV-2'	0.37	0.31	0.22	0.31
'PKU-AKM 4'	0.1	0.09	0.05	0.09
'PKU-AKM 8802'	0.53	0.35	0.2	0.35
'Utkarsha'	0.31	0.17	0.13	0.17
'SML 668'	0.2	0.1	0.06	0.1
'Swati 4'	0.27	0.11	0.08	0.11
'Samrat'	0.07	0.03	0.02	0.03

(FGP: final germination percentage, GI: germination index, GRI: germination rate index, TGI: Timson germination index)

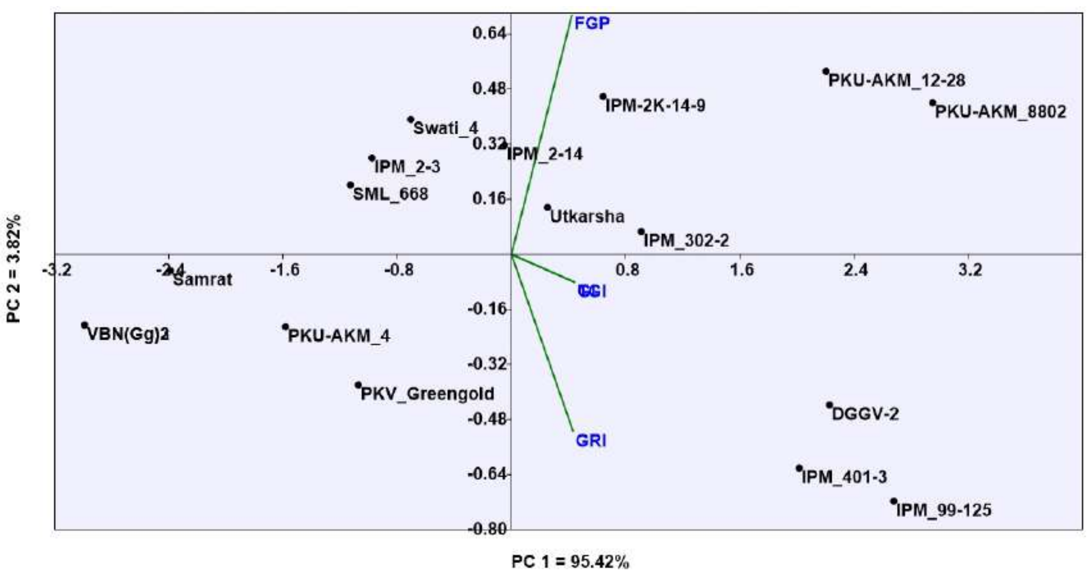


Figure 1. Biplot of principal components 1 and 2 of the PCA obtained from germination data on seventeen mungbean varieties exposed to 400 mM NaCl

FGP: final germination percentage, GI: germination index, GRI: germination rate index, TGI: Timson germination index.

PCA results were further confirmed by cluster analysis, which was performed on parameters responsible for most of the variation accounted for by PC1 and PC2. At 400 mM NaCl, SL, RL, and SV were not measurable due to poor seedling growth. Only germination indices were the key parameters to separate all varieties into four clusters at the highest salinity level (400 mM NaCl) (Fig 2). The 'VBN(Gg)2', 'VBN(Gg)3', and 'Samrat' from cluster I represent a highly susceptible group of varieties with low germination indices. 'IPM 2-14', 'Utkarsha', 'IPM 302-2', and 'IPM-2K-14-9' separated in cluster II represented moderately susceptible varieties. In contrast, 'IPM 2-3', 'SML 668', 'Swati 4', 'PKV Greengold', and 'PKU-AKM-4' separated in cluster III are moderately tolerant varieties. This separation is because of better germination indices in cluster II than cluster III. The 'PKU-AKM 12-28', 'PKU-AKM 8802', 'IPM 401-3', 'DGGV-2', and 'IPM 99-125' varieties separated in cluster IV represent salt-tolerant varieties with higher germination compared to all other clusters.

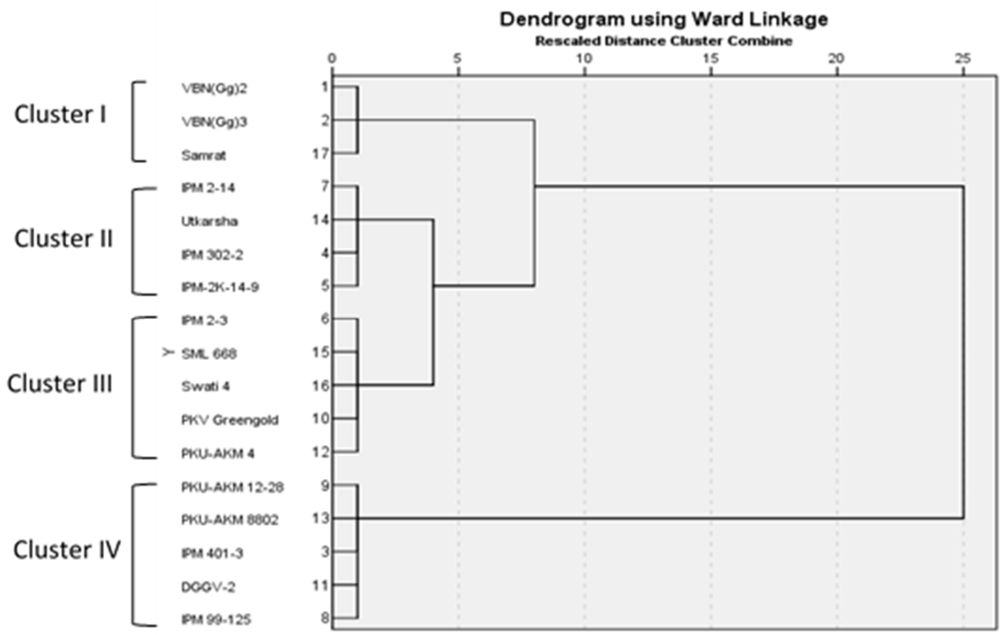


Figure 2. Hierarchical cluster analysis based on germination parameters on seventeen mungbean varieties subjected to 400 mM NaCl stress

Effect of salt stress on photosynthetic and biochemical attributes at early seedling growth in mungbean varieties

Two salt susceptible varieties ('VBN (Gg)3' and 'VBN (Gg)2') and two salt-tolerant varieties ('PKU-AKM 12-28' and 'PKU-AKM 8802') were selected to explore the salt-responsive photosynthetic and biochemical attributes at early seedling growth. These varieties were subjected to 75, 100, and 125 mM NaCl stress, and various photosynthetic and biochemical parameters in shoot and root biomass were measured.

Effect of salt stress on photosynthetic pigments

Salinity alters photosynthetic, biochemical, physiological, and metabolic processes, the extent of which varies with the level of stress and ultimately limits crop productivity (Shahid *et al.*, 2020). Plant growth is severely affected due to alteration in photosynthesis. Photosynthesis is hampered under salinity stress due to a reduction in chlorophyll contents or synthesis (Shin *et al.*, 2020).

In the present study, amounts of photosynthetic pigments, carotenoids, and anthocyanins were significantly reduced under salt stress (Figure 3A-3E). Damage to the photosynthetic pigments increased with the increasing salt concentration (Figure 3A-3E) and the 125 mM NaCl stress was the most damaging. These results corroborate those by Datir *et al.* (2020) in wheat and Regni *et al.* (2019) in olive. Low chlorophyll content observed in mungbean plants under salinity may be associated with increased oxidative stress (Regni *et al.,* 2019) and the activation of chlorophyll degradation by the chlorophyllase enzyme (Datir *et al.*, 2020).

Salinity also affected carotenoid contents in mungbean varieties. Carotenoid levels were relatively less affected in 'PKU-AKM 12-28' at 75 and 100 mM NaCl concentration (Figure 3D). At the highest salinity stress level, the maximum reduction in carotenoids was observed in 'VBN(Gg)3'. Similar results were reported by Romanenko *et al.* (2017) in the alga *Acutodesmus dimorphus*. The enhanced carotenoid content improved salt tolerance in VBN(Gg)2. This result confirms carotenoid's potential role as antioxidants to detoxify ROS effects in plants during salinity stress (Verma and Mishra, 2005).

Literature is meager on anthocyanin levels in the vegetative tissue under salt stress. Anthocyanin content was marginally high in 'PKU-AKM 12-28' at 125 mM NaCl, whereas the other three varieties showed a 30-35% decrease in anthocyanin content (Figure 3E). High anthocyanin content was shown to induce an active protective response in *Oryza sativa* under salinity stress (Chutipaijit *et al.*, 2009). Eryilmaz (2006) had observed that chlorophyll content decreases, whereas anthocyanin content is elevated in different parts of seedlings under salinity. In sorghum, Jeon *et al.* (2020) have reported an increased anthocyanin production in salt-tolerant genotype 'Nampungchal' and reduced anthocyanin levels in the salt-susceptible 'Sodamchal' genotype. The mechanism of anthocyanin biosynthesis under salt stress is poorly understood and needs to be explored in detail (Eryilmaz, 2006).

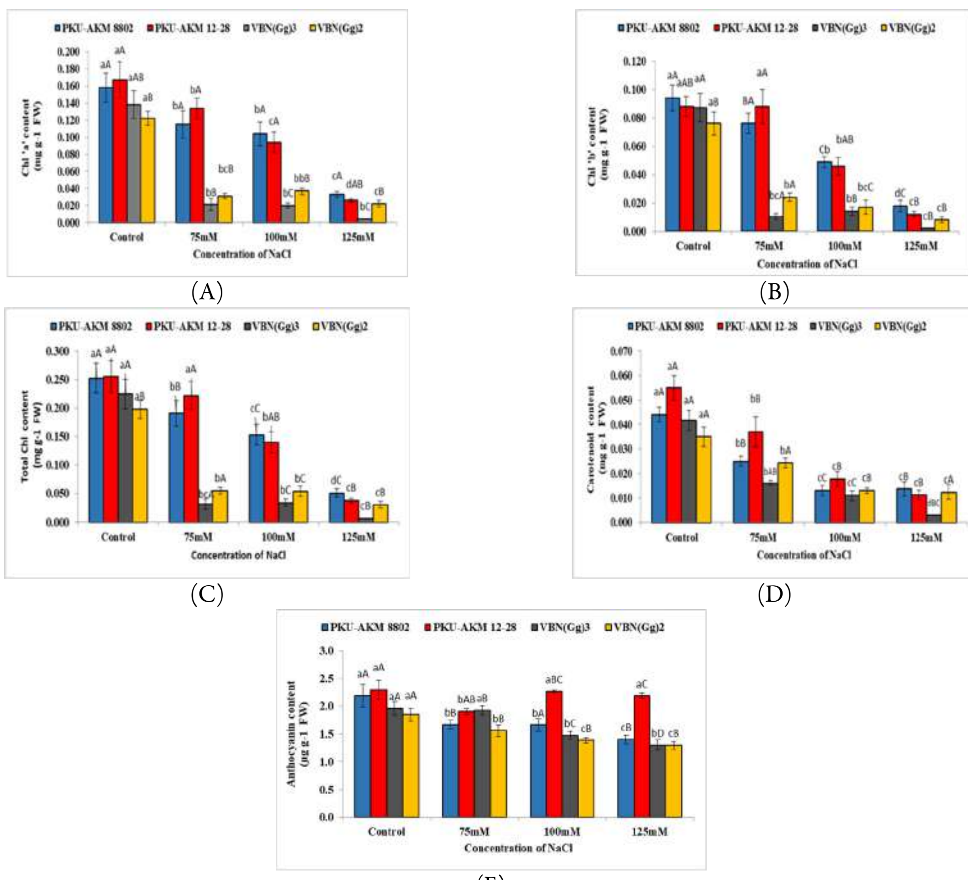
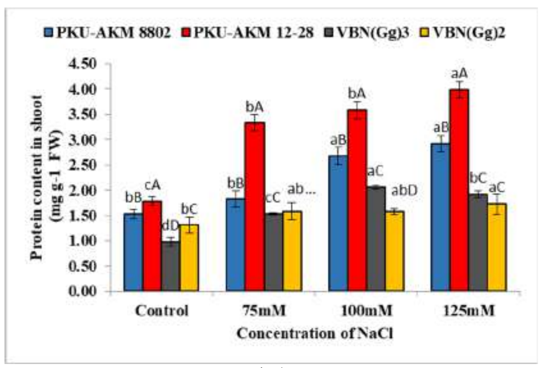


Figure 3. Effect of salt stress on plant pigments of 10-day old seedlings of *Vigna radiata* varieties
A) Chlorophyll 'a'; B) Chlorophyll 'b'; C) Total chlorophyll; D) Carotene and E) Anthocyanin content. Each value represents the mean of three replicates, and the vertical bar indicates the standard deviation. Small letters denote significant difference between treatments, and capital letters denote significant difference between varieties at a 0.05% significance level as per Duncan's Multiple Range Test (DMRT)

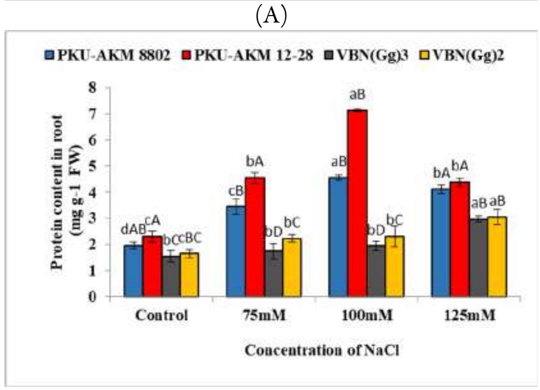
Effect of salt stress on protein content

The biochemical attributes were indeed influenced by increasing salt concentration in the selected four varieties. Protein content was increased upon exposure to salt stress in all varieties. Shoot protein content increased significantly under salt stress in 'PKU-AKM 12-28' (1.01-fold and 1.23-fold), followed by 'PKU-AKM 8802' (0.75 and 0.91-fold) at 100 and 125 mM NaCl concentration, respectively (Figure 4A). In 'VBN (Gg)2' and 'VBN (Gg)3', protein content increased relatively less compared to control at the highest salt concentration. In 'VBN (Gg)3', protein content increased at 100 mM NaCl but decreased at 125 mM NaCl.

Root protein was increased dramatically in 'PKU AKM 12-28' (2.1-fold) and 'PKU-AKM 8802' (1.32-fold) at 100 mM NaCl compared to 'VBN (Gg)2' (41%) and 'VBN (Gg)3' (0.26-fold) (Figure 4B). Protein content was high at all NaCl concentrations in 'PKU AKM 12-28' and 'PKU-AKM 8802'. The higher protein content in susceptible varieties could be due to enhanced detoxification pathways (Alharby *et al.*, 2019). Under salinity, plants significantly increase the levels of proteins such as photosynthetic pathway proteins, enzymes involved in scavenging ROS and osmolyte biosynthesis, late embryogenesis abundant proteins (LEA proteins), and membrane proteins, and carbohydrate and energy metabolism proteins (Arif *et al.*, 2020).



(A)

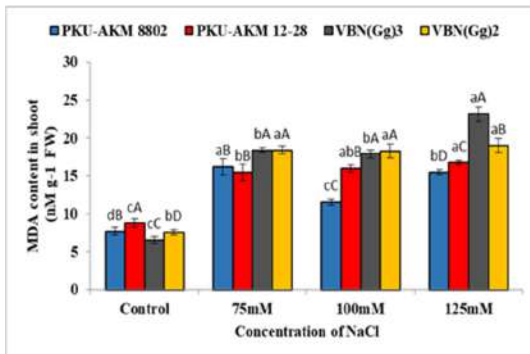


(B)

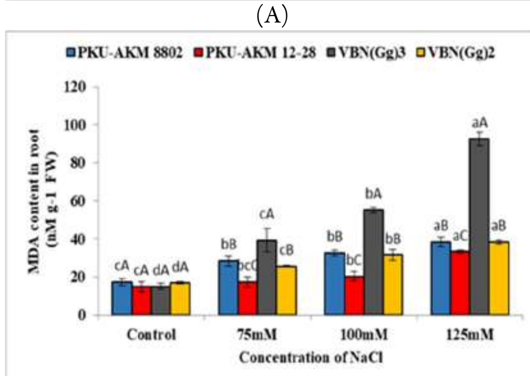
Figure 4. Effect of salt stress on the protein content of 10-day old seedlings of *Vigna radiata* varieties
A) Shoot protein content and B) Root protein content. Each value represents the mean of three replicates, and the vertical bar indicates the standard deviation. Small letters denote significant difference between treatments, and capital letters denote significant difference between varieties at a 0.05% significance level according to Duncan's Multiple Range Test (DMRT)

Effect of salt stress on lipid peroxidation

MDA, an output of oxidative stress and membrane damage, was used to measure the intensity of membrane damage in shoots and roots exposed to salinity stress (Campo *et al.*, 2014). Untreated normal seedlings have lower MDA content due to relatively less membrane damage caused by reactive oxygen species (ROS) generated as a by-product of plant aerobic metabolism. Various environmental stresses result in excessive ROS production, causing progressive oxidation of membranes (Sharma *et al.*, 2012), and therefore, elevated MDA levels. Increased salt concentrations elevated the MDA content in mungbean, and it can be used as a vital biomarker to discriminate crop varieties. Membrane damage increased with increasing salt concentration from 75-125 mM NaCl. In the shoot, MDA content was significantly increased in 'VBN (Gg)2' by 1.43-fold and by 1.81-fold in 'VBN (Gg)3' as compared to 'PKU-AKM 12-28' (0.7-fold) and 'PKU-AKM 8802' (1.1-fold) at 75 mM NaCl. Further, it increased in 'VBN (Gg)3' by 2.53-fold than in 'PKU-AKM 12-28' at 125 mM NaCl (Figure 5A). In the root, the highest MDA content was found in 'VBN (Gg)3', which was increased by 5.14-fold compared to other varieties, which showed a nearly 1.2-1.3-fold increase in MDA at 125 mM NaCl (Figure 5B). Such an increase in MDA content with increasing salt concentrations was also observed more in the sensitive wheat genotype than the tolerant ones (Datir *et al.*, 2020).



(A)



(B)

Figure 5. Effect of salt stress on lipid peroxidation (in terms of MDA content) in 10-day old seedlings of *Vigna radiata* varieties

A) Shoot MDA content and B) Root MDA content. Each value represents the mean of three replicates, and the vertical bar indicates the standard deviation. Small letters denote significant difference between treatments, and capital letters denote significant difference between varieties at a 0.05% significance level according to Duncan's Multiple Range Test (DMRT)

Effect of salt stress on phenolics, flavonoids, and antioxidants

Natural antioxidants such as phenolic and flavonoid compounds play an essential role under stress. These metabolites have various biological functions in plants, the significant being protection from ROS generated under various environmental stresses such as salt stress (Khare *et al.*, 2020). The elevated levels of phenolics and flavonoids observed in the present investigation support the observations by (Bistgani *et al.*, 2019). These secondary metabolites act as antioxidants, mitigate oxidative stress, and scavenge the reactive oxygen species (ROS)(Selmar and Kleinwächter, 2013). Phenolic content in shoot and root was increased in 'PKU AKM 12-28' and 'PKU-AKM 8802' compared to 'VBN (Gg)2' and 'VBN (Gg)3' at 125 mM NaCl (Figure 6A). It was increased in the root of 'PKU AKM 12-28' and 'PKU-AKM 8802' by 24% and decreased in 'VBN (Gg)2' and 'VBN (Gg)3' by 38% and 63%, respectively, at 125 mM NaCl. However, 'VBN (Gg)3' showed increased phenolic content at 100 mM NaCl in the root (Figure 6B). In the shoot, flavonoid content increased in 'PKU AKM 12-28' by 14% and 'PKU-AKM 8802' by 33% but decreased in 'VBN (Gg)2' by 53% and 'VBN (Gg)3' by 35% at 75 mM NaCl. However, it was decreased in all varieties at 125 mM NaCl by 41-52% (Figure 6C). In the root, flavonoid content increased in 'PKU-AKM 12-28' by 96% and decreased in 'VBN (Gg)2' by 57% at 100 mM NaCl. At 125 mM NaCl, it was significantly reduced in 'VBN (Gg)2' and 'VBN (Gg)3' compared to 'PKU-AKM 12-28' and 'PKU-AKM 8802' (Figure 6D). Such an increase in these secondary metabolites in salt-tolerant varieties was also reported by Chutipaijit *et al.* (2009) in salt-tolerant rice varieties than salt-sensitive ones.

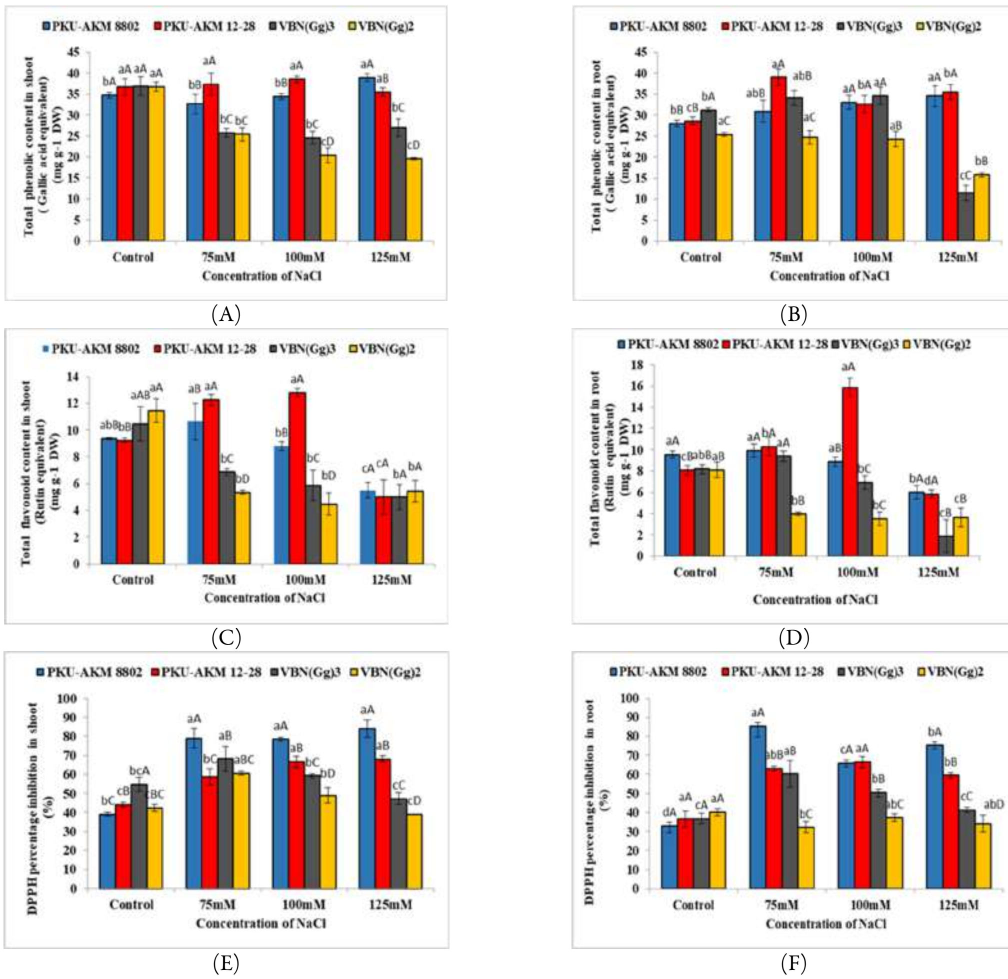


Figure 6. Effect of salt stress on phenol and flavonoid content and antioxidants of 10-day old seedlings of *Vigna radiata* varieties

A) Shoot phenolic content; B) Root phenolic content; C) Shoot flavonoids content; D) Root flavonoids content; E) Shoot DPPH radical scavenging activity and F) Root DPPH radical scavenging activity. Each value represents the mean of three replicates, and the vertical bar indicates the standard deviation. Small letters denote significant difference between treatments, and capital letters denote significant difference between varieties at a 0.05% significance level according to Duncan's Multiple Range Test (DMRT)

Where phenolic and flavonoid content correlates with antioxidant nature, DPPH assay is a nonenzymatic antioxidant activity which is a direct and sensitive method to investigate savaging of ROS by antioxidants (Golkar *et al.*, 2020). In the present study, DPPH radical scavenging activity significantly increased in both shoot and root as the salt concentration increased from 75-125 mM NaCl in 'PKU-AKM

12-28' and 'PKU-AKM 8802' (Figure 6E-6F). However, it was initially increased at 75 and 100 mM NaCl and later decreased at 125 mM NaCl in 'VBN (Gg)2' and 'VBN (Gg)3'. However, DPPH radical scavenging was higher in 'PKU-AKM 8802' than 'VBN (Gg)2' at all salt concentrations. In this regard, the increase in DPPH activity under salt stress corroborates with studies in chickpea (Kaur *et al.*, 2014).

Effect of salt stress on osmolyte accumulation

High accumulation of different osmolytes like proline, amino acids, and total sugars was observed in the mungbean varieties exposed to NaCl stress (Figure 8). In the shoot, proline content was significantly higher in 'PKU-AKM 12-28' and 'PKU-AKM 8802' than 'VBN (Gg)2' and 'VBN (Gg)3'. At 125 mM NaCl, the highest increase in proline content in the shoot was found in 'PKU-AKM 12-28' (by 5.48-fold) and in 'VBN (Gg)3' (by 1.25-fold) (Figure 7A). At 125 mM NaCl, proline content was significantly increased by 3.26-fold in the roots of 'PKU-AKM 12-28', whereas in the roots of 'VBN (Gg)2' and 'VBN (Gg)3', it increased by 0.4-fold and 0.27-fold respectively (Figure 7B). Proline content was significantly increased in root than shoot. Proline also acts as an antioxidant by stabilizing the membranes, scavenging free radicals, stabilizing proteins and protein complexes, and maintaining the osmotic balance (Muchate *et al.*, 2016).

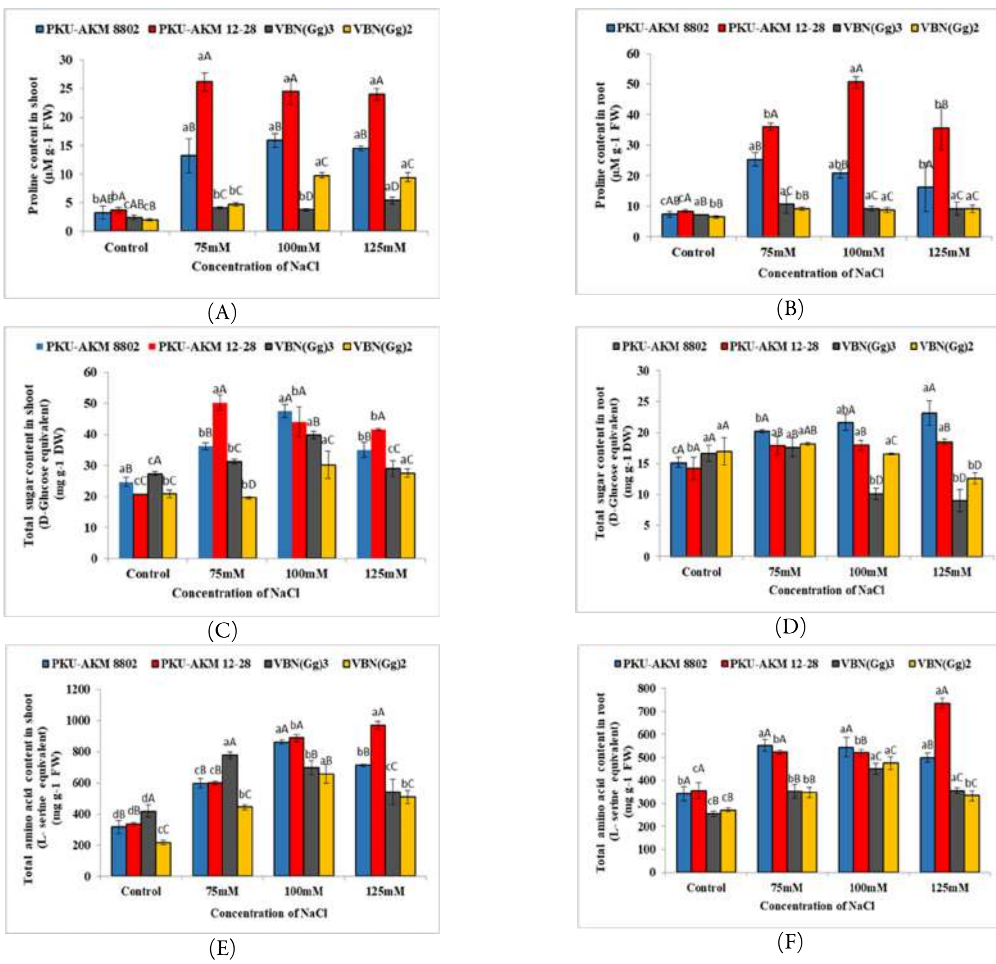


Figure 7. Effect of salt stress on osmolyte accumulation of 10-day old seedlings of *Vigna radiata* varieties A) Shoot proline content; B) Root proline content; C) Shoot total sugar content; D) Root total sugar content; E) Shoot amino acid content and F) Root amino acid content. Each value represents the mean of three replicates, and the vertical bar indicates the standard deviation. Small letters denote significant difference between treatments, and capital letters denote significant difference between varieties at a 0.05% significance level according to Duncan's Multiple Range Test (DMRT)

At 100 and 125 mM NaCl, 'VBN (Gg)2' and 'VBN (Gg)3' showed a remarkable decrease in sugar content than 'PKU-AKM 12-28' and 'PKU-AKM 8802' (Figure 7C-7D). The levels of sugars increase under salinity, and their role in osmotic adjustment has been validated (Marzec *et al.*, 2013; Ali *et al.*, 2018). At 75, 100, and 125 mM NaCl, amino acid content was significantly increased in the shoot and root of 'PKU-AKM 12-28' and 'PKU-AKM 8802' than 'VBN (Gg)2' and 'VBN (Gg)3' (Figure 7E-7F). Shahid *et al.* (2013) and Verma *et al.* (2018) have also reported increased amino acid content under salinity.

Conclusions

The present study concludes that the NaCl-induced salinity stress significantly affects the germination of seeds and early seedling growth in mungbean. Among the seventeen mungbean varieties, 'PKU-AKM 12-28' and 'PKU-AKM 8802' were the least affected by NaCl stress, whereas 'VBN(Gg)2' and 'VBN(Gg)3' were the most affected. These findings suggest that seed germination and growth attributes of mungbean seedlings can be used as traits for a rapid assortment of salt stress-tolerant varieties. Comparatively higher contents of photosynthetic pigments, proteins, secondary metabolite, osmolytes, antioxidants, and lower MDA content in the seedlings of 'PKU-AKM 12-28' and 'PKU-AKM 8802' suggest the salt-tolerant nature of these varieties. However, since this assessment of salt stress tolerance in the seventeen mungbean varieties is based on seeds germinated in Petri plates, field-based experiments are needed for validating the results. Further, studies on proteomics and genomics in these mungbean varieties would also be appropriate to know and validate genes and proteins conferring salt tolerance.

Authors' Contributions

GDM: Performed the experiments, collected and analysed the data, URW: Analysed data and prepared draft manuscript, DBS: Analysed data and prepared draft manuscript, TDN: Designed the experiments, and RBB: Designed the experiments, analysed the data, and finalized the manuscript. All authors read and approved the final manuscript.

Acknowledgements

We are grateful to Dr. Neeta M. Patil, Head, Department of Botany, and Principal Dr. R. S. Zunjarrao, for providing the necessary infrastructure required to conduct the research. The authors gratefully acknowledge all institutes and companies for providing seeds of mungbean varieties. This work was supported by the Council of Scientific and Industrial Research (CSIR), New Delhi, MS, India, through the CSIR-JRF fellowship to Mr. Ganesh Mankar (grant number- 08/658(0001)/2017-EMR-I).

Conflict of Interests

The authors declare that there are no conflicts of interest related to this article.

References

Abdul-Baki AA, Anderson JD (1973). Vigor determination in soybean seed by multiple criteria 1. Crop Science 13(6):630-633. *https://doi.org/10.2135/cropsci1973.0011183X001300060013x*

Alharby HF, Al-Zahrani HS, Hakeem KR, Iqbal M (2019). Identification of physiological and biochemical markers for salt (NaCl) stress in the seedlings of mungbean [*Vigna radiata* (L.) Wilczek] genotypes. Saudi Journal of Biological Sciences 26(5):1053-1060. *https://doi.org/10.1016/j.sjbs.2018.08.006*

Ali S, Khan N, Nouroz F, Erum S, Nasim W, Shahid MA (2018). *In vitro* effects of GA3 on morphogenesis of CIP potato explants and acclimatization of plantlets in field. In Vitro Cellular and Developmental Biology - Plant 54(1):104-111. *https://doi.org/10.1007/s11627-017-9874-x*

Arif Y, Singh P, Siddiqui H, Bajguz A, Hayat S (2020). Salinity induced physiological and biochemical changes in plants: An omic approach towards salt stress tolerance. Plant Physiology and Biochemistry 156(7):64-77. *https://doi.org/10.1016/j.plaphy.2020.08.042*

Arnon DI (1949). Copper enzymes in isolated chloroplasts. Polyphenoloxidase in *Beta vulgaris*. Plant Physiology 24(1):1-15. *https://doi.org/10.1104/pp.24.1.1*

Bagwasi G, Agenbag GA, Swanepoel PA (2020). Effect of salinity on the germination of wheat and barley in South Africa. Crop, Forage & Turfgrass Management 6(1):e20069. *https://doi.org/10.1002/cft2.20069.*

Balbaa SI, Zaki AY, El Shamy AM (1974). Total flavonoid and rutin content of the different organs of *Sophora japonica* L. Journal of AOAC International 57(3):752-755. *https://doi.org/10.1093/jaoac/57.3.752*

Bates LS, Waldren RP, Teare ID (1973). Rapid determination of free proline for water-stress studies. Plant and Soil 39(1):205-207. *https://doi.org/10.1007/BF00018060*

Bistgani ZE, Hashemi M, DaCosta M, Craker L, Maggi F, Morshedloo MR (2019). Effect of salinity stress on the physiological characteristics, phenolic compounds and antioxidant activity of *Thymus vulgaris* L. and *Thymus daenensis* Celak. Industrial Crops and Products 135:311-320. *https://doi.org/10.1016/j.indcrop.2019.04.055*

Blois MS (1958). Antioxidant determinations by the use of a stable free radical. Nature 181:1199-1200. *https://doi.org/10.1038/1811199a0*

Campo S, Baldrich P, Messeguer J, Lalanne E, Coca M, Segundo BS (2014). Overexpression of a calcium-dependent protein kinase confers salt and drought tolerance in rice by preventing membrane lipid peroxidation. Plant Physiology 165(2):688-704. *https://doi.org/10.1104/pp.113.230268*

Chunthaburee S, Dongsansuk A, Sanitchon J, Pattanagul W, Theerakulpisut P (2015). Physiological and biochemical parameters for evaluation and clustering of rice cultivars differing in salt tolerance at seedling stage. Saudi Journal of Biological Sciences 23(4):467-477. *https://doi.org/10.1016/j.sjbs.2015.05.013*

Chutipaijit S, Cha-Um S, Sompornpailin K (2009). Differential accumulations of proline and flavonoids in indica rice varieties against salinity. Pakistan Journal of Botany 41(5):2497-2506. *http://www.pakbs.org/pjbot/PDFs/41(5)/PJB41(5)2497.pdf*

Datir S, Singh N, Joshi I (2020). Effect of NaCl-induced salinity stress on growth, osmolytes and enzyme activities in wheat genotypes. Bulletin of Environmental Contamination and Toxicology 104(3):351-357. *https://doi.org/10.1007/s00128-020-02795-z*

Eryılmaz F (2006). The relationships between salt stress and anthocyanin content in higher plants. Biotechnology & Biotechnological Equipment 20(1): 47-52. *https://doi.org/10.1080/13102818.2006.10817303*

Golkar P, Bakhshi G, Vahabi MR (2020). Phytochemical, biochemical, and growth changes in response to salinity in callus cultures of *Nigella sativa* L. In Vitro Cellular and Developmental Biology - Plant 56(2):247-258. *https://doi.org/10.1007/s11627-020-10058-z*

Hammer Ø, Harper DA, Ryan PD (2001) PAST: Paleontological statistics software package for education and data analysis. Palaeontologia Electronica 4(1):9.

Heath RL, Packer L (1968). Photoperoxidation in isolated chloroplasts. Archives of Biochemistry and Biophysics 125(1):189-198. *https://doi.org/10.1016/0003-9861(68)90654-1*

Jeon D, Lee S, Choi S, Seo S, Kim C (2020). Effect of salt stress on the anthocyanin content and associated genes in *sorghum bicolor* L. Korean Journal of Agricultural Science 47(1):105-117. *https://doi.org/10.7744/kjoas.20200003*

Kader MA (2005). A comparison of seed germination calculation formulae and the associated interpretation of resulting data. Journal and Proceeding of the Royal Society of New South Wales 138:65-75. *https://royalsoc.org.au/images/pdf/journal/138_Kader.pdf*

Kaur N, Kumar A, Kaur K, Gupta AK, Singh I (2014). DPPH radical scavenging activity and contents of H_2O_2, malondialdehyde and proline in determining salinity tolerance in chickpea seedlings. Indian Journal of Geo-Marine Sciences 51(5):407-415. *http://hdl.handle.net/123456789/29890*

Khare S, Singh NB, Singh A, Hussain I, Niharika K, Yadav V, … Amist N (2020). Plant secondary metabolites synthesis and their regulations under biotic and abiotic constraints. Journal of Plant Biology 63(3):203-216. *https://doi.org/10.1007/s12374-020-09245-7*

Lee YP, Takahashi T (1966). An improved colorimetric determination of amino acids with the use of ninhydrin. Analytical Biochemistry 14(1):71-77. *https://doi.org/10.1016/0003-2697(66)90057-1*

Liu C, Zhao X, Yan J, Yuan Z, & Gu M (2020). Effects of Salt stress on growth, photosynthesis, and mineral nutrients of 18 pomegranate (*Punica granatum*) cultivars. Agronomy 10(1):1-17. *https://doi.org/10.3390/agronomy10010027*

Lowry OH, Rosebrough NJ, Farr AL, Randall R J (1951). Protein measurement with the Folin phenol reagent. Journal of Biological Chemistry 193:265-275.

Maclachlan S, Zalik S (1963). Plastid structure, chlorophyll concentration, and free amino acid composition of a chlorophyll mutant of barley. Canadian Journal of Botany 41(7):1053-1062. *https://doi.org/10.1139/b63-088*

Mancinelli AL (1984). Photoregulation of anthocyanin synthesis. Plant Physiology 75(2):447-453. *https://doi.org/10.1104/pp.75.2.447*

Marzec M, Muszynska A, Gruszka D (2013). The role of strigolactones in nutrient-stress responses in plants. International Journal of Molecular Sciences 14(5):9286-9304. *https://doi.org/10.3390/ijms14059286*

Muchate NS, Nikalje GC, Rajurkar NS, Suprasanna P, Nikam TD (2016). Physiological responses of the halophyte *Sesuvium portulacastrum* to salt stress and their relevance for saline soil bio-reclamation. Flora: Morphology, Distribution, Functional Ecology of Plants 224(7):96-105. *https://doi.org/10.1016/j.flora.2016.07.009*

Nair RM, Pandey AK, War AR, Hanumantharao B, Shwe T, Alam AKMM, … Schafleitner R (2019). Biotic and abiotic constraints in mungbean production-progress in genetic improvement. Frontiers in Plant Science 10:1340. *https://doi.org/10.3389/fpls.2019.01340*

Nawaz M, Khan A, Ashraf MY (2020). Screening mungbean germplasm for salt tolerance using growth indices and physiological parameters 22(3):401-406. *https://doi.org/10.17957/IJAB/15.1078*

Öner F, Soysal AÖS (2020). Determination of germination and seedling growth parameters of rice (*Oryza sativa* L.) varieties under stress conditions. Notulae Scientia Biologicae 12(3): 693–701. *https://doi.org/10.15835/nsb12310766*

Pandey M, Penna S (2017). Time course of physiological, biochemical, and gene expression changes under short-term salt stress in *Brassica juncea* L. Crop Journal 5(3):219-230. *https://doi.org/10.1016/j.cj.2016.08.002*

Parida AK, Das AB (2005). Salt tolerance and salinity effects on plants: A review. Ecotoxicology and Environmental Safety 60:324-349. *https://doi.org/10.1016/j.ecoenv.2004.06.010*

Podder S, Ray J, Das D, Sarker BC (2020). Effect of salinity (NaCl) on germination and seedling growth of mungbean (*Vigna radiata* L.). Journal of Bioscience and Agriculture Research 24(2):2012-2019. *https://doi.org/10.18801/jbar.240220.246*

Rahman MM, Habib MA, Sikdar MSI, Md S, Islam MS (2016). Evaluation of mungbean genotypes for salt tolerance at seedling stage and alleviation of saline stress by gypsum. Fundamental and Applied Agriculture 1(1):39-43. *http://www.f2ffoundation.org/faa/wp-content/uploads/sites/2/2016/05/FAA-2016-008_Tech-Editor.pdf*

Rahneshan Z, Nasibi F, Moghadam AA (2018). Effects of salinity stress on some growth, physiological, biochemical parameters and nutrients in two *pistachio* rootstocks. Journal of Plant Interactions 13(1):73-82. *https://doi.org/10.1080/17429145.2018.1424355*

Regni L, Del Pino AM, Mousavi S, Palmerini CA, Baldoni L, Mariotti R, … Proietti P (2019). Behavior of four olive cultivars during salt stress. Frontiers in Plant Science 10:867. *https://doi.org/10.3389/fpls.2019.00867*

Romanenko EA, Romanenko PA, Babenko LM, Kosakovskaya IV (2017). Salt stress effects on growth and photosynthetic pigments' content in algoculture of *Acutodesmus dimorphus* (Chlorophyta). International Journal on Algae 19(3):271-282. *https://doi.org/10.1615/InterJAlgae.v19.i3.70*

Scott TA, Melvin EH (1953). Determination of dextran with anthrone. Analytical Chemistry 25(11):1656-1661. *https://doi.org/10.1021/ac60083a023*

Sehrawat N, Yadav M, Sharma AK, Kumar V, Bhat KV (2019). Salt stress and mungbean [*Vigna radiata* (L.) Wilczek]: effects, physiological perspective and management practices for alleviating salinity. Archives of Agronomy and Soil Science 65(9):1287-1301. *https://doi.org/10.1080/03650340.2018.1562548*

Selmar D, Kleinwächter M (2013). Influencing the product quality by deliberately applying drought stress during the cultivation of medicinal plants. Industrial Crops and Products 42(1):558-566. *https://doi.org/10.1016/j.indcrop.2012.06.020*

Shahid MA, Ashraf MY, Pervez MA, Ahmad R, Balal RM, Garcia-Sanchez F (2013). Impact of salt stress on concentrations of Na+, Cl-and organic solutes concentration in pea cultivars. Pakistan Journal of Botany 45(3):755-761. *https://www.pakbs.org/pjbot/PDFs/45(3)/06.pdf*

Shahid MA, Sarkhosh A, Khan N, Balal RM, Ali S, Rossi L, ... Garcia-Sanchez F (2020). Insights into the physiological and biochemical impacts of salt stress on plant growth and development. Agronomy 10(7):938. *https://doi.org/10.3390/agronomy10070938*

Sharma P, Jha AB, Dubey RS, Pessarakli M (2012) Reactive oxygen species, oxidative damage, and antioxidative defense mechanism in plants under stressful conditions. Journal of Botany 17037. *https://doi.org/10.1155/2012/217037*

Shelke DB, Pandey M, Nikalje GC, Zaware BN, Suprasanna P, Nikam TD (2017). Salt responsive physiological, photosynthetic and biochemical attributes at early seedling stage for screening soybean genotypes. Plant Physiology and Biochemistry 118:519-528. *https://doi.org/10.1016/j.plaphy.2017.07.013*

Shin YK, Bhandari SR, Jo JS, Song JW, Cho MC, Yang EY, Lee JG (2020). Response to salt stress in lettuce: Changes in chlorophyll fluorescence parameters, phytochemical contents, and antioxidant activities. Agronomy 10(11):1627. *https://doi.org/10.3390/agronomy10111627*

Swain T, Hillis WE (1959). The phenolic constituents of Prunus domestica. I.-The quantitative analysis of phenolic constituents. Journal of the Science of Food and Agriculture 10(1):63-68. *https://doi.org/10.1002/jsfa.2740100110*

Timson J (1965). New method of recording germination data. Nature 207(4993):216-217. *https://doi.org/10.1038/207216a0*

Verma SS, Verma RS, Verma SK, Yadav AL, Verma AK (2018). Impact of salt stress on plant establishment, chlorophyll and total free amino acid content of ber (*Zizyphus mauritiana* Lamk.) cultivars. Journal of Pharmacognosy and Phytochemistry 7(2):556-559. *https://www.phytojournal.com/archives/2018/vol7issue2/PartH/7-1-362-203.pdf*

Verma S, Mishra SN (2005). Putrescine alleviation of growth in salt stressed *Brassica juncea* by inducing antioxidative defense system. Journal of Plant Physiology 162(6):669-677. *https://doi.org/10.1016/j.jplph.2004.08.008*

Vibhuti SC, Bargali K, Bargali SS (2015). Seed germination and seedling growth parameters of rice (*Oryza sativa*) varieties as affected by salt and water stress. Indian Journal of Agricultural Sciences 85(1):102-108.

Yadav S, Irfan M, Ahmad A, Hayat S (2011). Causes of salinity and plant manifestations to salt stress: a review. Journal of Environmental Biology 32(5):667.

Journal of Medicinal and Chemical Sciences 5 (2022) 239-248

Journal of Medicinal and Chemical Sciences

Journal homepage: http://www.jmchemsci.com/

Original Article

Synthesis of Novel Series of 1-(6-Hydroxy-4-(1*H*-indol-3-yl)-3,6-dimethyl- 4,5,6,7-tetrahydro-1*H*-indazol-5-yl)ethan-1-oneas Evaluations of their Antimicrobial Activity with Insilco Docking Study

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A R T I C L E I N F O

Article history

Received: 2021-10-31
Received in revised: 2021-11-16
Accepted: 2021-11-20
Manuscript ID: JMCS-2110-1311
Checked for Plagiarism: **Yes**
Language Editor:
Ermia Aghaie
Editor who approved publication:
Dr. Behrooz Maleki

DOI:10.26655/JMCHEMSCI.2022.2.11

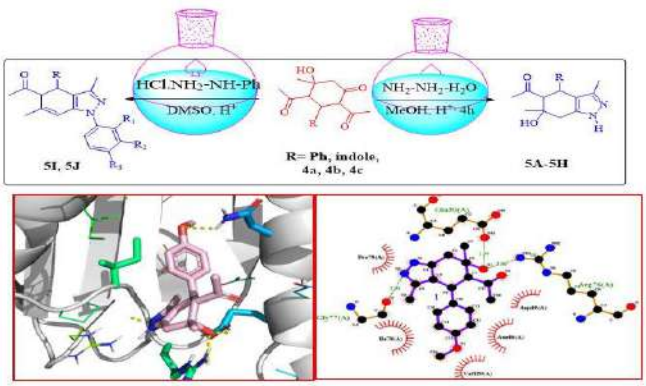
K E Y W O R D S

Dihydro-multi substitutedindazole
NH_2-NH_2-H_2O
Ph-NH_2-NH_2 Molecular docking
Antimicrobial activity

A B S T R A C T

This research study discusses the silico design, synthesis, and biological evaluation of novel effective phenyl, indole, 3,4-dimethyl substituted 4,5,6,7-tetrahydro-1H-indazole derivatives. The novel multi- substituted indazole derivatives (5A-5J) was synthesized from the treatment of hydrazine hydrates in MeOH/H+ with multi substituted clohexanone derivatives (4a-4j). The final scaffold was characterized with the help of spectroscopic data such asIR, 1H NMR, 13C NMR, and mass spectra. The compound 5A, 5D, and 5F shows excellent antibacterial activity and the compounds 5B, 5C, 5H 5I and 5J exhibited moderate antibacterial activity against the *S. aureus, Bacillus subtilis* and *E.Coli*. Finally, the molecular docking studies showes that the compound 5D and 5F scaffolds display excellent bonding mode of interactions with the active site of DNA gyrase 1KZN enzyme.

G R A P H I C A L A B S T R A C T



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Introduction

Indazole is an organic heterocyclic compound called isoindazole or benzo[c]pyrazole, 1,2-benzodiazole [1]. The discovery of indazolering was invented by Emil Fisher calling them fused benzene and pyrazole ring [2-3]. The continuous research on indazole is due to its interesting chemical and biological properties. Indazole belongs to azole family and the presence of 10π electron in the ring of indazole, makes them aromatic character similar to other heterocyclic aromatic compounds like indole, pyrimidine and pyrrole. The indazole exists in 1*H*-, 2*H*- and 3*H*- three tautomeric in nature (Figure 1) [4].

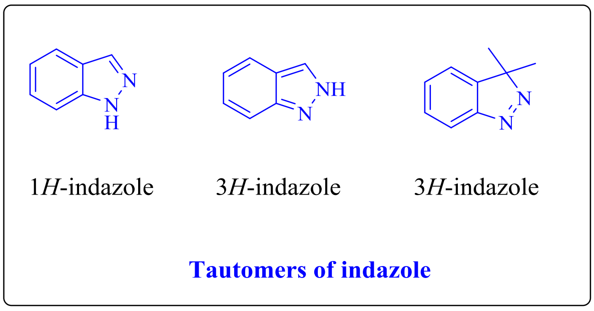


Figure 1: three tautomeric of indazole

In the case of the tautomeric equilibrium1*H*- and 2*H*-indazole, 1*H* tautomer is more stable than 2*H* tautomer. Tautomeric equilibrium stability was calculated by thermal and photochemical methods, for example, 2- methyl-2*H*-indazole is less stable than 1-methyl-1*H*-indazole. However 3*H*-indazole have only a few examples are known, which possess aliphatic or aromatic groups on the cyclic ring [5]. The example Pkb values for 1-methyl-1*H*-indazole is 0.42 but Pkb values for 2-methyl-2*H*-indazole is 2.02 that means the 2H tautomer is a stronger base than 1H tautomer. For identification of 1*H* tautomer and 2*H* tautomer the spectral studies ^{1}H, ^{13}C, ^{14}N, and ^{15}N NMR are used [6,7]. The ^{1}HNMR signal for methyl protons 1-methyl and 2-methyl-indazole vary only by 0.1-0.2 ppm, while in ^{13}C NMR the 1H tautomer is appear at 132-133 ppm and 2H tautomer has appeared at 123-124 ppm [8]. World's largest trading drugs are nitrogen-containing heterocycles. Indazole heterocyclic has two nitrogen atoms in the five-member ring. It is because of their availability all over nature, they make them a key scaffold of many biological and medicinally important molecules [9-10]. Indazole moiety has some pharmaceutical, agrestic, and commercial applications [11]. Indazole moiety is a medicinally significant scaffold having the most prominent skeleton of wild range drug ligand, such as serotonin 5-HT_3 receptor antagonis [12] applied in the cancer therapy and benzyl amine a COX-inhibitor inhibitor [13] anti-tumour [14-15], anti-HIV [16], Antimicrobial [14], and strongly estrogen receptor [18]. This has aroused great interest in the development of novel indazole-based therapeutic agents. The isolation of indazole natural products is very rare and less [19]. During the last two decade there is VI natural products of indazole are isolated in the scientific community. The natural product such as Nigellicine [20] (1), Nigeglanine [21] (2), Nigellidine [22], Nigellidine-O-sulfite, [23] nigeglapine (5) and nigeglaquine [24] (6) (Figure 2).

The Nigellicine natural product of indazole was isolated during the era of 1994-1985 from the flowering plant *Nigella sativa native*. Thousands of years ago, the Nigella Sativa seeds were traditionally used for the cure of various infections [20].

In the pursuit of developing novel antimicrobial agents, herein we demonstrate the preparation of some novel hybrids indazole moiety to investigate their potential antimicrobial activities.

Our research group is always interested in finding new heterocyclic compounds for biological testing [25-30]. The main objective of our continuous research is to find out new leads molecules with potential antimicrobial activities. Considering the medicinal utility of indazole, we attempted the molecular docking of novel multi substituted indazole derivatives with attractive targets enzyme with Clorobiocin ligand [31].

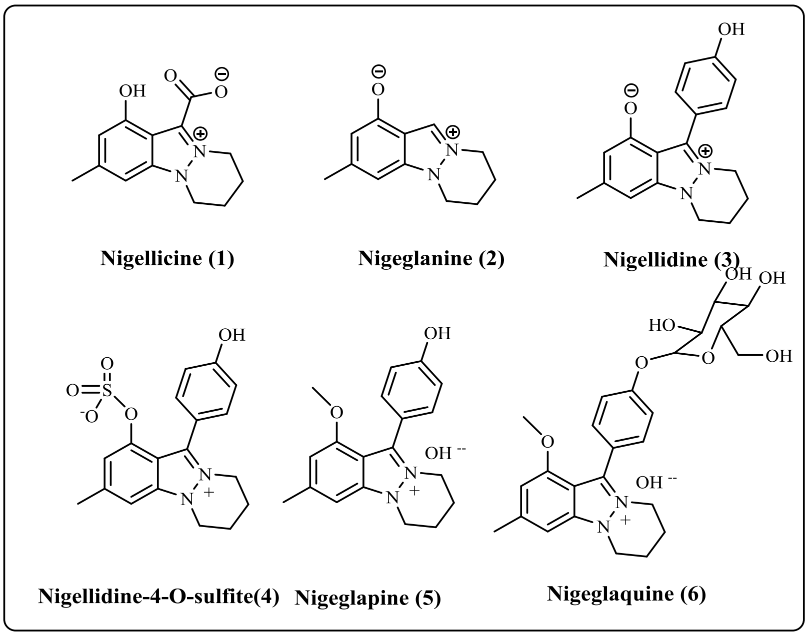


Figure 2: Natural products of Indazoles

Material and Methods

General Information

All the melting points were uncorrected and determined in an open capillary tube. The chemicals and solvents used in this study were of laboratory grade and purified. Completion of the reaction was monitored by thin layer chromatography on precoated sheets of silica gel-G (Merck, Germany) using iodine vapors for detection. IR spectra were recorded in KBr pellets on an FTIR Perkin Elmer/Schimadzu/Bruker spectrophotometer. ^{1}H NMR (400 MHz) and ^{13}C NMR (100 MHz) spectra were recorded in (DMSO)-d6with an Avance spectrometer (Bruker, Germany) at a 400-MHz frequency using TMS as an internal standard; chemical shifts are reported in parts per million and coupling constant in hertz (Hz). Multiplicities are reported as follows: s (singlet), d (doublet), t (triplet), m (multiplet). Mass spectra were recorded on an EI-Shimadzu QP 2010 PLUS GC-MS system (Shimadzu, Japan).

Experimental Section

General procedure for the Synthesis of Synthesis of 1,1'-(4-hydroxy-2-(1H-indol-3-yl)-4-methyl-6-oxocyclohexane -1,3-diyl) bis (ethan-1-one(4A);

The mixture of starting compound diketo compound and appropriate aldehyde in dimethylsulfoxide with base piperidine in a 50 mL round bottom flask. The reaction mixture was magnetically stirred at ambient temperature. The reaction mixture stirring for 5 h and completion of the reaction was checked by using TLC, after completion of the reaction, the reaction mixture was acidified with 10% HCl, quenched into ice-cold water, washed with water to afford the pure solid product

Light Yellow solid, M.P.97-98 °C, Yield : 98 % ; FTIR; 1690-1709, 2975, 2978, 2917, OH -3485, ^{1}H NMR (300 MHz, $CDCl_3$) δ 16.19 (s,1H), 8.25, (s, 1H), 7.84 (d, *J* = 2.8 Hz, 1H), 7.67 (d, *J* = 7.7 Hz, 1H), 7.39 – 7.32 (m, 2H), 7.22 –7.15 (m, 2H), 4.30 (t, *J* = 12.1Hz, 1H), 4.11 (s, 1H), 4.03 (d, *J* = 12.4 Hz, 1H), 3.60 (d, *J* = 11.8 Hz, 1H), 2.71- 2.57 (m, 2H), 2.00 (s, 3H), 1.62 (s, 3H), 1.33 (s, 3H),^{13}CNMR; $CHCl_3$, 217.32, 210.31, 109.72, 141.21, 130.15, 128.46, 126.13, 123.76, 123.59, 116.61, 77.71, 72.7, 67.26, 59.14, 36.60, 35.09, 33.08.Chemical Formula: $C_{19}H_{21}NNaO_4$ Exact Mass: 350.1368, Obtained: 350.1360.

Synthesis of 1,1'-(2-(5-bromo-1H-indol-3-yl)-4-hydroxy-4-methyl-6-oxocyclohexane-1,3-diyl) bis (ethan-1-one) (4B)

Light white solid M.P.177-178 °C, ($C_{19}H_{20}BrNO_4$), FT-IR; 1690-1714, 2985, 2970, 2917, OH -3490; ^{1}HNMR (300 $CDCl_3$); δ 4.204 (t, 1H, 4.302 s, 1H), 3.907 (d, 1H, *J*= 12.4), 3.702 (d,1H, *J* = 11.8), 2.591 (dd, 2H, J = 12.7 and 12.6 Hz), 2.01 (s, 3H), 1.623, s, 3H), 1.34 (s, 3H), *δ* ^{13}CMR; (75 MHz $CHCl_3$), 214.30, 210.35, 108.61, 138.23, 129.21,127.47, 124.16, 123.21, 121.52, 1151.6, 74.58, 73.62, 67.33, 59.42, 34.77, 33.23, 18.48.

Synthesis of 1,1'-(4-hydroxy-2-(5-methoxy-1H-indol-3-yl)-4-methyl-6-oxocyclohexane-1,3-diyl) bis (ethan-1-one) (4C)

White solid, m.p. 145-147 °C, M.F. $C_{20}H_{23}NO_5$) ^{1}H NMR (300 MHz, DMSO) δ 10.78 (s, 1H), 7.46 – 7.03 (m, 3H), 6.73 (s, 1H 5.21 (s, 1H)), 4.26 (t, J = 11.6Hz, 1H), 4.10 (d, J = 11.9 Hz, 1Hz, 1H), 3.78 (s, 3H), 3.00 (d, J = 12.1 Hz, 1H), 2.35 (d, J =13.8 Hz, 1H), 1.89 (s, 6H), 1.18 (s, 3H).^{13}CMR (75 MHz $CHCl_3$); δ 210.50, 206.97, 204.87, 153.46, 122.72, 127.91, 27.82, 112.56, 111.2, 109.9, 104.5, 72.75, 56.00, 55.60,30.430.46, 28.58, 21.58, 15.21.

General procedure for the synthesis of 1-(4-(1H-indol-3-yl)-3,6-dimethyl-4,5-dihydro-1H-indazol-5-yl) ethan-1-one (5A)

A solution of compound 1,1'-(4-hydroxy-2-(1*H*-indol-3-yl)-4-methyl-6-oxocyclohexane -1,3-diyl) bis (ethan-1-one and hydrazine hydrate 2.1 Equiv. in methanol, reflux the reaction mixture, TLC show the completion of stating compound, cool the reaction and poured in ic cold water, filter the residue and dry under vacuum gives light yellow solid with 65 % yield.

Lemon solid, m.p. 165 °C (decomposed); FTIR, 3346, 3292,3047, 2968, 2922, 1693, 1641; ^{1}H NMR (300 MHz, DMSO), δ 12.32 (s, 1H), 7.87 (d, J = 7.8 Hz, 1H), 7.42 (d, J = 8.3 Hz,1H), 7.20 (t, J = 7.4 Hz, 1H), 7.11 (t, J = 7.6 Hz, 1H), 5.33 (s, 1H), 4.20 (d, J = 12.2 Hz, 1H), 3.11 (d, J = 14.0 Hz, 1H), 2.44 (d, J = 14.0 Hz, 1H), 1.99 (s, 3H), 1.97 (s, 3H), 1.27 (s, 3H).

1-(6-hydroxy-4-(4-methoxyphenyl)-3,6-dimethyl-4,5,6,7-tetrahydro-1H-indazol-5-yl) ethan-1-one (5F)

Faint yellow solid, M.P. 182-185 °C, FTIR; 3412, 3057, 3001, 29682837, 1614, 1695, 1585, 1H NMR (300MHz, DMSO), δ 6.98 (d, J =Hz, 2H), 6.73 (d, J = 8.7Hz, 2H), 4.00 (d, J = 10.9 Hz, 1H), 3.69(s, 3H), 2.86 (d, J= 11.0 Hz, 1H), 2.71 (dd, J = 36.1, 16.5 Hz, 2H), 2.51 (s, 1H), 1.65 (s, 3H), 1.48 (s, 3H), 1.23 (s, 3H). δ ^{13}C (75MHz, dmso) 216.56, 158.38, 133.86, 129.14, 114.04, 113.48, 71.63, 64.10, 55.11, 40.92, 36.66, 34.39, 28.63. M. F.$C_{18}H_{22}N_2O_3$, Exact Mass: 314.1630, obtained; 314.9.

1-(6-hydroxy-3,6-dimethyl-4-phenyl-4,5,6,7-tetrahydro-1H-indazol-5-yl) ethan-1-one (5D)

White solid, m.p. 184-186 °C; FT-IR; 3273, 3161, 3088, 2974,2914,1676, 1583 1H NMR (300MHz, DMSO) δ11.97 (s, 1H), 7.23 (dt, J = 18.2, 7.1 Hz, 5H), 4.63 (s, 1H), 4.19 (d, J = 10.9 Hz,1H), 2.89 – 2.39 (m, 4H), 2.00 (s, 3H), 1.40 (s, 3H), 1.21 (s, 3H) ^{13}CNMR (75 MHz, DMSO), 209.56, 146.67, 141.56, 137.43, 128.54, 128.55, 128.18, 128.21, 126.10, 116.90, 74.34, 70.89, 41.22, 32.33, 31.62,24.55, 14.17, $C_{17}H_{20}N_2O_2$, mass found 284.1525, obtained m/z; 284.

1-(4-(4-chlorophenyl)-6-hydroxy-3,6-dimethyl-4,5,6,7-tetrahydro-1H-indazol-5-yl) ethan-1-one (5E)

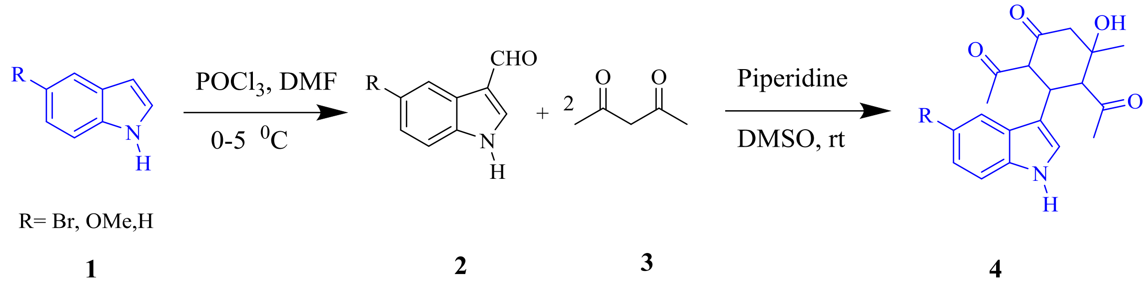
Light yellow solid, m.p. 154-155°C, FTIR, 3404, 3311, 3059, 2928,1704, 1597, ^{1}H NMR (300 MHz, $CDCl_3$) δ7.28 (d, J = 8.3 Hz, 2H), 7.11 (d, J = 8.2 Hz, 2H), 4.15 (d, J = 10.9 Hz, 1H), 2.95(d, J = 11.0 Hz, 1H), 2.82 (dd, J = 41.9, 16.6 Hz, 2H), 1.75 (s, 3H), 1.59 (s, 3H), 1.35 (s, 3H). M.F. $C_{17}H_{19}ClN_2O_2$, Exact Mass: 318.1135, obtained LCMS, m+h; 319.0

1-(3,6-dimethyl-4-(1-methyl-1H-indol-3-yl)-4,5-dihydro-1H-indazol-5-yl) ethan-1-one (5H)

Cream color, m.p. 171-174 °C, FT-IR; 3691, 3398, 3119, 2968,2787, 1697, 1602, 1512, ^{1}H NMR (300 MHz, DMSO) δ 8.66(s, 1H7.50 (d, J = 7.3 Hz, 2H), 7.35 (s, 1H), 7.22 (d, J = 5.1 Hz,2H),7.2– 7.13 (m, 1H), 7.04– 6.98 (m, 1H), 4.87 (s, 1H), 4.70 (d, J = 11.1 Hz, 1H), 3.82 (s, 3H), 3.11 (d, J = 11.3 Hz, 1H), 2.15 (s, 3H), 1.63 (s, 3H), 1.33 (s, 3H).

Results and Discussion

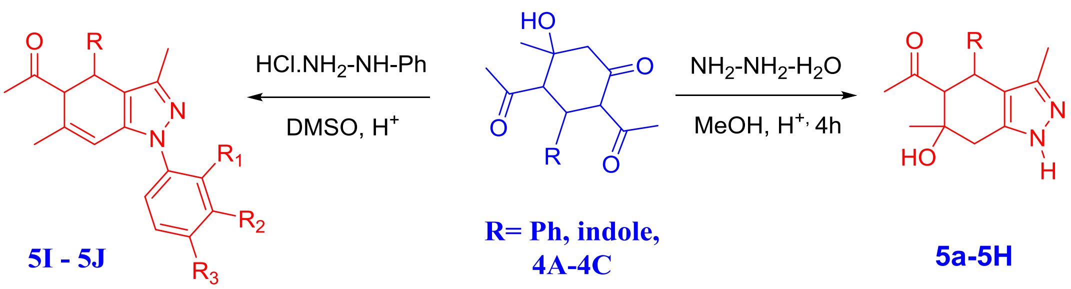
Initially, we started our strategy for the preparation of diacetyl, hydroxy-indole, methylcyclohexanone derivatives (Scheme 1), (4A-4C). In the present investigation, the synthesis of 2,4-diacetyl-5-hydroxy-3-(1*H*-indol-3-yl)-5-methylcyclohexanone analogs (Scheme 2, Figure 3) was performed by using modified aldol condensation reactions of heteroaromatic aldehydes and acetylacetone in DMSO solvent yielded intermediate cyclohexanones in excellent yields [32-33] (Scheme 2). When indole-3-carbaldehyde was stirred with acetylacetone in the presence of base heterocyclic amine (20 mol%) produce a precursor 1-3 analogs in excellent yields.



Scheme 1: Synthesis of multi - substituted cyclohexanone derivatives

All new compounds were characterized using [1]H NMR, [13]CNMR, IR, and MS spectroscopic techniques. In the IR spectrum of 1, the stretching band due to hydroxyl group was observed at 3485 cm^{-1} and the stretching frequency for carbonyl carbon C=O stretching was observed at 1690 and 1709 cm^{-1}. The [1]H NMR spectrum showed singlets for D_2O exchangeable OH at 4.102for 1H proton and three singlets for three methyl groups each appear at 1.999 s, 3H, 1.617, s, 3H, 1.333, s. 3H. Moreover in cyclohexanone moiety, there are four types of proton appearing at δ4.304 triplet for [1]H proton and 4.027, d, 1H, 3.602, d, 1H proton. The coupling constant of protons. H-2 and H- 4 is J = 12.6 and 11.7 Hz. Indicate trans to each other [13]CMR chemical shifts of the C=O group show three downfield signals corresponding to two acetyl carbonyl groups and one cyclohexanone carbonyl group appear at 217.3, 210.3, 109.7 ppm. The compound formation was finally confirmed by HRMS, (M+Na) for Chemical Formula: $C_{19}H_{21}NNaO_4$ calculated mass is 350.1368, obtained HRMS 350.1360.

Next, our strategic move towards the synthesis of 1-(4, 5, 6, 7-tetrahydro-6-hydroxy-4-(1*H*-indol-3-yl)-3,6-dimethyl-1*H*-indazol-5-yl). ethanone derivatives (Scheme 2, Figure 3). The cyclohexanone derivatives containing 1,3-dicarbonyl moiety reacted with hydrazine hydrate or phenylhydrazine hydrochloride in the acid medium resulted in the formation of 1-(4,5,6,7-tetrahydro-6-hydroxy-4-(1*H*-indol-3-yl)-3,6-dimethyl-1*H*-indazol-5-yl). ethanone derivatives derivative.



Scheme 2: Synthesis of tetrahydro-1*H*-indol-3-yl)-*R*-1*H*-indazol-5-yl) ethanone

Synthesized scaffolds were characterized by numerous spectroscopic techniques. In the IR spectrum of analogstetrahydro-1*H*-indazol-5-yl) ethan-1-one5A showed the IR signal appear at 3346 and 3292indicate presence of N-H and OH functional group. The IR signal that appears at 1693 is a stretching signal for the carbonyl group. In [1]H NMR spectrum of product, 5A showed a signal at δ 12.32 (s, 1H) and 5.33 (s, 1H), corresponding to N-H, D_2O exchangeable proton, and one singlet at δ5.55 s, 1H for OH, which is D_2O exchangeable proton. One singlet at 6.73 s, [1]H belongs to the proton of indole CH. There are three singlets for three CH_3groupsthatappear at δ1.27, s, 3H, δ1.99 s, 3H, δ1.97 s, 3H. In [13]C NMR the signal at 202.23 corresponds to an acetyl carbonyl group. Finally, in mass spectroscopy (ESI) m/z (M+H) calculated 323.1634observed at

Exact Mass: 324.16 The product formation was established by ^1H, ^{13}C NMR analytical techniques. On the basis of characterization reports and their evaluation using numerous techniques, the structure of product **5A** was assigned. The compound **5C** showed the FTIR band at 3412, 3057 indicating the presence of Oh and N-H functionalities in the compound. The ^{1}HNMR 1H NMR (300MHz, dmso) show the δ 6.98 (d, J = 8.7 Hz, 2H), 6.73 (d, J = 8.7Hz, 2H), 4.00 (d, J = 10.9 Hz, 1H), 3.69 (s, 3H), 2.86 (d, J = 11.0 Hz, 1H), 2.71 (dd, J = 36.1, 16.5 Hz, 2H), 2.51 (s, 1H), 1.65 (s, 3H), 1.48 (s, 3H), 1.23 (s, 3H). The ^{13}C (75 MHz, DMSO) 216.56, 158.38, 133.86, 129.14, 114.04, 113.48, 71.63, 64.10, 55.11, 40.92, 36.66, 34.39, 28.63. M. F. $C_{18}H_{22}N_2O_3$, Exact Mass: 314.1630, obtained; 314.9. On the basis of the evaluation report using spectral techniques, the structure of scaffold 5C was assigned.

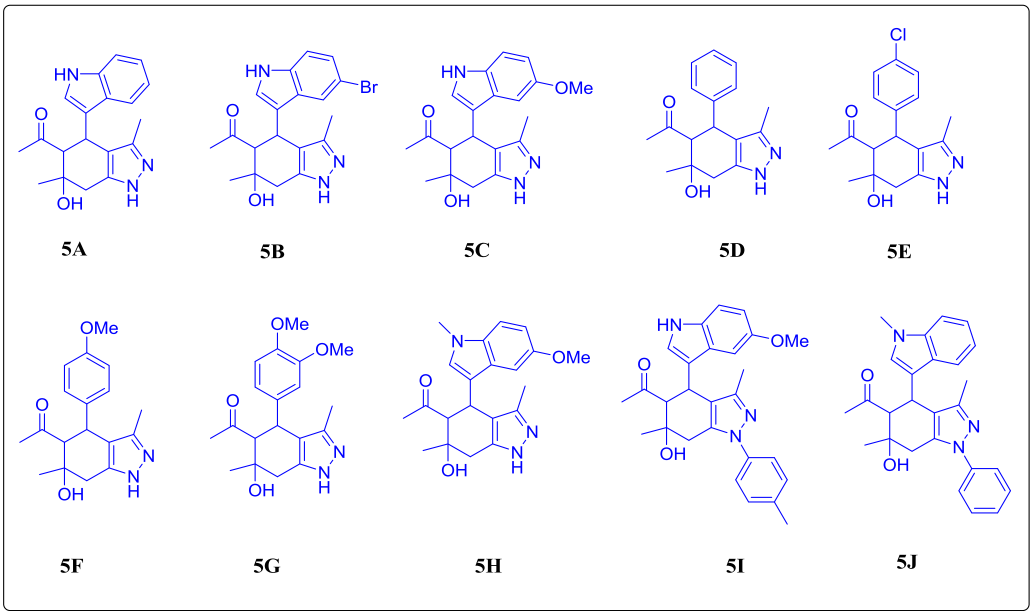


Figure 3: The physicochemical properties data ofmultisubstitutedindazole

Biology

Antibacterial Activity

The antibacterial activity of the synthesized compounds was performed using the Agar-diffusion protocol [35]. The obtained result is projected with the using zone of inhibition (ZOI) of the compound as well as their minimum inhibitory concentrations (MICs) values against the standard and blank sample. The concentration of the solution is diluted by dissolving 1-2 mg/mL series of the compound in a DMSO solvent and poured into the bacteria seeded agar plates. The activity of the compound was calculated by counting the zone of inhibition of the compound in mm and minimum inhibitory concentrations MICs (μg/mL).

Table 1: The zone of inhibition for indazole derivatives (5A-5H) against tested bacteria

Compd.	*S. aureus*	*Bacillus subtilis*	*E. coli*
5A	8	10	10
5B	8	10	11
5C	7	17	8
5D	10	14	16
5F	17	19	18
5H	8	10	10
5I	10	16	18
5J	12	14	16
penicillin	30	32	35

The obtained result was correlated with standard penicillin antibacterial drug (Table 1), herein we found that the scaffold 5A, 4D**,** and 5F display highest antibacterial activity (Table 1). While, in the case of scaffolds 5B, 5C, and 5H display good potential activity against the selective microorganism *Escherichia Coli* (MTCC- 443), *Bacillus subtilis* (MTCC-441), and *Staphylococcus aureus* (MTCC-96) (Table 1). All the other remaining molecules 5G, 5I, and 5Jrevealedminor antibacterial activity. It is concluded that as the concentration of compounds increases from 1 mg/mL to 2 mg/mL, the zone of inhibition also increases, hence at the higher concentration at 2.5 mg/mL the zone of inhibition is higher.

Molecular docking

From the literature data, it was found that the given compounds are active against the cancer research, therefore we decided to perform the molecular docking of 21-(6-hydroxy-4-(1*H*-indol-3-yl)-3,6-dimethyl-4,5,6,7-tetrahydro-1*H*-indazol-5-yl) ethan-1-one 5A-5J compound with 1kzn protein. In order to understand the nature of interactions of ligands, we have carried out molecular docking analysis by using Autodock software (Dallakyan S. *et al*. 2015). The 1kzn protein is known as DNA gyrase enzyme. The DNA gyrase is a most of the protein is the bacterial enzyme which takes part in the biochemical process like transcription and copying new stand, that enhances the formation of negative DNA supercoil of bacteria. The DNA gyrase is the representative target for the antibacterial agents it blocks the formation of new copying DNA, which results in bacterial death. The three-dimensional crystal structure of crystal structure of 1kzn was retrieved from the Protein Data Bank (http:// www.rscb.org/pdb). [31] The native ligand (E)-3-(3,5-Difluoro-4-((1R,3R)-2-(2-Fluoro-2-Methylpropyl)-3-Methyl-2, 3,4,9-Tetrahydro-1*H*-Pyrido[3,4-B]Indol-1Yl)Phenyl) Acrylic Acid (Azd9496) was deleted before CADD study. The active sites/ binding sites of the protein were identified using the Computed Atlas of Surface Topography of Proteins (Castro) program (http: //cast.engr.uic.edu) [34] The compound 5A-5J is well accommodated in the binding sites of 1KZN protein. While the compound 5A is also well accommodated in the binding sites of 1kzn protein and shows -7.9 kcal/mol binding energy and exhibit hydrogen bonding with Gly-77 amino acids and the molecule shows van der Waals of interaction with amino acid residues like FLU-50, ASP-4, ALA-47 ASN-46, THR-165, PRO-79, IIL-amino acids (Figure 4).

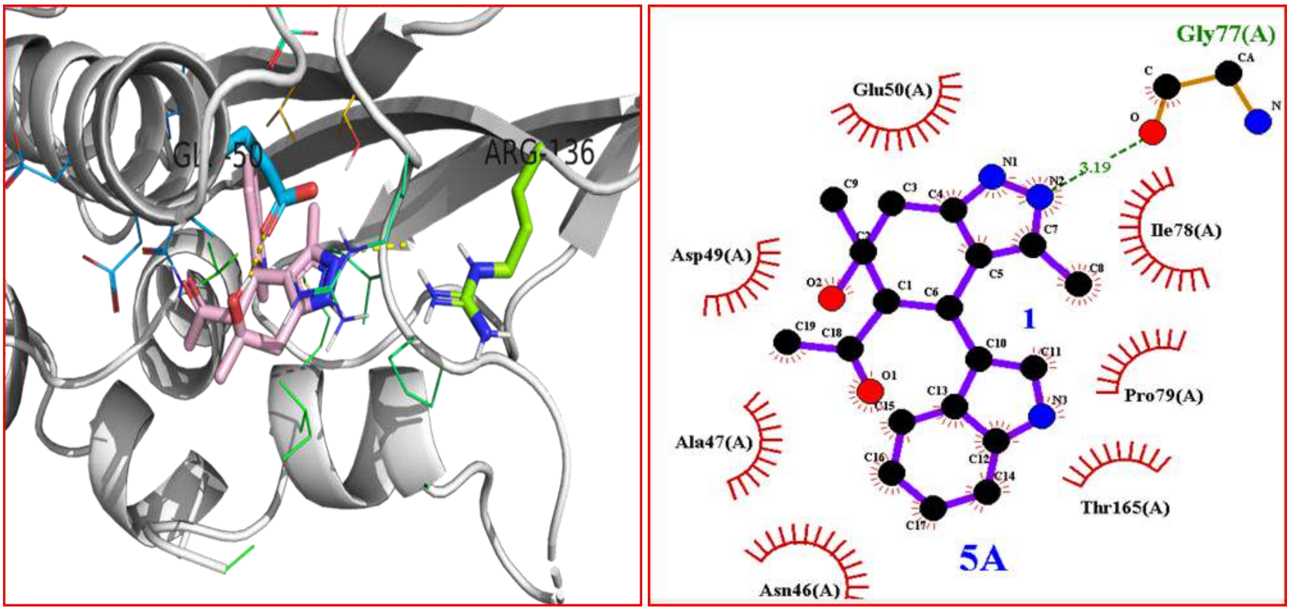


Figure 4: Binding interactions between 5A and DNA gyrase 10 (PDB code 1KZN). B) 2D structure showing hydrogen bonding and hydrophobic interactions of 5A with DNA gyrase (PDB code 1KZN) complex

B) 2D structure showing hydrogen bonding and hydrophobic interactions of 5A with 9 DNA gyrase (PDB code 1KZN) complex.

The compound 5D is well accommodated in the binding sites of 1KZN protein. While the compound 5D is also well accommodated in the binding sites of 1kzn protein and shows -7.0 kcal/mol binding energy and exhibit hydrogen bonding with ARG-76, 2.98 GLU-50 2.85, GLY-77, 2.92 amino acids.

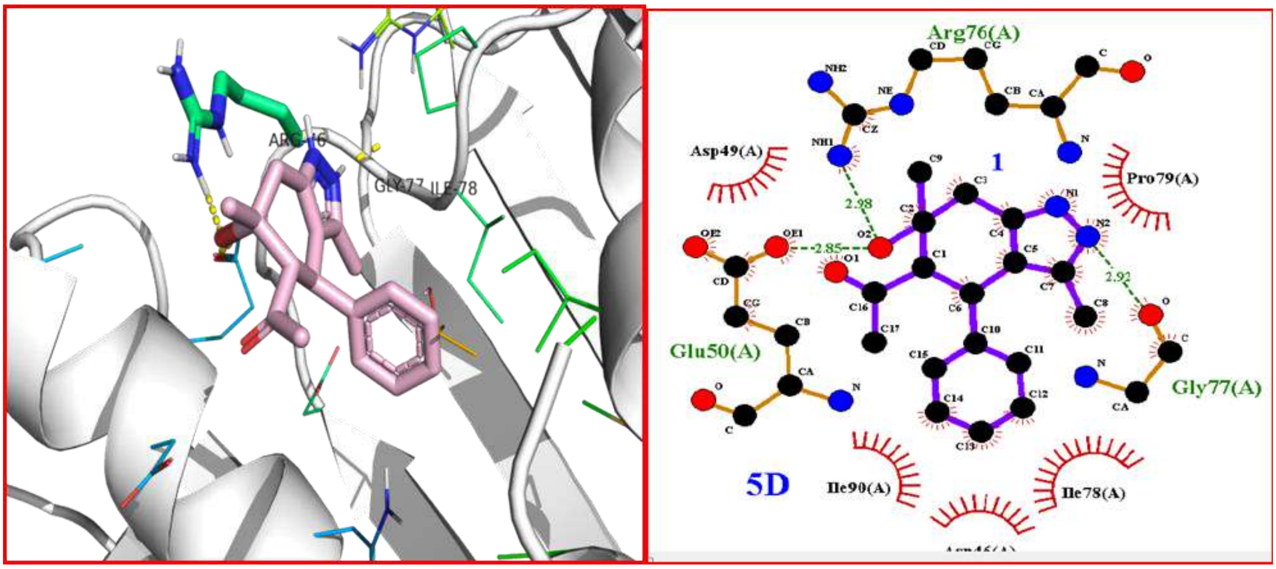


Figure 5: A). Binding interactions between 5D and DNA gyrase 10 (PDB code 1KZN). B) 2D structure showing hydrogen bonding and hydrophobic interactions of 5D with 9 DNA gyrase (PDB code 1KZN) complex

The ligand shows H-bond with ARG-76, having bond distance NH---O 2.98 Å, the amino acid GLU-50 show H- bond with H---OH having h-bond 2.85 Å and amino acid GLY-77, display H-bond with N---OH having distance 2.85 Å and the molecule shows van der Waals of interaction with amino acid residues like IlE-90, IlE-78, PRO-9, ASP-49 amino acids (Figure 5).

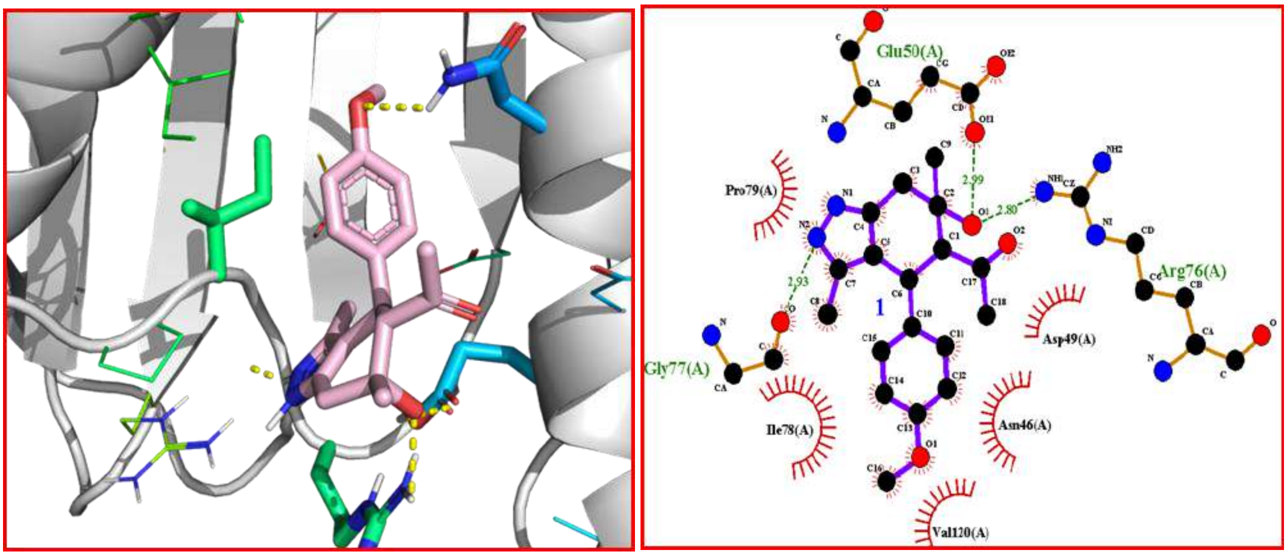


Figure 6: A). Binding interactions between 5F and DNA gyrase 10 (PDB code 1KZN). B) 2D structure showing hydrogen bonding and hydrophobic interactions of 5F with 9 DNA gyrase (PDB code 1KZN) complex

While the compound 5Fisalso well accommodated in the binding sites of 1kzn protein and shows -7.0 kcal/mol binding energy and exhibit hydrogen bonding with AGLU-50, 2.99a, GLY- 2.93A, ARG-76-2.80 amino acids. The ligand shows H-bond with GLU-50, having bond distance NH---O 2.99 Å, the amino acid GLY-2.93A show H- bond with H---OH having h-bond 2.93 Å and amino acid ARG-76, display H-bond with N---OH having distance 2.80Å and the molecule shows van der Waals of interaction with amino acid residues like PRO-9, ILE-78, VAL-120, ASN-46, ASP-49, amino acids (Figure 6).

Conclusions

This study demonstrates a novel, efficient, method for the synthesis of novel series of 1-(3,6-dimethyl-4-(1-methyl-1*H*-indol-3-yl)-4,5-dihydro-1*H*-indazol-5-yl) ethan-1-one derivatives. The compound 5A, 4D, and 5F shows highest antibacterial activity and the remaining compounds exhibited moderate antibacterial activity against the *S. aureus*, *Bacillus subtilis* and *E. Coli*. Finally, the molecular docking studies releveled that the compound 5D and 5F posses excellent bonding interaction with the targeted enzyme with DNA gyrase (PDB code 1KZN).

Acknowledgments

M.V.G is thankful to Department of Chemistry, Dr. D.Y. Patil Arts, Commerce & Science College; Pimpri, Pune-411018 for research support. S.V.G is thankful to Department of Chemistry, Dr. D.Y. Patil Arts, Commerce & Science Women's College; Pimpri, Pune-411018 for research support

Authors' contributions

All authors have contributed significantly and met criteria for authorship. All the authors read and approved the final copy of the manuscript.

Conflict of Interest

We have no conflicts of interest to disclose.

References

[1]. Cankařová N., Hlaváč J., Krchňák V., *Org. Prep. Proced. Int.*, 2010, **42**:433 [Crossref], [Google Scholar], [Publisher]

[2]. Stadlbauer W., *Sci. Synth.*, 2002, **12**:227 [Crossref], [Google Scholar], [Publisher]

[3]. Minkin V.I., Garnovskii D.G., Elguero J., Katritzky A.R., Denisko O.V., *Adv. Heterocycl. Chem.*, 2000, **76**:157 [Google Scholar], [Publisher].

[4]. Cerecetto H., Gerpe A., González M., Arán V.J., Ochoa de Ocáriz C., *Mini-Rev. Med. Chem.*, 2005, **5**:869 [Crossref], [Google Scholar], [Publisher]

[5]. Catalán J., del Valle J.C., Claramunt R.M., Boyer G., Laynez J., Gómez J., Jiménez P., Tomás F., Elguero J., *J. Phys. Chem.*, 1994, **98**:10606 [Crossref], [Google Scholar], [Publisher]

[6]. Latosinska J.N., *Magn. Reson. Chem.*, 2000, **38**:192 [Crossref], [Google Scholar], [Publisher]

[7]. Claramunt R.M., Santa María M.D., Sanz D., Alkorta I., Elguero J., *Magn. Reson. Chem.*, 2006, **44**:566 [Crossref], [Google Scholar], [Publisher]

[8]. Vernekar S.K.V., Hallaq H.Y., Clarkson G., Thompson A.J., Silvestri L., Lummis S.C.R., Lochner M., *J. Med. Chem.*, 2010, **53**:2324 [Crossref], [Google Scholar], [Publisher]

[9]. Mills A.D., Nazer M.Z., haddadin M.J., Kurth M.J., *J. Org. Chem.*, 2006, **71**:2687 [Crossref], [Google Scholar], [Publisher]

[10]. Newman D.J., Cragg G.M., *J. Nat. Prod.*, 2016, **79**:629 [Crossref], [Google Scholar], [Publisher]

[11]. Denya I., Malan S., Joubert J., *Expert Opin. Ther. Pat.*, 2018, **28**:441 [Crossref], [Google Scholar], [Publisher]

[12]. Liu Z., Shi F., Martinez P.D.G., Raminelli C., Larock R.C., *J. Org. Chem.*, 2008, **73**:219 [Crossref], [Google Scholar], [Publisher]

[13]. Villanueva J.P., Mulia L.Y., Sánchez I.G., Espinosa J.F.P., Arteche O.S., Espuñes T.R.S., Cerbón M.A., Villar K.R.,, Vicente A.K.R., Gines M.C., Galván Z.C., Castro D.B.E., *Molecules*, 2017, **22**:1864 [Crossref], [Google Scholar], [Publisher]

[14]. Abbassi N., Raki M., Chicha H., Bouissan L., Hannioui A. , Aiello C., Gangemi R., Castagnola P., Rosano C., Viale M., *Arch. Pharm. Chem. Life Sci.*, 2014, **347**:423 [Crossref], [Google Scholar], [Publisher]

[15]. Dong J., Zhang Q., Wang Z., Huang G., Li S., *Chem. Med. Chem.*, 2018, **13**:1490 [Crossref], [Google Scholar], [Publisher]

[16]. Zhang S.G., Liang C.G., Zhang W.H., *Molecules*, 2018, **23**:2783 [Crossref], [Google Scholar], [Publisher]

[17]. Li X., Chu S., Feher V.A., Khalili M., Nie Z., Margosiak S., Nikulin V., Levin J., Sprankle K.G., Tedder M.E., Almassy R., Appelt K., Yager K.M., *J. Med. Chem.*, 2003, **46**:5663 [Crossref], [Google Scholar], [Publisher]

[18]. De Angelis M., Stossi F., Carlson K.A., Katzenellenbogen B.S., Katzenellenbogen J.A., *J. Med. Chem.*, 2005, **48**:1132 [Crossref], [Google Scholar], [Publisher]

[19]. Dubey P.K., Venkateshwar K.T., Raddanna P., Anil K., *Indian J. Chem. B.*, 2006, **45**:2128 [Crossref], [Google Scholar], [Publisher]

[20]. Liu Y.M., Yang J.S., Liu Q.U., *Chem. Pharm. Bull.*, 2004, **52**:454 [Crossref], [Google Scholar], [Publisher]

[21]. Elliott E.L., Bushell S.M., Cavero M., Tolan B., Kelly T.R., *Org. Lett.*, 2005, **7**:2449 [Crossref], [Google Scholar], [Publisher]

[22]. Attaur R., Malik S., Hasan S.S., Choudharry. M.I., Ni C.Z., Clardy J., *Tetrahedron Lett.*, 1995, **36**:1993 [Crossref], [Google Scholar], [Publisher]

[23]. Liu Y.M., Jiang Y.H., Liu Q.H., Chen B.Q., *Phytochemistry Letters*, 2013, **6**:556 [Crossref], [Google Scholar], [Publisher]

[24]. Abu-Irmaileh B.E., Afifi F.U., *J. Ethnopharmacol.*, 2003, **89**:193 [Crossref], [Google Scholar], [Publisher]

[25]. Gaikwad S.V., Nadimetla D.N., Al Kobaisi M., Devkate M., Joshi R., Shinde R.G., Gaikwad M.V., Nikalje M.D., Bhosale S.V., Lokhande P.D., *Chemistry Select*, 2019, **4**:10054 [Google Scholar], [Publisher]

[26]. Gaikwad S., Kamble D., Lokhande P.D., *Tetrahedron Lett.*, 2018, **59**:2387 [Crossref], [Google Scholar], [Publisher]

[27]. Gaikwad S.V., Gaikwad M.V., Lokhande P.D., *Eurasian Chemical Communications*, 2020, **2**:945 [Crossref], [Google Scholar], [Publisher]

[28]. Nawghare B.R., Gaikwad S.V., Raheem A., Lokhande P.D., *J. Chil. Chem. Soc.*, 2014, **59**:2284 [Crossref], [Google Scholar], [Publisher]

[29]. Gaikwad S.V., Gaikwad M.V., Lokhande P.D., *J. Heterocycl. Chem.*, 2021, **58**:1408 [Crossref], [Google Scholar], [Publisher]

[30]. Gaikwad M.V., Kamble R.D., Hese S.V., Kadam S.N., Ambhore A.N., Gaikwad S.V., Acharya A.P., Dawane B.S., *Chem. Methodol.*, 2021, **5**:341 [Crossref], [Google Scholar], [Publisher]

[31]. Lafitte D., Lamour V., Tsvetkov P.O., Makarov A.A., Klich M., Deprez P., Moras D., Briand C., Gilli R., *Biochemistry*, 2002, **41**:7217 [Crossref], [Google Scholar], [Publisher]

[32]. Gaikwad S.V., Gaikwad M.V., Lokhande P.D., *J. Appl. Organomet. Chem.*, 2021, 1:59 [Crossref], [Google Scholar], [Publisher]

[33]. Gaikwad S., Lokhande P., Nikalje M., The 19th International Electronic Conference on Synthetic Organic Chemistry session General Organic Synthesis, 2015 [Crossref], [Google Scholar], [Publisher

[34].Binkowski T. A, Naghibzadeh S., Liang J., *Nucleic Acids Res* . 2003, 1, 31, 3352-3355 [Crossref], [Google Scholar], [Publisher]

[35].Balouiri M., Sadiki M., Ibnsouda S.K., *J. Pharm Anal.*, 2016, **6**:71 [Crossref], [Google Scholar], [Publisher]

HOW TO CITE THIS ARTICLE

Milind Gaikwad, Sunil Gaikwad, Rahul Kamble. Synthesis of Novel Series of 1-(6-hydroxy-4-(1*H*-indol-3-yl)-3,6-dimethyl-4,5,6,7-tetrahydro-1*H*-indazol-5-yl) ethan-1-oneas evaluations of their antimicrobial activity with Insilco docking study, *J. Med. Chem. Sci.*, 2022, 5(2) 239-248

DOI: 10.26655/JMCHEMSCI.2022.2.11

URL: http://www.jmchemsci.com/article_140624.html

Current Research in Green and Sustainable Chemistry 5 (2022) 100268

Contents lists available at ScienceDirect

Current Research in Green and Sustainable Chemistry

journal homepage: www.elsevier.com/journals/current-research-in-green-and-sustainable-chemistry/2666-0865

Mild and efficient ammonium chloride catalyzed Greener synthesis of tetrahydro-β-carboline

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ARTICLE INFO

Keywords:
Tetrahydro-β-carbolines
Pictet–Spengler
NH_4Cl
$MgSO_4$

ABSTRACT

This protocol involves the NH_4Cl catalyzed *Pictet–Spengler* reactions of tryptamine and arylaldehydes in anhydrous MeOH solvent to gives corresponding tetrahydro-β-carbolines (THβC) with 90% yield. This methodology offers mild, efficient and green reagent towards the synthesis THβC with tolerance of wide functional group. This is the first report of *Pictet–Spengler* reaction using mild NH_4Cl in MeOH solvent.

1. Introduction

Tetrahydro-β-carboline (THβCs) are exhibiting as corescaffolds in several bioactivealkaloids [(1a,b)] and other medicinally significant synthetic unit [2]. Primarily, THβCs are known to possess antiviral, anticancer, antiprotozoal, (5HT) antagonistic, serotonin receptor [3], whereas, tetrahydropyrano [3,4-b]indoles exhibit potent antibacterial and antifungal activities [4]. The pinolinebasic unit of (THβCs) produced in the pineal gland and used for reduce oxidative damage in the brain region and retinal homogenate [5]. The natural alkaloids containing core structures are shown in (Fig. 1)Show a broad range of biological activity [6]. In the last decade, many synthetic strategies have been developed for the preparation of tetrahydro-β-carbolines. Among them, *Pictet–Spengler* (PS) reaction has emerged as a versatile technique for the construction of 2,3,4,9-tetrahydro-1H-pyrido [3,4-b]indole,1,2,3,4-tetrahydroisoquinoline skeleton from the corresponding tryptamine, tryptophan and 2-phenylethan-1-amine derivatives respectively [7,8].

Since the discovery of *PS* reaction some of the interesting methods have been reported for the construction of tetrahydro-β-carbolines which includes use of various catalyst such as AcOH [9], chloroacetic acid [10], TFA [11], *p*-toluenesulfonic acid [12], Au(I) complexes [13], benzoic acid [14], trifluoromethanesulfonic acid [15],formic acid [16], L-tarteric acid/H_2O [17] and polyphosphoric acid [18]. Similarly, few Lewis acids such as titanium(IV) isopropoxide [19], BF_3–OEt_2 [20], and some organocatalyst [21] also found to be worked forthe PS reaction. However, most of these methods have drawbacks such as the use of strong condition, longer reaction time, high heating and stronger acid. Thus, the development of new synthetic protocol for an efficient synthesis of tetrahydro-β-carbolines is highly desirable.

We are always interested in the development of new protocol for the synthesis of medicinally important heterocyclic compounds [22,23,24]. In the connection of our recent work on the β-carboline [25,26], we were interested in the development of a flexible approach for the synthesis of THβC and 1,2,3,4-tetrahydroisoquinoline. Herein, we have explore NH_4Cl mild, efficient and green acid catalyst for the synthesis of tetrahydro-β-carbolines and 1,2,3,4-tetrahydroisoquinoline via *Pictet–Spengler reactions* between tryptamines and arylaldehydes.

2. Experimental section

2.1. General information

All the melting points were uncorrected and determined in an open capillary tube. The chemicals and solvents used were of laboratory grade and purified. Completion of the reaction was monitored by thin layer chromatography on precoated sheets of silica gel-G (Merck, Germany) using iodine vapors for detection. IR spectra were recorded in KBr pellets on an FTIR Perkin Elmer/Schimadzu/Bruker spectrophotometer. ^{1}H NMR (400 MHz) and ^{13}C NMR (100 MHz) spectra were recorded in (DMSO)-d_6 with an Avance spectrometer (Bruker, Germany) at a 400-MHz frequency using TMS as an internal standard; chemical shifts are reported in parts per million and coupling constant in hertz (Hz). Multiplicities are reported as follows: s (singlet), d (doublet), t (triplet), m (multiplet). Mass spectra were recorded on an EI-Shimadzu QP 2010

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https://doi.org/10.1016/j.crgsc.2022.100268
Received 15 October 2021; Received in revised form 5 January 2022; Accepted 15 January 2022
Available online 20 January 2022

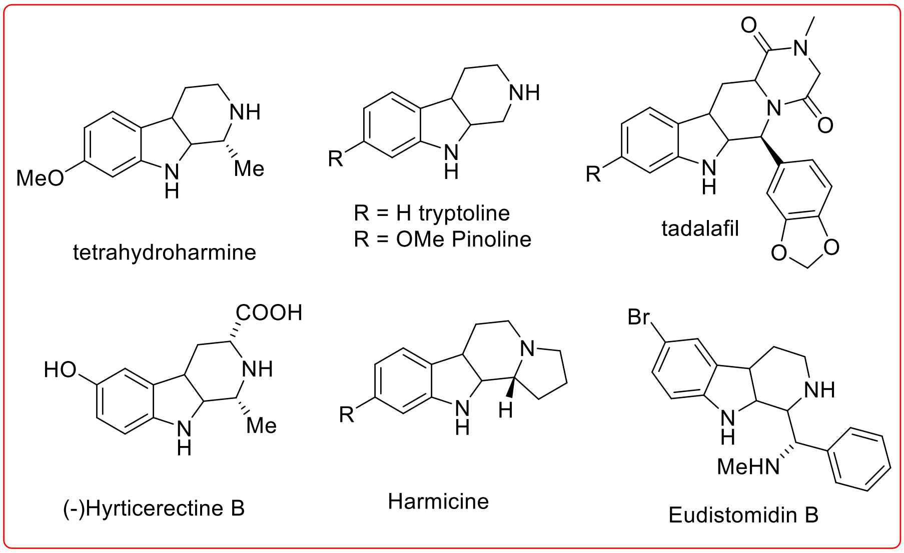


Fig. 1. Biologically active THβC alkaloids.

PLUS GC-MS system (Shimadzu, Japan).

2.2. Synthetic procedure for Tetrahydro-β-carboline

A mixture of tryptamine and benzaldehyde (1.1 equiv.) in Methanol was stirred at 60 °C for 1 h, Add ammonium chloride (2.5 equiv.) or Ammonium acetate (3 equiv.) and keep the reaction stirring for 12 h, Once TLC confirms complete consumption of the starting material the reaction mixture was basified with *liq*. Ammonia up to pH 10–11 afforded solid, filter, dry and used for next step.

2.2.1. 1-(p-tolyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole (3a)

M.P. 135–137 °C ^{1}H NMR (400 MHz,CDCl$_3$) δ 7.82 (s, 1H), 7.58 (d, J = 8.7 Hz, 1H), 7.19 (d, J = 3.9 Hz, 2H), 7.18–7.15 (m, 4H), 7.15 (s, 1H), 5.16 (s, 1H), 3 0.37 (dt, J = 12.0, 4.3 Hz, 1H), 3.18–3.10 (m, 1H), 2.98 (ddd, J = 17.5 11.4, 4.4 Hz, 2H), 13C (100 MHz, CDCl$_3$) 138.48, 138.05, 135.93, 13 5.93, 134.44, 129.50, 128.51, 127.38, 121.72, 119.38, 118.23, 110.89, 110.05, 57.63, 42.62, 22.38, 21.18; calculated for $C_{18}H_{18}N_2$; 262.15, found MS: 263.05 [M+H].

2.2.2. 1-(4-isopropylphenyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole (3b)

^{1}H NMR (400 MHz, CDCl$_3$) δ 7.89 (s, 1H), 7.58–7.52 (m, 2H), 7.2 (d J = 3.5 Hz, 4H), 7.20 (d, J = 1.4 Hz, 1H), 7.18 (d, J = 1.4 Hz, 1H), 7.16 (d, J = 1.8 Hz, 2H), 7.15 (d, J = 1.4 Hz, 1H), 5.39 (s, 3H), 3.39 (dd, J = 3.39 (dd, J = 11.5, 5.9 Hz, 1H), 3.20 (ddd, J = 12.7, 7.4, 5.4 Hz, 1H), 2 0.93 (td, J = 13.8, 7.0 Hz,3H), 1.90 (s, 3H), 1.25 (s, 3H). δ C (100 MHz z, CDCl$_3$) 149.57, 136.63, 136.09, 132.53, 129.81, 128.87, 126.99, 126.08, 122.07, 119.56, 118.31, 111.01, 109.78, 56.70, 33.88, 23.94, 23.91, 21.29.3calculated for $C_{20}H_{22}N_2$; 290.18, found MS: 291.10[M+H].

2.2.3. 1-(4-chlorophenyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole (3c)

M.P.165–166 °C, ^{1}H NMR (400 MHz, CDCl$_3$) δ 9.62 (s, 1H), 7.41 (d, J = 7.5 Hz, 1H), 7 0.37 (d, J = 8.1 Hz, 2H), 7.18 (d, J = 7.7 Hz, 1H), 7.13(d, J = 8.1Hz 2H), 7.04–6.93 (m, 2H), 5.16 (s, 1H), 3.21–3.13 (m, 1H), 3.02 (dd, J = 12 0.2, 5.4 Hz, 1H), 2.87–2.71 (m,2H).δ C (100 MHz, CDCl$_3$), 145.44, 141.1 8, 137.91, 136.33, 135.53, 131.69, 126.57, 126.21, 123.69, 122.77, 116.10, 114.06, 61.26, 46.27, 26.65.calculated for $C_{17}H_{15}ClN_2$; 282.09, found MS: 283.21 [M+H].

2.2.4. 1-(2-chlorophenyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole (3d)

^{1}H NMR (400 MHz, CDCl$_3$) δ 7.71 (s, 2H), 7.58 (d, J = 6.9 Hz, 2 H H), 7.48 (d, J = 9.0 Hz, 2H), 7.31–7.23 (m, 5H), 7.21–7.16 (m, 5H),7.13 (t, J = 8.0 Hz, 3H), 5.72 (s, 2H), 3.27(dd, J = 11.8, 11.8, 5.9H z, 2H), 3.22–3.14 (m, 2H), 2.98–2.83 (m, 4H).δ_C (100 MHz, CDCl$_3$) 139.17, 135.94, 133.88, 133.06, 130.24, 129.90, 129.22, 127.26, 127.07, 121.88, 1 19.48, 118.27, 110.97, 110.87, 53.68, 41.67, 22.42.calculated for $C_{17}H_{15}ClN_2$; 282.09, found MS: 283.25 [M+H].

2.2.5. 1-(3-bromophenyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole (3e)

^{1}H NMR (400 MHz, CDCl$_3$) δ 7.59 (d, J = 6.7 Hz, 1H) 7.49 (d, J = 8.8 Hz, 1H), 7.46 (s, 1H), 7.24 (dd, J = 4.0, 2.4 Hz, 2H), 7.20–7.15 (m, 2H), 5.16 (s, 1H), 3.40–3.20 (m, 1H), 3.13 (ddd J = 12.7 8.0, 5.0 Hz 2H), 3.02–2.81 (m, 2H) δ ^{13}C (100 MHz, CDCl^3),143. 52, 135.93, 132.75, 131.57, 131.52, 130.44, 127.36, 127.13, 122.95, 122.08, 119.57, 118.39, 110.99, 110.33, 57.01, 41.97, 22.03. calculated for $C_{17}H_{15}BrN_2$; 326.04, found MS: 327.04 [M+H].

2.2.6. Synthesis of 1-(2,4-dimethoxyphenyl)-2,3,4,9-tetrahydro-1H-pyrido [3,4-b]indole (3f)

Yellow solid; M.P. 211–213 °C, 80% yield; ^{1}H NMR (400 MHz, CDCl$_3$) δ 7.82 (s, 1H), 7.56 (d, J = 6. Hz, 1H), 7.24 (d, J = 6.8 Hz, 1H), 7.19–7.10 (m, 2H), 6.95 (d, J = 8.4 Hz, 1 H), 6.55 (d, J = 2.3 Hz, 1H), 6.40 (dd, J = 8.4, 2.3 Hz, 1H), 5.57 (s, 1H), 3.91–3.86 (m, 3H), 3.80 (d, J = 11.8 Hz, 3H), 3.30 (dt, J = 12. 3, 5.3 Hz, 1H), 3.19–3.11 (m, 1H), 2.93–2.83 (m, 2H) δ ^{13}C (100 MHz, CDCl$_3$) 160 60, 158.34, 135.79, 134.60, 129.93, 127.49, 122.32, 121.43, 119.20, 118.05, 110.75, 110.20, 104.10, 98.82, 55.60, 55.41, 50.66, 41.91, 22.50.calculated for $C_{19}H_{20}N_2O_2$; 308.15, found MS: 309.10 [M+H].

2.2.7. 1-(2,5-dimethoxyphenyl)-2,3,4,9-tetrahydro-1H-pyrido [3,4-b] indole (3g)

Light yellow solid; 81%, M.P. 151–155 °C; ^{1}H NMR (400 MHz, CDCl$_3$) δ 7.85 (s, 1H), 7.55 (d, J = 6.8 Hz,1H 7.25 (d, J = 8.3 Hz, 1H), 7.17–7.08 (m, 2H), 6.92 (d, J = 8.8 Hz,1 H), 6.83 (dd, J = 8.8, 3.1 Hz, 1H), 6.77 (s, 1H), 5.61 (s, 1H), 3.90(s,3H), 3.69 (s, 3H), 3.35 (d, J = 12.2, 5.2 Hz, 1H), 3.25–3.13 (m, 1H), 2.94–2.81 (m, 2H); δ ^{13}C (100 MHz, CDCl$_3$) 153.84, 151.39, 131.30, 127.45, 1 21.45, 119.19, 118.08, 115.29, 113.13, 111.87, 110.78, 56.24, 55.76, 51.23, 42.37.calculated for $C_{19}H_{20}N_2O_2$; 308.15, found MS: 309.25 [M+H].

2.2.8. 2-methoxy-5-(2,3,4,9-tetrahydro-1H-pyrido [3,4-b]indol-1-yl)phenol (3h)

Yellow solid; 81% yield, M.P. 185–186 °C, ^{1}H NMR (400 MHz, DMSO) δ 10.38 (s, 1H), 7.41 (d, J = 7.6 Hz, 1H), 7.24 (d, J = 7.8 Hz, 1H), 6.98 (dt, J = 21.0, 7.2 Hz, 2H), 6.86 (d, J = 8.0 Hz, 1H), 6.71 (d, J = 8.3

Hz, 2H), 5.00 (s, 1H), 3.75 (s,3 H), 3.11 (dd, J = 11.5, 5.5 Hz, 1H), 3.01–2.89 (m, 1H), 2.81–2.63 (m, 2H). δ^{13}C (100 MHz, DMSO) 146.85, 136.41, 135.92, 127.30, 120.88, 119.68 118.59, 117.90, 116.26, 112.43, 111.52, 108.46, 56.70, 56.19, 41.71, 39.96, 22.51.calculated for $C_{18}H_{18}N_2O_2$; 294.14, found MS: 295.14 [M+H].

2.2.9. *4-(2,3,4,9-tetrahydro-1H-pyrido [3,4-b]indol-1-yl)phenol (3i)*

White solid, 80%, M.P. 191–193 °C, ^{1}H NMR (400 MHz, DMSO) δ 10.35 (s, 1H), 7.41 (d, J = 7.6 Hz, 1H), 7.23 (d, J = 7.7 Hz, 1H), 7.08 (d, J = 8.2 Hz, 2H), 6.98 (dt, J = 21.0, 7.1 Hz, 2H), 6.73 (d, J = 7.9 Hz, 2H), 4.99 (s, 1H), 3.08 (dd, (dd, J = 11.6, 5.5 Hz, 1H), 2.98–2.88 (m, 1H), 2.77–2.61 (m, 2H) δ C (100 MHz, DMSO) 157.09, 136.46, 136.36, 133.92, 129.92, 127.39, 120.82, 118 0.57, 117.90, 115.30, 111.49, 108.51, 56.68, 41.83, 22.75. calculated for $C_{17}H_{16}N_2O$; 264.13, found MS: 265.14 [M+H].

2.2.10. *1-(pyridin-2-yl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-b]indole(3J)*

^{1}H NMR (400 MHz, $CDCl_3$) δ 8.59 (s, 1H), 7.69 (t, J = 7.5 Hz, 1 7.52 (d, J = 7.9 Hz, 1H), 7.29 (d, J = 7.8 Hz, 1H), 7.24–7.19 (m 1H), 7.17–7.06 (m, 2H), 5.39 (s, 1H), 3.53–3.25 (m, 1H), 3.24 (dt, J = 7.4, 6.3 Hz, 1H), 2.96–2.64 (m, 2H), δ C (100 MHz, $CDCl_3$) 149.21, 137.23, 136.02, 132.96, 127.16, 122.68, 121.68, 121.41, 119.84, 119.21, 118.19, 111.06, 109.11, 57.44, 42.20, 22.56. calculated for $C_{16}H_{15}N_3$; 249.13, found MS: 250.14 [M+H].

2.2.11. *1-(3-(allyloxy)phenyl)-2,3,4,9-tetrahydro-1H-pyrido[3,4-β]indole (3n)*

Light yellow (M.P. 20 °C, 95% yield); FT-IR(KBr, cm^{-1}), 3347 3347, 3058, 2928, 2836, 1640, 1580, 1516, 1447, 1264; ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.60 (s, 1H), 7.50 (d, J = 7.6 Hz, 1H), 7.30–7.20 (m, 3H), 7.07 (dd, J = 14.7, 6.8 Hz, 2H), 6.94–6.84 (m, 2H), 6.05–5 5.95 (m, 1H), 5.37 (d, J = 17.3 Hz, 1H), 5.25 (d, J = 10.5 Hz, 1H), 5.14 (s, 1H), 4.48 (d, J = 5.1 Hz, 2H), 3.29 (s,3H), 3.13–3.02 (m, 2H), 2.88 (dd, J = 14.0, 7.0 Hz, 1H), 2.81 (t, J = 9.3 Hz, 1H); δ^{13}C (100 MHz, $CDCl_3$) 163.54, 148.90, 141.08, 139.25, 13 8.06, 134.32, 131.94, 125.91, 123.51, 122.66, 122.55, 122.37, 119.88, 118.73, 116.0 5, 113.98, 73.58, 73.44, 62.26, 46.78, 27.23; calculated for $C_{20}H_{20}N_2O$; 304.16, found MS: 305.10 [M+H].

2.2.12. *1-(4-(allyloxy)phenyl)-2,3,4,9-tetrahydro-1H-pyrido [3,4-b]indole (3°)*

Canary Yellow solid; (M.P. 178 °C 96% yield) FT-IR (KBr, cm^{-1}) 3354, 3045, 2928, 2830, 1643, 1591, 1510, 1254; ^{1}H NMR (400 MH z, DMSO) δ 10.41 (s,1H), 7.43 (d, J = 7.6 Hz, 1H), 7.25 (d,J = 7.9Hz, 1H), 7.20 (d, J = 8.5 Hz, 2H), 7.02 (t, J = 7.1 Hz, 1H), 6.99–6.94(m, – 6.94 (m, 1H) 6.92 (d, J = 8.5 Hz, 2H), 6.05 (ddd, J = 22.3, 10.4, 5 0.1 Hz, 1H), 5.40 (d, J = 18.7 Hz, 1H), 5.27 (d, J = 10.5 Hz, 1H), 5.06 (s, 1H), 4.55 (d (d, J = 5.1 Hz, 2H), 3.14–3.04 (m, 1H), 2.97–2.90 (m, 1H), 2.80–2.65 (m, 2H).δ ^{13}C (100 MHz, DMSO) 158.02, 136.45, 134.21, 130.08, 127.32, 121.04, 118.73,118.02, 117.80, 114.78, 111.56, 108.67, 68.64, 56.41, 41.60, 22.42. calculated for $C_{20}H_{20}N_2O$; 304.16, found MS: 304.0.

2.2.13. *1-(3-(allyloxy)-4-methoxyphenyl)-2,3,4,9-tetrahydro-β-carboline(3p)*

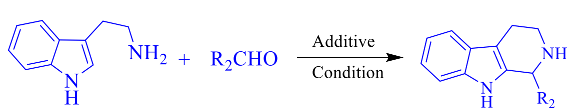
Goldcrest yellow (M.P. 216-28C, 87% yield); IR(KBr,cm^{-1}) 3357, 3057, 2928, 2839, 1642, 1591, 1510, 1445, 1293; ^{1}H NMR (400 M Hz, $CDCl_3$) δ 8.02 (s, 1H), 7.57 (dd, J = 5.6, 3.0 Hz, 2H), 7.22 (dd$J$ = 5.8, 2.4 Hz, 2H), 7.15 (dd, J = 6.6, 2.9 Hz, 3H), 6.85 (s, 2H), 6 0.83 (d, J = 3.1 Hz, 2H), 6.08–5.94 (m, 1H), 5.31 (d, J = 17.3 Hz, 1H), 5.22 (d, J = 1 0.5 Hz, 1H), 5.09 (s, 1H), 4.48 (d, J = 4.7 Hz, 2H), 3.86 (s, 3H), 3.41–3.33 (m, 1H), 3.19–3.09 (m, 1H), 2.93 (dd, J = 15.3, 6.9 Hz, 2H). δ C (100 MHz, $CDCl_3$) 149.42, 148.24, 135.95, 134.45, 133.99, 133.14, 127.38, 121.70, 121.13, 119.34, 118.20, 11 3.67, 111.57, 110.93, 109.95, 69.83, 57.78, 56.01, 42.78, 22.36.calculated for $C_{21}H_{22}N_2O_2$; 334.17, found MS: 335.17 [M+H].

3. Result and discussion

In the preliminary investigation, the compound **1a** and **2a** were used for the sequential *Pictet–Spengler*test reactions. At the beginning, the effect of catalystNH_4Cl on **1a** and **2a** was investigated under the normal atmosphere to reflux temperature. When the *Pictet–Spengler reaction* was performed at room temperature using ammonium chloride (1 equiv.) for 6–12h afforded**3a**with 10–25% yield (Table 1. Entry 1,2). The reaction were much slower and gave **3a** only in poor yields at room temperature and varying molar concentration of reagent. Subsequently, further investigation of temperature revealed that ammonium chloride was more effective and the reaction temperature is a very important effect factor to enhance the reaction.

Then, the reaction was proceed at 60 °C for 12h gives **3a** with 35% (Table 1, entry 3,4). Afterward, the reaction was performed at 65 °C gives **3a** with 55–65% yield (Table 1, entry 5,6). Next, we have performed the reaction at 70 °C for 3, 5 and 6 h time produce THβC with 65, 90 and 89% yield (Table 1, entry, 7, 8, 9), it shows the significant increase in the yield of product **3a**. With increasing in the equivalence of reagent ammonium chloride/$MgSO_4$ in MeOH, did not show any effect of the yield of the

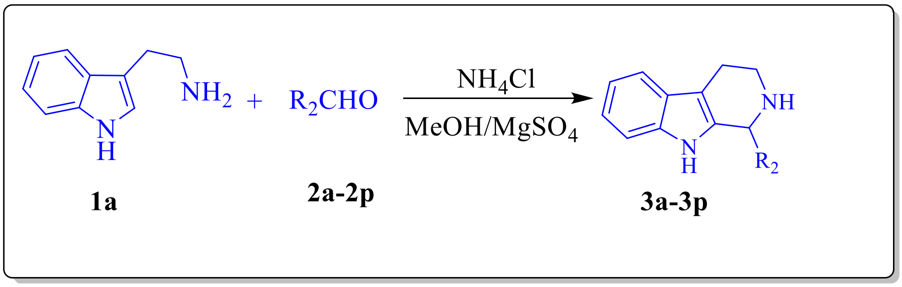
Table 1
Optimization of the reaction conditions.



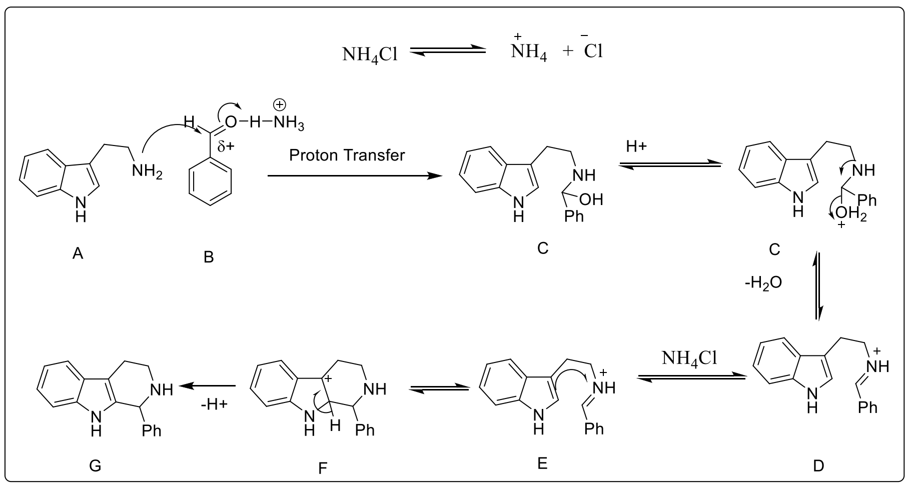
1a **2a** **3a**

Entry	Reagent	Solvent	Reagent(equiv.)	Temperature/°C	Time	%Yield
1	NH_4Cl	MeOH	1.1	RT	6	15
2	NH_4Cl	MeOH	1.1	RT	12	20
3	NH_4Cl	MeOH	1.1	60	12	35
4	NH_4Cl	MeOH/$MgSO_4$	1.1	60	12	50
5	NH_4Cl	MeOH/$MgSO_4$	1.1	65	6	55
6	NH_4Cl	MeOH/$MgSO_4$	1.1	65	12	60
7	NH_4Cl	MeOH/$MgSO_4$	1.1	70	3	65
8	NH_4Cl	MeOH/$MgSO_4$	1.1	70	6	75
9	NH_4Cl	MeOH/$MgSO_4$	1.1	70	5	83
10	NH_4Cl	MeOH/$MgSO_4$	1.5	70	6	85
11	NH_4Cl	MeOH/$MgSO_4$	2	70	6	89

Note:using 0.1 to 0.9 equivalent of NH_4Cl gives very less yield at various temperature.
$MgSO_4$, 2 equiv used; the best condition are mentioned.



Scheme 1. Synthesis of THβC under NH_4Cl.



Scheme 2. Possible mechanism for *Pictet–Spengler* reaction using ammonium Chloride in MeOH.

product. It is concluded that at 2.5 equiv of ammonium chloride with $MgSO_4$ in MeOH give excellent yield of THβC.

With optimized protocol in hand, we turned our attention to explore the substrate scope (see Scheme 1). Therefore, we have extended our methodology for the synthesis of numerousTHβC possessing electron donating and withdrawing groups on**C-1** sites of ary group. A wide range of **C-1** substituted tetrahydro-β-carbolines**3a–3w** were obtained easily via the *Pictet–Spengler* reaction in which tryptamine or tryptophane undergone condensation with various aldehydes followed by ring closure (Scheme 2). The nature of substituted group on the **C-1** position (aryl group) could considerably influence the yields of the products.

In refluxing NH_4Cl, tryptamine (**1a**) could react with a variety of aromatic, aliphatic aldehydes/heteroaldehydebut not with ketone substrates which are more sterically challenging and less reactive. As shown in Table 2, for aromatic aldehydes having electron-withdrawing or electron-donating substituents on the aromatic ring, the reactions could give the tetrahydro-β -carboline products in excellent yields (Table 2 entry 1–5). The aliphatic aldehydes acetaldehyde and 2-phenylethan-1-amine required longer reaction time and the chemical yields of compounds **3** were 65% (Table 2). As shown in Table 2 aromatic aldehydes having electron-withdrawing groups such as Cl, Br, CN (**3c, 3d, 3e and 3m** (Table 2) gives very good yield. While, aromatic aldehyde having electron-donating groups such as OH, OMe, Me (**3a, 3b, 3f, 3g, 3h, 3i)** (Table 2) gives excellent yield. While, the *Pictet–Spengler reactions* between tryptamine and heteroaldehyde were also attempted in refluxing ammonium chloride give corresponding THβC with good yield 76% (Table 2). Also, we have applied this protocol on the substrates with O-allyl substituted aldehyde, reaction work smooth with O-allyl substituted substrate and produce desired product with good yield (Table 2). A large-scale *Pictet–Spengler reaction* was also performed in ammonium chloride refluxing with benzalaldehyde and tryptamine in MeOH/$MgSO_4$ for 6 h gave the corresponding THβC 3b in 90% isolated yield.

The previous work from *Jin Qu* et al. research group has shown that the high reactivity of trypramine with numerous aldehyde to generate the imine can proceed in 1,1,1,3,3,3-hexafluoro-2-propanol (HFIP) under refluxing condition [27]. These catalyst cum solvent reactions give tetrahydro-β-carbolines with higher chemical yields than those catalyzed by acid catalysts in protic solvents [28]. To compare the efficiency of our method with the reported methods, we have tabulated the results of these methods to perform the6*Pictet–Spengler* reaction between tryptamine and aldehyde in (Table 3). As per literature report, our approach revealed good performance compared to the previous studies in terms of the temperature, reaction time, cost and efficiency (Table 3).

4. Mechanism

On the basis of above results and reported literature [33], we proposed a possible reaction mechanism for NH_4Cl-promoted *Pictet–Spengler* reaction of tryptamine and aldehyde**(A and B).** The ammonium chloride a mild acid can activate the carbonyl group via hydrogen bonding to enhance the nucleophilic attack of amines**A**(Scheme 2)[34]. The first step involves the formation of the iminesintermediate **D**(Schiff base) through the nucleophilic attack of amines followed by dehydration reaction of an electron rich tryptamine**A** with an aldehyde **B** in the presence of an acidic catalyst. Next, the imine intermediate undergoes a 6-endo-trig cyclization gives **E**, which is also catalyzed by an acidic catalyst produce desired **G** product (Scheme 2).

5. Conclusion

In conclusion, utilizing ammonium chloride as mild efficient and green catalyst under anhydrous conditions for the *Pictet–Spengler* reactions between tryptamine and aldehydes could afford tetrahydro-β-carbolines in high yields. The important features of the present protocol

Table 2
Physicochemical data of tetrahydro-β-carboline.

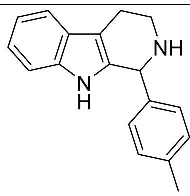
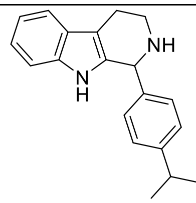
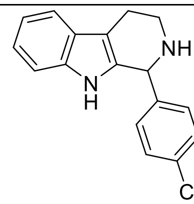
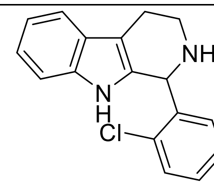
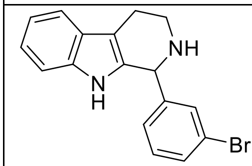
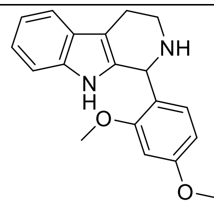
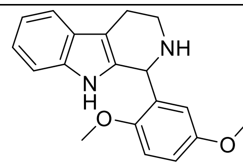
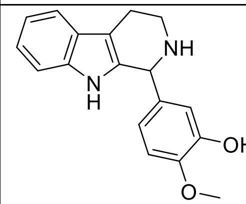
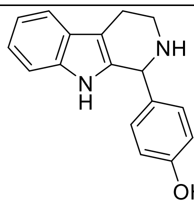
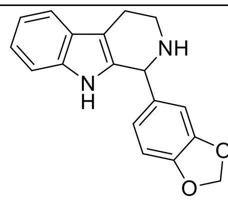
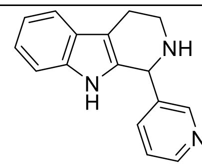
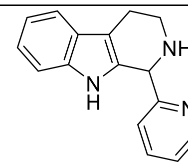
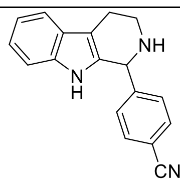
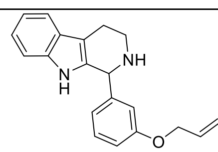
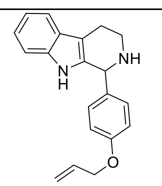
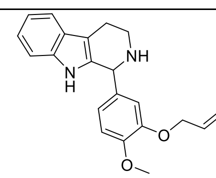
 3a, 80%	 3b, 82%	 3c, 85%	 3d, 78%
 3e, 79%	 3f, 80%	 3g, 87%	 3h, 81%
 3i, 77%	 3j, 82%	 3k, 76%	 3l, 77%
 3m, 80%	 3n, 81%	 3o, 81%	 3p80%

Table 3
Comparison of *Pictet–Spengler reaction.*

Entry	Catalyst	Temperature/°C	Time/h/min	Yield
1	AcOH	100 C	3h	82% [29]
2	TFA	25C	25 h	85% [30]
3	trifluoroacetic acid (TFA)	110 °C	2h	89% [30b]
4	*p*-toulenesulphonic acid	50 °C	6h	70 [12]
5	1,1,1,3,3,3-hexafluoro-2-propanol (HFIP)	58.6 °C	12	98 [27]
5	Water/L-Tartric acid	Room temperature	12 h	45 [31]
7	trichloro-1,3,5-triazine, TCT	100	8h	78 [32]
8	NH_4Cl	70 °C	6h	90%

is; 1) simple reaction procedure and workup 2) catalyst is water soluble and easily removed after workup. 3) Mild reaction condition and operation simplicity, 4) Column chromatography not required for purification.

CRediT authorship contribution statement

Milind V. Gaikwad: Formal analysis, Methodology, Software, Formal analysis, Investigation, Resources, Supervision, Project administration. **Sunil V. Gaikwad:** Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing. **Rahul D. Kamble:** Formal analysis, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

M.V.G. is thankful to BCUD, *SavitribaiPhule Pune University* for the miner research Project&. S.V.G. Department of Chemistry, Dr. D. Y. Patil Arts, Commerce and Science Women's College for the research facility. RDK is thankful to BOD, *SavitribaiPhule Pune University* for the ASPIRE minor research Grant.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.crgsc.2022.100268.

References

[1] a) A.E. Laine, C. Lood, A.M.P. Koskinen, Molecules 19 (2014) 1544–1567;
b) J. Lai, W. Li, S. Wei, S. Li, Org. Chem. Front (2020), https://doi.org/10.1039/D0QO00519C.

[2] C.D.S. Passos, C.S. Pires, A. Henriques, M. Cuendet, P.A. Carrupt, P. Christen, Stud. Nat. Prod. Chem 43 (2014) 123–144, https://doi.org/10.1016/B978-0-444-63430-6.00004-7.

[3] a) V. Gorki, N.S. Walter, R. Singh, M. Chauhan, N. Dhingra, D.B. Salunke, S. Kaur, *ACS* Omega 5 (29) (2020), https://doi.org/10.1021/acsomega.0c01256, 17993–18006;
b) R. Singh, A. Jaisingh, I.K. Maurya, D.B. Salunke, Bioorg. Med. Chem. Lett 30 (2020) 126869, https://doi.org/10.1016/j.bmcl.2019.126869;
c) S. Samundeeswari, M.V. Kulkarni, S.D. Joshi, S.R. Dixit, S. Jayakumar, R.M. Ezhilaras, ChemistrySelect 1 (2016) 5019–5024.

[4] a) G. Nenaah, Fitoterapia 81 (2010) 779–782, https://doi.org/10.1016/j.fitote.2010.04.004.

[5] a) S.A. Barkera, J. Borjigin, I. Lomnicka, R. Strassman, Biomed. Chromatogr. 27 (2013) 1690–1700;
b) M.M. Heravi, V. Zadsirjan, M. Malmir, Molecules 23 (2018) 943, https://doi.org/10.3390/molecules23040943.

[6] a) T. Herraiz, J. Agric, Food Chem. 46 (9) (1998) 3484–3490, https://doi.org/10.1021/jf980330r;
b) C.S. Lood, A.M.P. Koskinen, Chem. Heterocycl. Compd. 50 (10) (2015) 1367–1387, https://doi.org/10.1007/s10593-014-1602-4;
c) P. Roszkowski, S. Czarnocki, J.K. Maurin, A. Siwicka, A. Zawadzka, J. Szawkało, A. Leniewski, Z. Czarnocki, Int. Congr. 1304 (2007) 46–59.

[7] a) A. Spindler, K. Stefan, M. Wiese, J. Med. Chem. 59 (13) (2016) 6121–6135, https://doi.org/10.1021/acs.jmedchem.6b00035.

[8] A.Avadhani,P.Iniyavan,A. Acharya,V.Gautam,S.Chakrabarti, H.Ila, DOI: 10.1021/acsomega.9b02957.

[9] Y. Lin, aJ. Ye, aW. Zhang, Y. Gao, H. Chena, Adv. Synth. Catal. 361 (2019) 432–435, https://doi.org/10.1002/adsc.201801184.

[10] E.L. Larghi, T.S. Kaufman, Eur. J. Org Chem. (2011) 5195–5231, https://doi.org/10.1002/ejoc.201100271.

[11] P. Wang, J.Z. Zhao, H.F. Li, X.-M. Liang, Y.L. Zhang, C.-S. Da, Tetrahedron Lett. 58 (2) (2017) 129–133, https://doi.org/10.1016/j.tetlet.2016.11.110.

[12] I.A. Wani, G. Goswami, S. Sk, A. Mal, M. Sayyad, M.K. Ghorai, Org. Biomol. Chem. 18 (2020) 272–287, https://doi.org/10.1039/C9OB02098E.

[13] N.G. Olivier, S. Yang, P. Retailleau, V. Gandon, X. Guinchard, Org. Lett. 21 (23) (2019) 9446–9451, https://doi.org/10.1021/acs.orglett.9b03656.

[14] L. Li, P. Aibibula, Q. Jia, Y. Jia, Org. Lett. 19 (2017) 2642–2645, https://doi.org/10.1021/acs.orglett.7b00983.

[15] S. Nakamura, M. Tanaka, T. Taniguchi, M. Uchiyama, T. Ohwada, Org. Lett. 5 (2003) 2087–2090, https://doi.org/10.1021/ol034526a.

[16] M. Matveenko, M.G. Banwell, A.C. Willis, Org. Lett. 10 (2008) 4693–4696, https://doi.org/10.1021/ol027125o.

[17] H.J. Byeon, K.H. Jung, G.S. Moon, S.K. Moon, H.Y. Lee, Sci. Rep. 10 (2020) 1057, https://doi.org/10.1038/s41598-020-57911-0.

[18] L.M. Overvoorde, M.N. Grayson, Y. Luo, J.M. Goodman, J. Org. Chem. 80 (5) (2015) 2634–2640, https://doi.org/10.1021/jo5028134.

[19] X. Zhang, W. Jiang, Z. Sui, J. Org. Chem. 68 (2003) 4523–4526.

[20] I. A.Wani, S. Das, S.Mondal, M. K.Ghorai, DOI: 10.1021/acs.joc.8b02339.

[21] E. Mons, M.J. Wanner, S. Ingemann, J.H.V. Maarseveen, H. Hiemstra, J. Org. Chem. 79 (16) (2014) 7380–7390.

[22] M. V Gaikwad, R.D. Kamble, S.V. Hese, A.P. Acharya, P.P. Mogle, S.N. Kadam, B.S. Dawane, Res. Chem. Intermed. 41 (7) (2015) 4673–4678, https://doi.org/10.1007/s11164-014-1559-z.

[23] A.N. Ambhore, S.S. Kamble, S.N. Kadam, R.D. Kamble, M.J. Hebade, S.V. Hese, M.V. Gaikwad, R.J. Meshram, R.N. Gacche, B.S. Dawane, Comput. Biol. Chem. 80 (2019) 54–65, https://doi.org/10.1016/j.compbiolchem.2019.03.002.

[24] S.N. Kadam, A.N. Ambhore, M.J. Hebade, R.D. Kamble, S.V. Hese, M.V. Gaikwad, P.D. Gavhane, B.S. Dawane, Synlett 29 (14) (2018) 1902–1908, https://doi.org/10.1055/s-0037-1609553.

[25] a) S.V. Gaikwad, M.V. Gaikwad, P.D. Lokhande, Eurasian Chem. Commun. 2 (2020) 945–952, https://doi.org/10.22034/ecc.2020.111004;
b) S.V. Gaikwad, M.V. Gaikwad, P.D. Lokhande, J. Heterocycl. Chem. 58 (7) (2021) 1408–1414, https://doi.org/10.1002/jhet.4265.

[26] a) S.V. Gaikwad, M.A. Kobaisi, M. Devkate, R. Joshi, R. Shinde, M.V. Gaikwad, M.D. Nikalje, S.V. Bhosale, P.D. Lokhande, ChemistrySelect 4 (2019) 10054–10059, https://doi.org/10.1002/slct.201902419;
b) S.V. Gaikwad, D. Kamble, P.D. Lokhande, Tetrahedron Lett. 59 (2018) 2387–2392, https://doi.org/10.1016/j.tetlet.2018.04.043.

[27] L.N. Wang, S.L. Shen, J. Qu, RSC Adv. (4) (2014) 30733–30741, https://doi.org/10.1039/C4RA03628J.

[28] R. Salame, E. Gravel, K. Leblanc, E. Poupon, Org. Lett. 11 (2009) 1891–1894, https://doi.org/10.1021/ol9002916.

[29] A. Bertamino, N. Iraci, C. Ostacolo, P. Ambrosino, S. Musella, V.D. Sarno, T. Ciaglia, G. Pepe, M. Sala, M.V. Soldovieri, I. Mosca, S.G. Rodriguez, A.F. Carvajal, A.F. Montiel, E. Novellino, M. Taglialatela, P. Campiglia, I.G. Monterrey, J. Med. Chem. 61 (14) (2018) 6140–6152, https://doi.org/10.1021/acs.jmedchem.8b00545.

[30] a) W. Jiang, X. Zhang, Z. Sui, Org. Lett. 5 (2003) 43–46;
b) S. Eagon, M.O. Anderson, Eur. J. Org Chem. (2014), https://doi.org/10.1002/ejoc.201301580, 1653–1665.

[31] H. Ju Byeon, K.H. Jung, G.S. Moon, S.K. Moon, H.Y. Le, Sci. Rep. 10 (2020) 1057. https://www.nature.com/articles/s41598-020-57911-0.

[32] A. Sharma, M. Singh, N.N. Rai, D. Sawant, Beilstein J. Org. Chem. 9 (2013) 1235–1242, https://doi.org/10.3762/bjoc.9.140.

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ISSN - 2278 -9308

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Principal's Message

It is a matter of great delight for me that our college has organized this International Interdisciplinary conference on "Innovations and Challenges in Commerce, Humanities, Science and Technology". I would like to extend a warm welcome to all the resource persons, keynote speakers, researchers, and delegates.

In 1999, a momentous step in the golden journey of our parent society, Shikshan Prasarak Mandal was the establishment of a senior college in the form of Shankarlal Khandelwal College of Arts, Science, and Commerce. Our college has 11 research centers, 19 supervisors, and 32 students pursuing Ph.D. across various domains. To date, 21 Minor Research Projects and 2 Major research projects have been submitted. In addition, 19 National conferences and 3 International conferences, various career-oriented courses, add-on courses, and a certificate course on Swami Vivekananda philosophy are conducted in college, providing means for the all-inclusive development of our students and staff.

The theme of the present conference is self-explanatory. The conference aims to discuss the Innovations, Challenges and opportunities available across market spaces such as equity market, crypto currencies, cause and effects of different technologies on global markets, investments and commerce. Thus, I feel that the conference will focus on the present need of time and prove very useful for the stakeholders.

The present conference is just the next step towards our mission. I wish grand success to it. I am sure that it will open many new avenues and instill knowledge, skills, and research attitude among students, faculty members, and researchers across all the disciplines.

I express my deep-felt gratitude to the collaborators- Vidharbha Chamber of Commerce and Industries, Knowledge partner- Khandelwal Total solutions (Pvt.) Ltd., our parent society- Shikshan Prasarak Mandal, Akola, and the others.

I would like to communicate my acknowledgments towards my entire teaching and non-teaching staff for turning this event into a success.

Dr.J.M. Saboo

Editorial

It is an honour and privilege for me for being given an opportunity as Convenor to address the distinguished guests and the participants from various colleges in the International Interdisciplinary Virtual Conference on "Innovations and Challenges in Commerce, Humanities, Science and Technology" ICCHST-2022 on Wednesday 23rd Feb 2022.

The discussions and brainstorming articles in the Journal would truly contribute in improving knowledge bank. Since the announcement of publishing the Peer Reviewed & Indexed Research Journal with ISSN 2278-9308 with Impact Factor of 7.675(SJIF). We are thankful to all the authors who responded to our appeal. It is matter of pleasure for the editorial board to present this journal in the hands of the academicians.

I would like to mention special thanks to Honourable Dr.TaratieHatwalne , President of SPM, Honourable Gopal Khandelwal , Secretary of SPM, and other members of the parent society who always encourage us in conduction of various academic activities. Special thanks to Dr. J.M. Saboo Principal ShankarlalKhandeleal College for giving concrete to the abstract concepts.

I am thankful to the authors for sharing the knowledge in the form of research paper.

Shri. ViragGawande ,Aadhar Publishing House has helped us a lot in publishing the research paper in the form of an online journal.

I express my gratitude towards our collaborators Mr. NitinjiKhandelwal Chairman, Vidarbha Chamber of Commerce & Industries and Khandelwal Total Solutions Private Limited for associating with us and for continuous support and advice which have greatly helped towards the successful organisation of this international interdisciplinary virtual conference.

I also express my gratitude towards the International organizing committee which includes ,Dr. Justin Paul ,Editor-in-Chief Professor, University of Reading, England & University of Puerto Rico, USA

Mr. Raj A. Kapoor , Founder & Chairman of Block Chain Alliance
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For making this event successful one.
I acknowledge my thanks towards local organizing committee :

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For making this event successful.

An event like this cannot happen overnight. The wheels start rolling weeks ago. It requires planning and a birds eye for details. We have been fortunate enough to be backed by a team of very motivated and dedicated colleagues.

I am grateful to all my colleagues for their teamwork and kind efforts whenever needed We also express my thanks to all supporters who are directly or indirectly involved in this mission.

I also thank the technical committee fortheir support and for making this online event a success.I acknowledge the unwavering support received from Head of Department of Commerce Dr. P.M. Pisolkar, faculty and staff members.

I also record my sincere thanks to our contributors who have co-operated directly and indirectly in all respect.

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Challenges of Catering Services in Maharashtra

Vishwanath P. Hissal
Assistant Professor Shri V. N. Arts and A.N. Commerce college Mangrulpir Dist.-Washim
Dr. L. K. Karangale
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Abstract

LPG policy was adopted by Indian economy. Indian markets open to world and its resulting effects on Tourism Hotel industry as well as Catering Services and also consumer habits is leading to a higher incidence of many people eating food outside. In our country catering was not all a common service. It was only considered on special occasions or festive occasions. Catering is the business of providing food service at a remote site or a site such as a hotel, public house (pub), or other location. The catering business is considered one of the most lucrative and profitable home-based business ventures, with a high potential for expansion and growth. While most of us simply enjoy the culinary delights dished up by catering companies, those with a flair for food and an entrepreneurial spirit will be keen to know what business opportunities lie beneath the silver serving trays.

Keyword: Catering Services, Hospitality Industry, Food Industry

Introduction

Nowadays double income families and nuclear families emerging, where time is a constraint gave birth to catering services. Catering services have attained a new dimension in today's scenario. There are professional players in the market who not only provide catering services, but along with it they carry out all associate activities of the event.

Associate activities of the events covered stage decoration, arranging for reception etc. The catering industry's basic moto is to supply what is needed for the planning and execution of functions on specific occasions where food is of prime importance. In sample word we can say 'Catering is the business of providing food service at events. The catering company usually prepares the food at its premises and delivers it to the event when needed. It may also provide drinks, crockery, cutlery, glassware, decorations and service staff.

Catering services mainly distinguished in two main sectors private and corporate events. The private category will consist of family occasions such as weddings, parties and funerals. Operating within the corporate category means more likely to provide food for board meetings, functions and award ceremonies. Some caterers specialize in one or the other while others cover both.

Need of the study

The catering segment of Hospitality industry in India is mainly dominated by unorganized players. Catering services are playing a significant role in the overall economic growth of the country. Due to rapidly industrial growth and promotion of tourism, the catering services and hotel industry are offering employment. India is having major tourist destinations; it's resulting in the developments of the Service and Hospitality Industry.

Nowadays people engaged in their daily professional activities, they don't have much more time to spend on cooking and everyday chore. Outside of the house dining, has become a style statement. Cooking is developing as an art and craft and there is a lot of competition in this field. The culinary industry is growing by leaps and creating more demand for chefs and professional cooks. An increasing number of catering managers are needed for jobs in business and industry, schools and colleges etc.

The catering segment in India is mainly dominated by unorganised players, many of who run their business from the comfort of their homes and small establishments. But in recent years, the scenario had changed. A lot of organised operators comprising international catering companies and big restaurant chains have also started taking catering seriously. Catering is no more limited to weddings and birthday parties in the country. Moreover, the imposition of various kinds of taxes by the government is also resulting in the growth of the catering business.

With the changing needs and lifestyles of consumers, global as well as Indian food consumption patterns are rapidly evolving. According to Tikekar, a huge production base, increasing organised food retailing and growing export opportunities for favourable regulatory environment are all leading to the growth of the sector. Organisations and consumers have become more conscious about what they serve and eat. She adds, “The importance of quality and safety has become the most vital factor when it comes to catering at corporates.

A country where tastes and cuisines are constantly changing with every state line, there has been a rise in demand for customized food. Buyers are looking to customize their menus as per their audience. This includes items beyond their local cuisines to create a sense of value in the minds of the consumer. The Indian corporate food-services industry is growing at a rapid rate with the potential to deliver innovations from time to time. The evolution of this sector is directed towards eradicating all pain points for the customer across all spheres of life and ensuring seamlessness in taste, quality, and convenience.

Review of literature

According to Vineeta Tikekar, Vice President, Marketing and Communications, Sodexo India On-Site Services, which operates its catering business in 102 Indian cities, “Our market is classified into two sections – the total food services market in India, which is about INR 620 bn, and the target food services market in India, which is about INR 91 bn. As per our estimates, close to 25 percent of our target market is controlled by organised players.”

According to Neha Manekia, Director, Silver Spoon Gourmet, a Mumbai - based catering company that specialises in gourmet European cuisine, - there aren’t any recent figures, but the catering services industry in India has been consistently growing at the annual growth rate of 15-20 percent. In 2009, the industry was worth INR 15,000 crore. Deepti Dadlani, Brand Marketing and Communications Head, deGustibus Hospitality, which runs Moveable Feast says, “It will be very difficult to comment on the overall market size of the organised catering segment of the country because I don’t think there is any real figure that is out yet.”

In Catering industry, an extensive knowledge of food is a key prerequisite. Nowadays, not only are customers’ tastes becoming more sophisticated, your offerings may need to be both imaginative and appropriate for the event you are catering for. It is also important to ensure the food you serve is fresh and of good quality. A background in food should be combined with some degree of business acumen; it’s not enough to be passionate about food but have no concept of controlling costs.

Catering is a competitive market and business is predominantly driven by word-of-mouth publicity. How cater quote their price for food and service, will therefore have a huge impact on the success of the business. Because you are dealing with a perishable product in a high-pressure environment, you need to be highly organized. There are plenty of courses in event management to ensure your skills are up to scratch.

Finally, it is important to remember that catering is not a nine-to-five job; you will be working when everyone else is partying. It is important to bear this in mind when deciding if catering is right for you.

The key to finding a successful formula for any business is good research, but this is especially important in the fiercely competitive world of catering. You will need to focus closely on who your customers are, what they want, and what you can offer that no one else can – your unique selling point. As stated above, your possible client base will be corporate or private, although you may target both. Serving the business sector will predominantly involve lunches for business meetings and training courses but may extend to business breakfasts and evening receptions, which may involve providing drinks and servers as well.

Alternatively, you could aim your catering service at the private sector, which typically involves catering for large family occasions such as weddings, funerals and birthday parties. To run this type of business will require good culinary skills since the quality and range of your menu will be a major selling point, and you will have to be flexible enough to cater for any special requests from clients for their big day.

About offering extra services in order to stand out in the highly competitive private market. For example, if provide crockery, cutlery, servers, decorations and marquee hire, resulting attract business much more quickly. If cater doesn't want to focuse on wedding catering services, then he may adopt niche marketing strategy like offering special them event such as gourmet cuisine for dinner parties.

Objectives of the study

1) To examine the problems faced by the caterers in the study area.

Hypothesis of the study

There is one Hypothesis considered

1) Cater could eradicate all hurdles with proper strategy.

Research Methodology

Present study bases in secondary data. In order to conduct research, secondary data is of prime significant. To get deep insight of the study books, Journals, Magazines, Periodicals, Newspapers, Reports and Internet was used.

Scope & Limitations

In order to conduct this research the data collected during the period of 2019 to 2021.The geographical area of research is restricted up to Maharashtra only.

There is wide scope of catering services in Maharashtra. Because high per capita income are creates more opportunities for hospitality industries and catering services. Although Catering Services facing some crucial difficulties; they are follows…

1. Competition

By adapting the entrepreneurial mindset, everyone who has having cooking skills dreams of opening a catering business. Instated of catering services industry is already saturated with a lot of start up companies by domestic's entrepreneurs. It is core difficult to start and stand within the tough competition.

2. Finances

Second challenge is to seek enough Finance to start a new catering service or business. Initial stage newly emerged catering services start up needed capital backbone to training their staff and establishing company and run business smoothly. Every new business should make arrangement for their funding to grow business or service.

3. Shortage of Orders

Catering business facing some times Zero order situation. In the Indian context catering business run on full of seasonal mode, they may get bunch of orders in wedding season. However, offseason can be quite motionless.

4. Management

Oftenly, were seen in catering business, catering services run by layman practices. Management is one of the significant aspect of every business. Business achieves their goal and growth with impeccable management decision. Although, it is very difficult to manage all work at sharp time.

Training

Training is substantially important as well as challenging in the fast-paced catering industry. Trained staffs are eventually contributed to growth of the company. Trained staffs were delivered more customer satisfaction. However it will fruitful where Catering Service Company should organize knowledge sharing sessions and programmes for their staff to enhance work culture in catering industry.

6. Food Waste

Food waste is major concern faced by catering services. If catering services will have well managed then rate of food waste will certainly minimize. It is also advised to catering industry to keep the quantity high for small plate options to avoid wasting food.

7. Dealing with Customers

It is very crucial things to deal with customers in cater industry. Customer is belonging in various types and having different tests. It very challenging to satisfy every customer, for that staff should be proper trained and well equipped with customer dealing skills.

8. Staying Organized

All activities in catering business are wide and expended as well as correlated with each other. Catering business faced differ work need on one time and sudden expectations' by customer to it is realised that all work should be organize. So it significance to stay organize all activities.

The catering industry can be a tough place to work in. However, with right planning as well as hiring good resources, you can grow your business successfully.

Conclusions:

India is growing economy in the world and Maharashtra is huge growing terrain in India. it is wide scope to develop catering services with hygiene activities. Although some hurdle within certainly eradicate by using well planning, vision and training of staff and will management.

References:

http://www.businessworld.in
https://www.indiaretailing.com
https://timesofindia.indiatimes.com
https://www.cateringcorner.in/blog/challenges-faced-by-catering- companies-in-india
1. Catering: A Guide to Managing a Successful Business Operation: Book by Bruce Mattel
2.The Everything Guide to Starting and Running a Catering Business: Insider's Advice on Turning Your Talent Into a Career: Book by Joyce Weinberg
3. CATERING MANAGEMENT: AN INTEGRATED APPROACH: Book by M. Sethi and Surjeet Malhan
4. Food Service And Catering Management: Book by Arora

Impact and Importance of Cashless Economy in India

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Abstract

The research study is focuses on impact & importance cashless economy in India with covering its difficulties. Cashless economy is a secure and clean way to make Digital India which the goal of government of India. It is converting physical currency into the plastic money. It has positive impact but also there are lots of difficulties, if pole will response positively and make awareness among them with providing required facilities, ten it is clear sign of succession of Digital India. It helps to reduce the dependability of economy on cash, reduce tax avoidance, prevent black money & increase in economic growth and development.

This study will become helpful to make awareness among the people about cashless economy and its enefits.

Key Words : Cashless Economy, Digital India, Plastic Money, Tax avoidance, Black Money

Introduction :

India is a big market for electronics goods, mobile apps, smart phones, etc. Banking sector also build up & use online banking for transactions. Our Hon. Prime Minister Narendra Modi as launched programme of 'Digital India' on 1 July 2015. It is supportive to convert cash economy into cashless economy, digitally empowered, growing and knowledge economy. Majority of people are using smart phones and in imagine also, we can't live without smart phones. Because smart phone become a need of life and smart phone is a first step to come towards the cashless economy.

Meaning : Cashless economy is a system which done money transaction through digital channels like debit card, credit card, electronic fund transfer, mobile wallets, newly arrives payment channels. It minimizes the circulation of physical currency, there is no paper money & coins, use of online transaction.

Objectives of the study

1) To study of cashless economy & its impact in India
2) To know the importance of cashless economy in India
3) To know the benefits & difficulties of cashless economy

Research Methodology

The researcher used only secondary data for the study of this research & it is collected through the various types of sources like books, newspapers, magazines, journals, research paper, articles internet, etc.

Importance of the Study

The importance of this study is to analysis cashless economy & its impact in India with focusing its difficulties and importance. This study will helpful to make awarness about above mentioned things among the peoples.

Scope & Limitation of the study

In this research study the researcher only observes & analysis cashless economy, its impact and importance in India

Introduction of Cashless Economy in India

It is true that Indian economy is depending on cash. In India 97% transactions does in cash in retail sector. If we see the total transaction of customer then out that, 78 %part of cash and 22% art of electronic payment like debit card, credit card & online payment. It is not easy to keep record of cash transaction and people are also neglecting it for avoid the tax and therefore in India happens tax robbery in a large extent. In India economy has near about 31 Lakh crores rupees which has no record, it meant this amount includes black money and small transaction which done without any any used of banking system and the major thing is that, the amount is similar with GDP of Argentina. A very few percentage people and 6 % traders are use electronics payments system in India. Only 3 %people are use cashless system in India and big developed countries use 90 % cashless system. We have to change this condition immediately to become super power country in the world was dream of Ex. President Dr. APJ Abdul Kalam and that is possible, when the Indian economy will become top in cashless economy.

E-Banking means electronics banking plays a very vital role for making cashless economy and it's attached closely to customer with banking sector. The government of India has opened bank account of every person through Jan Dhan Yojna any through people connected with banks and slowly will used become perfect to use cashless transaction. Means it is a step to opened their bank accounts and persuade them towards become a part of cashless economy people are response to cashless system according to government of India, then it is clear sign succession of Digital India.

Importance of cashless Transaction :

1) Taxation

With lesser availability of hard cash at homes and more in banks, there is lesser scope of hiding income and evading taxation and when there are more tax payers it ultimately leads to a lesser rate of taxation for the whole country

2) Transparency and accountability

It becomes a lot easier to track the flow of money with every transaction being recorded with the buyer, seller as well as regulatory bodies, making the system much more transparent and complaint. In the long lead to better business and investment prospects for the economy as a whole

3) No fear of being robbed :

Unlike carrying cash and letting everyone know that there could be something worth snatching

4) Tracking of expenses :

It becomes easier to determine how much was spent where

5) Easier accounting :

Direct payment to bank account. You don't need to go every day to deposit cash to your current account.

6) **Easier transactions :**

We can easily do any transaction with security.

Impact of cashless economy in India

Positive Impact

1.Firsly, it converting hard currency into plastic currency means there is no need to carry cash in cashless economy. People's money becomes safe. It reduce risk & cost of carrying cash, reduced printing cost of currency, also affect to reduce the dependability of economy on cash.

2.It save the times & energy, that's give the satisfaction to the people. There is no need to go to the bank, fill the bank slip & stand in counter line.

3.It increase employment, helpful for economic growth, way forward and easy for handle.

4.It brings the transparency & adequacy in the transaction.

5.It impacts on improved credit access & financial inclusion & achieving the vision of Digital India.

6.It impact in reduce tax avoidance, prevent blank money, prevent illegal business transaction.

7.It affects to transfer government subsidies & benefits directly trough aadhar card integration.

8.The impact of cashless economy in India is reducing crime rate which happened for the purpose of financial motive.

Negative Impact

1.India has agricultural background and it is a poor country, majority of people can't fulfill their fundamentals needs, for that they depends on daily wages means they required cash daily. They are not able to use online banking means they can't become the part of cashless economy.

2.In some sectors, the transactions are completed only with cash because of huge amount and it is not possible to complete these transactions through cashless system. Therefore it may be give an invitation to terrorist activities.

3.It affects negatively that, lack privacy means the hacking problems are increase in large number & the sensitive data will be become hacked like PIN of debit/credit cards passwords, etc.

4.In cashless economy, the government & banks control over the cash of people which keep in their bank accounts, which affects on people's disappointment.

Conclusion

This study is concluded that the Cashless economy is a secure and clean way to make Digital India which the goal of government of India. It is converting physical currency into the plastic money. It has positive impact but also there are lots of difficulties, if people will response positively and make awareness among them with providing required facilities, then it is clear sign of succession of Digital India.

Suggestions

1.Government and banks should provide services in terms of suitable (Simple to understand for common people) , and fair in rate (appropriate charge according to common people), that will motivate to people (which are not used digital payment system till you) towards use of cashless transaction.

2.People should start to use digital payment system, online banking for transactions to convert cash economy into cashless economy that will aids to economic growth and development.

References

1.www.wikipedia.com

2.www.cashless economy.com

3.Dr. Budheshwar Prasad Singhraul, (2018), "Cashless Economy-Challenges and Opportunities I India". Pacific Business Review Internal, Vil. 10, Issue 9.

4.Google search-Digital India

5.Challenges and Opportunities in Digitalization of India

Commercial Banks in India – Productivity and Profitability

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Abstract:

The nationalization and banking sector reforms have a turning point in the Indian banking system. The most significant achievement of banking sector reforms has been a marked improvement in the financial health of the commercial bank. Due to liberalization and globalization many banking institutions have expanded beyond their home countries and traditional lines of business lending to emergence of large international banks. Efficiency and productivity of the banking sector improved significantly in the post-reforms phase. Profitability of the commercial banking sector improved despite decline in spread, which itself is a measure of efficiency. The Indian banking sector has recorded an impressive improvement in productivity indicators have moved closer to the global levels.

Keywords: Nationalization, Banking sector reforms, Productivity, Profitability.

Introduction: Banking and financial sector is very important for any country's economy to develop. Stability is of these sectors is of paramount importance. Over the last 25 years, there has been a remarkable increase in the size and scope of activities of banks in India. The business profile of banks has transformed dramatically to include non-traditional activities like human resource development, merchant banking and new financial services. It is fast changing the way products are designed and delivered across channels and market segments. Increasing market competition and growing consumer expectations are the cause of change in services of banks. Competition in the form of new foreign banks has probably been the driver for the most effective changes. The productivity, profitability and business generated by commercial banks are a vital indicator of performance of commercial banks in India.

Review of Literature:

1.Karkal, G. L. (1982), has examines the concept of profit and profitability in banking. He has suggested some measures to improve the profitability in banks through increasing the margin between lending and borrowing rates, implementation of uniform service charges and improving the profitability of staff.

2.Rao, G. S. (2003), his paper highlighted that what the strategic HRM and how it is helpful for the successful for the success of banks. He said that the new challenges to HR is to take accountability for the return on investment. The HR policies are required to evolved from time to time, should be business centric and embrace the corporate business strategies and goals.

3.Sahoo, B. (2003), according to him equipping bank personals with requisite knowledge and skill for coping with the new millennium banking is one of the biggest challenges for the banking system. For the survival in the knowledge era will require skilled from branch to board level.

4.Zahir, M. A. (1980), recommended, transfer pricing is one of the important parameter for evaluating branch level performance of commercial banks. The determination of transfer price for branches should be based on the concept of opportunity cost. The application of the concept to transfer price mechanism for evaluating the branch level performance will give more meaning to profit statement of branches.

Objectives of the Study:

1. To know the business generated by commercial banks in India.
2. To understand the productivity indicators of commercial banks.
3. To study the different indicators of profitability of commercial banks.

Research Methodology:

The data used in this research paper is collected through the secondary sources like Research papers, Journals, Conference books, Government publications, Research reports of various banks and Web search.

Business generated by commercial banks in India :

The volumes of Deposits, Investments and Advances indicate business generated by commercial banks. Following tables shows the business generated by commercial banks during 2005 to 2014.

Deposit/Investments/Advances of Commercial Banks

(Rs. Crore)

Indicator	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	**Mean**	**STDV**	**CGR**
a) Deposits of :													
Public Sector Banks	1436541	1622481	1994200	2453868	3112747	3692019	4372449	5001743	5745697	6588934	**3602068**	**1697896**	**19.26**
Private Sector Banks	310323	428252	550661	675073	736378	822801	1002759	1174587	1395835	1591693	**868836**	**397009**	**18.50**
Foreign Banks	86389	113745	150750	191114	214076	232099	240667	277063	288144	352481	**214653**	**77811**	**14.94**
b) Investments of :													
Public Sector Banks	686213	633557	664856	799029	1012666	1215598	1336076	1504077	1759056	1973285	**1158441**	**479763**	**14.90**
Private Sector Banks	139264	180494	213858	278215	306531	822801	1002759	1174587	625931	648698	**539314**	**351463**	**24.30**
For	428	523	714	989	130	232	240	277	228	260	**163**	**881**	**24.8**

eign Banks	58	84	71	10	354	099	667	063	063	456	**433**	**86**	**0**
c) Advances of :													
Public Sector Banks	854215	1106288	1440146	1797504	2259212	2701019	3304433	3878312	4472845	5101054	**2691503**	**1460743**	**22.01**
Private Sector Banks	218886	312873	414546	518402	575328	632441	797944	966418	1143248	1342934	**692302**	**347234**	**20.60**
Foreign Banks	75318	97562	126339	161133	165385	163260	195511	229849	263680	291154	**176919**	**65933**	**17.74**

Source: Compiled from RBI banking statistics & IBA bulletin – from 2005-2014.

a. Deposits:

By comparing the deposits of commercial banks on the basis of the mean value during the period, it has been noted that the deposits are very high in case of public sector banks, as the mean value is 3602068. Next is the place of private sector banks whose value is 868836 and lowest of foreign sector banks as it is 214653. In the deposits of commercial banks, the degree of variation is very low in foreign banks as the value of standard deviation of deposit is 77811 and the variation is very high in case of new public sector banks as the value of standard deviation is 1697896 during the period. On the basis of CGR during the period the CGR is very high in case of public sector banks 19.26 while lowest in case of foreign banks 14.94.

b. Investments:

In case of the investment of commercial banks on the basis of mean value during the period, it has been noted that the investment is very high in case of public sector banks as the mean value is 1158441. Followed by private sector banks whose value is 539314. In the investment of commercial banks, the degree of variation is very low in case of foreign banks as the value of standard deviation is 88186 and the variation is high in case of public sector banks 479763. On the basis of CGR of investment during the period the CGR is very high in case of foreign sector banks 24.80 while lowest in case of public sector banks 14.90.

c. Advances:

As comparing the advances of commercial banks on the basis of the Mean value during the period, it has been noted that the advances is very high in case of public sector banks, as the mean value is 2691503 and it is lowest of foreign sector banks as it is 176919. In advances of commercial banks, the degree of variation is very low in foreign sector banks as the value of standard deviation of advances is 65933 and the variation is very high in case of public sector banks as the value of standard deviation is

1460743 during the period. On the basis of CGR of advances during period the CGR is very high in case of public sector banks 22.01 while lowest in case of foreign banks 17.74.

Productivity indicators of commercial banks:

Productivity is a important indicator of performance of commercial banks. There are various indicators of to measures productivity of commercial banks. Among the various productivity indicators, employee productivity indicators like profit per employee, business per employee and business per branch are most commonly used.**5**

Profit per employee of bank: It is the ratio of net profit to number of employees, an increase in this ratio indicates higher productivity of employee.

Business per employee of bank: It is the ratio of total revenue of bank to number of employees of bank.Business per branch: It is the ratio of net profit of bank to number of branches of bank.

Productivity of Commercial Banks in India

The following table shows profit per employee of bank, business per employee of bank and business per branch during 2005 to 2014.

Indicator	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	**Mean**	**STDV**	**CGR**
a) Profit per employee of :													
Public Sector Banks	2.06	2.22	2.8	3.79	4.7	5.31	5.93	6.33	6.21	4.39	**4.37**	**1.53**	**12.58**
Private Sector Banks	3.97	4.59	4.95	6.02	6.16	7.18	9.43	87.34	113.83	135.97	**37.94**	**49.95**	**52.96**
Foreign Banks	11.41	13.88	16.13	19.97	22.11	17.05	27.56	36.24	45.49	40.81	**25.07**	**11.34**	**16.03**
b) Business per employee of (in Cr):													
Public Sector Banks	1.93	21.47	25.78	34.41	43.14	47.98	54.68	68.44	75.13	81.20	**45.42**	**24.00**	**34.41**
Private Sect	35.61	39.80	44.99	55.63	58.37	56.56	62.56	73.75	85.49	89.24	**60.20**	**17.21**	**10.46**

ISSN : 2278-9308
February, 2022

or Banks													
Foreign Banks	75.06	79.86	87.84	105.54	43.85	33.64	39.22	180.28	209.87	238.82	**109.40**	**70.26**	**11.22**
c) Business per branch of (in cr.) :													
Public Sector Banks	3.38	4.14	7.55	9.71	7.34	8.64	10.14	11.36	12.55	13.85	**8.87**	**3.22**	**14.81**
Private Sector Banks	4.17	4.62	5.12	5.79	7.44	7.97	8.23	9.89	11.06	11.66	**7.60**	**2.54**	**13.05**
Foreign Banks	8.78	9.96	10.38	13.20	12.83	13.36	14.66	19.48	21.66	25.92	**15.02**	**5.29**	**11.99**

Source: Complied by researcher Compiled from Statistical tables relating bank in India, Various issues & IBA bulletin – 2005-20.

a.Profit per employee of :

The above table shows that mean value of percentage profit per employee of private sector bank is high 37.94 during the period. In 2012, 2013 and 2014 the average mean value of profit per employee is more than average value of period. Whereas mean value of percentage profit per employee is low in public sector banks 4.37. It is also found that degree of variation and CGR during period is high in private sector banks 49.95 and 52.96 respectively. While the variation and CGR is low in public sector banks1.53 and 12.58 during period.

b.Business per employee of :

The above table shows that the mean value of percentage business per employee of foreign bank is high 109.40 during the period. In 2012, 2013 and 2014 the average mean value of profit business per employee is more than average value. At the same time mean value of percentage business per employee is low in public sector banks 45.42. It is also found that degree of variation and CGR during the period is low in private sector banks 17.21 and 10.46 respectively. While the CGR is high in public sector banks 24.00 and 34.41 during period.

c.Business per branch of :

The above table shows that the mean value of business per branch of foreign bank is high 15.02 during the period. In 2012, 2013 and 2014 the average mean value of profit per employee is more than average value. Whereas mean value of percentage profit per employee is low in private sector bank 7.60. It is also found that degree of variation during period is high in foreign bank 5.29. While the variation is low private sector bank 2.54 during period. The CGR of business per branch is high in public sector bank 14.81. Whereas low in foreign bank 11.99.

Profitability indicators of commercial banks:

In the reform process the rate of profitability considered as an indicator of efficiency in the development of resources of the banks. Profitability indicates earning capacity of the banks. It highlights the managerial competency of the commercial banks, it also works culture, operating efficiency and overall performance of the banks. There are different indicators of profitability some of them are as follows.**6**

a.Interest income: It is calculated as interest income as percentage of total assets. A fall in this ratio implies lower profitability and vice versa.

b.Interest expanded ratio: Interest expanded as percent of total assets of commercial banks. A fall in this ratio improves the profitability of banks.

c. Intermediate cost ratio: It is the ratio of interest expenses to total assets. An increase in this ratio indicates lower profitability and vice versa.

d.Net profit ratio: It is the ratio of net profits to total assets. An improvement in this ratio indicates better deployment of funds or assets.

e. Spread ratio: It is the ratio of net interest to total assets of bank. The spread the net interest ratio which is equal to interest income minus interest expenses. It is most important indicator of profitability of banks.

In response to reforms there has been substantial improvement in the financial health of the commercial banks in India. Banking sector reforms have altered the organizational structure, ownership pattern and domain of operation of banks. Thus banking sector reforms have supported the Indian economy to a higher growth path and improvement the stability of the Indian financial system.

Conclusion:

The Indian banking system is passing through a crucial phase. It is faced with several newer challenges as a result of macro-economic and financial sector developments, both domestic and global level. With the entry of new private banks and increased presence of foreign banks, the Indian banking sector has become more competitive. The banking system is required to adopt itself with the changing requirement of the economy. Banks have come to realize that survival in the new economy depends on delivering all banking services on the internet. Every one needs changed and more developed means of transaction.

References:

1. Karkal, G. L. (1982), "Profits and Profitability in Banking," IBA Bulletin, Vol. XXIII, No.3, (March).
2. Rao, G. S. (2003), "Strategic Management: Leveraging HR for Success in Banks," Vinimaya, Vol. XXIV, No.3, (October), pp.14-25.
3. Sahoo, B. (2003), "Risk in Banks," IBA Bulletin, Vol. XXV, No. 3, (March).
4. Zahir, M. A. (1980), "Transfer Price Mechanism for Performance Evaluation," Reading in Management, pp. 408-424.
5. Productivity, Cost and Profitability performance of scheduled commercial banks in India – A comparative evaluation , 'Abhinav' International monthly refereed Journal of research.
6. Doonger Singh Kheechee (2011) 'A comparative study of profitability of different groups of Scheduled Commercial Banks in India, IJMT, vol. 19, No. 1, Jan – June, pp. 60-75.

Cyprium Micronutrient Private Limited, District Kolhapur And It's Working Capital

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ABSTRACT

Management of Working Capital is related with the difficulties that arise in attempting to manage current assets, current liabilities and the interrelationship that exists between them. This paper tries to make an attempt to study the working capital, components of working capital and liquidity of '**CypriumMicronutrient Private Limited, District Kolhapur'**.The research paper also efforts to study the correlation between liquidity and profitability of **CMPLDK**fertilize unit. The study is bases on secondary data collected from annual report of this fertilizer unit for the period of 5 years on website of ministry of company affair of India. In this paper, there is an application of correlation analysis for identity the significant of working capital management include the current ratio and quick ratio on the quiddity positon of **CMPLDK**.

KEY WORDS

CMPLDK, Working Capital Management, Objectives, Hypothesis, Data Collection, Limitation, NWC, Current Ratio, Liquid Ratio, Findings, Suggestion and Conclusion.

INTRODUCTION

CypriumMicronutrient Private Limited, District Kolhapur (CMPLDK)and study of its Working capital is major significance of internal & external analysis because of its relationship with the current day to day operations of business. Funds, collected from different sources are invested in the business for the acquisition of assets. These assets are employed for earning revenue. The basic problem facing the finance manager of an enterprise is to trade-off between conflicting but equally important goals of liquidity and profitability and vice versa.

NEED OF STUDY

1. To study the need of maintain sufficient working capital of fertilizer units.
2. To check balance between liquidity and short term.

OBJECTIVES OF THE STUDY

1) To study the position of working capital of selected fertilizer units.
2) To make suggestions for the better working capital management of fertilizer units.

HYPOTHESIS

H0: Insufficient working capital has adverse affected in the liquidity of fertilizer units under study.
H1: Insufficient working capital has not effecting in the liquidity of fertilizer units under study.

PERIOD OF STUDY

The present study is undertaken for the period of five accounting year starting from 2012-2013 to 2016-2017. The researcher has selected **2012-2013 asbase year** for the purpose of analysis and evolution.

DATA COLLECTION

Researcher has used **secondary data as main sources** for the presented research study. Annual accounting reports such as Income Statement and Position Statement are collected form website of Ministry of Corporate Affairs (MCA), Maharashtra Reginal Division, of Government of India.

LIMITATION OF THE STUDY

1. The study is limited to five year only.
2. Ratio analysis has its own limitations.
3. This study is based on only secondary data of fertilizer units.

NET WORKING CAPITAL (NWC)

The net working capital is qualitative that indicating the fertilizer units were ability to meet its operation expenses and currents liability. The term net working capital refers to the difference between current assets and current liabilities.

Net Working Capital = Current Assets – Current Liabilities

Current Assets:

Cash balance + Banks Balance + short term Marketable Securitas + Sundry Debtors + Bill Receivables + Inventory + Prepaid Expenses + Short Term Loan and advances + Notes etc.

Current Liabilities:

Sundry Creditors + Bill Payable + Outstanding Expenses + Short Term Loans + Short Term Borrowings + Dividend Payable + Provisions + Any Short Term Dues etc.

Net Working Capital of **CypriumMicronutrient Private Limited, District Kolhapur**has giventhe following statistical table no. 1 and graph no. 2, and it has shown that amount of all financial years, five years total of NWC was Rs. -92,85,328, arithmetical mean of NWC was Rs. -18,57,066, SD was Rs. 25,20,373 and coefficient variance it was -135.72%.

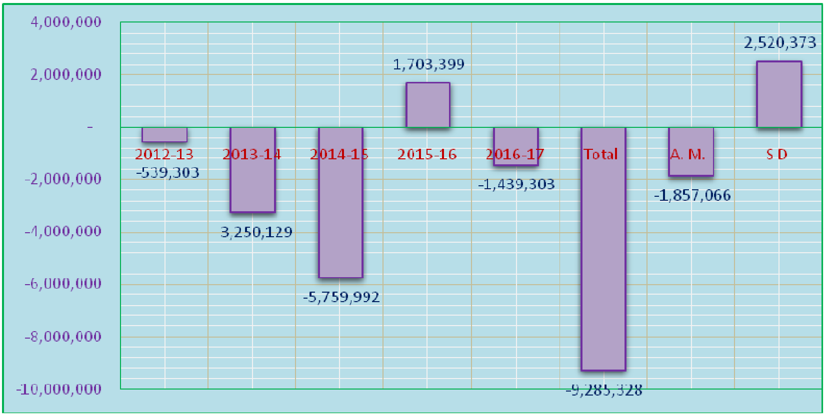
Table No. – 1

Net Working Capital of CMPLDK

09. F U (Kolhapur C-2)	Cyprium Micronutrients Pvt. Ltd.			Last 5 Years Figures	
Particulars	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**
A) Current Assets					
1. Current Investment	-	-	-	-	-
2. Inventories	28,39,345	7,86,014	11,99,528	21,00,350	68,54,500
3. Trade Receivables	34,73,836	6,41,715	7,33,648	11,31,690	13,10,540
4. Cash & Cash Equipment	6,52,722	4,58,086	17,43,275	14,19,748	12,70,866
5. Short Term Lone & Adv.	7,69,342	13,57,144	8,91,879	38,30,847	11,51,161
6. Other Current Assets	-	-	-	1,67,383	1,42,396
Total A)	**77,35,245**	**32,42,959**	**45,68,330**	**86,50,018**	**107,29,463**
B) Currents Liabilities					
1. Short Term Borrowings	20,00,000	37,50,000	72,50,000	-	-
2. Trade Payables	35,85,526	2,66,880	-	27,57,317	26,17,780
3. Short Term Provision	50,562	2,81,124	3,69,214	21,18,528	25,40,746
4. Other Current Liabilities	26,38,460	21,95,084	27,09,108	20,70,774	70,10,240

Total B)	**82,74,548**	**64,93,088**	**103,28,322**	**69,46,619**	**121,68,766**
Net Working Capital (A-B)	**-5,39,303**	**-32,50,129**	**-57,59,992**	**17,03,399**	**-14,39,303**
Total of Last 5 Years Net Working Capital		**-92,85,328**			
Arithmetical mean (A M)		**-18,57,066**			
Standard Derivation (S D)		**25,20,373**			
Coefficient of Variance (C V)		**-135.72%**			

Chart No. – 2
Net Working Capital of CMPLDK



Only in 2015-2016 the NWC of **CMPLDK**was high and positive but in the reaming years it was low and minus. In 2014-2015 NWC was low and minus as compare to other financial years.**This units was not having any short term investment and NWC was unsatisfactory in selected years because of negative balance of net working capital except fourth year.**

CURRENT RATIO (CR)

The current ratio also knows as current assets ratio and working capital ratio. This ratio expresses the relationship between current assets and current liabilities. The current ratio is calculated by dividing the current assets by current liabilities. Thus can be expressed as pure number or percentage ratio. And the idea current ratio id 2:1. The formulas of current ratio is follows:

Current Ratio = Current Assets / Current Liabilities

The following table no. 3 and diagram no. 4 has reveal current ratioof **Cyprium Micronutrient Private Limited, District Kolhapur (CMPLDK)**. The current ratio in year 2012-2013 was 0.93, in 2013-2014 was 0.50, in 2014-2015 was 0.44, in 2015-2016 was 1.25 and 2016-2017 it was 0.88. Total of CR in five years was 4.00, arithmetic mean was 0.80, standard derivation was 0.30 and coefficient variance it was 37.10%.

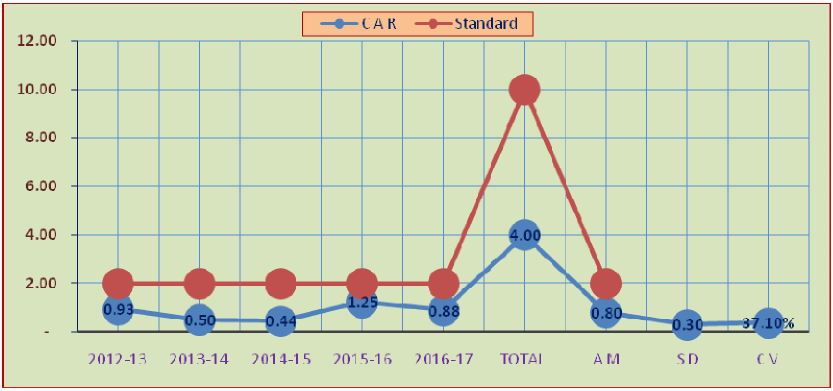
Table No. – 3

Current Ratio of CMPLDK

09. F U (Kolhapur C-2)	Cyprium Micronutrients Pvt. Ltd.			Last 5 Years Figures	
Financial Year	**C A**	**C L**	**C A R**	**Standard**	**Remarks**
2012 - 2013	77,35,245	82,74,548	0.93	2.00	-1.07
2013 - 2014	32,42,959	64,93,088	0.50	2.00	-1.50
2014 - 2015	45,68,330	103,28,322	0.44	2.00	-1.56
2015 - 2016	86,50,018	69,46,619	1.25	2.00	-0.75
2016 - 2017	107,29,463	121,68,766	0.88	2.00	-1.12
Total of last 5 Years	**349,26,015**	**442,11,343**	**4.00**	**10.00**	**-6.00**
Arithmetic Mean (A M)	**69,85,203**	**88,42,269**	**0.80**	**2.00**	**-1.20**
Standard Derivation (S D)	**27,27,611**	**21,31,121**	**0.30**	**-**	**0.30**
Coefficient of Variance (C V)	**39.05%**	**24.10%**	**37.10%**	**-**	**-24.77%**

Chart No. – 4

Current Ratio of CMPLDK



The chart display that orange curve line of standard ratio which in straight line and blue curve line indicates current ratio of **CMPLDK**which is went down initial two years and recovered next years. Current ratio of first three financial years was decreasing order and in next two years it was increasing order but overall it was below the standard ratio. In year 2015-2016 the current ratio was high as compare to other years but it was less than the standard ratio i.e. 1.25.

The average current ratio of five years was 0.80 which is lower than the standard, it means that this fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory.

LIQUID RATIO

Liquid Ratio also knows 'Quick Ratio', 'Acid Test Ratio' this ratio is concerned with the establishment of relationship between the liquid assets ad quick liabilities. The liquid assets refers to those assets which can be immediately or at a short notice, be converted into cash without loss or diminution value.

Liquid Ratio = Liquid Assets / liquid liabilities

- **Liquid Assets** = All Current Assets – Inventory & Prepaid Expenses
- **Liquid Liabilities** = All Current Liabilities – Bank Overdraft
- **Ideal Quick Ratio** = 1:1.

The following statistical table no. 5 and chart no. 6 has shown Liquid Ratio (LR) of**Cyprium Micronutrient Private Limited, District Kolhapur**. The liquid ratio in financial year 2012-2013 was 0.50, in 2013-2014 was 0.17, in 2014-2015 was 0.24, in 2015-2016 was 0.39 and in financial year 2016-2017 it was 0.22. And total of liquid ratio in five years was 1.52, arithmetic mean was 0.30, standard deviation was 0.12 and co-efficient variance it was 39.99%.

Table No. – 5

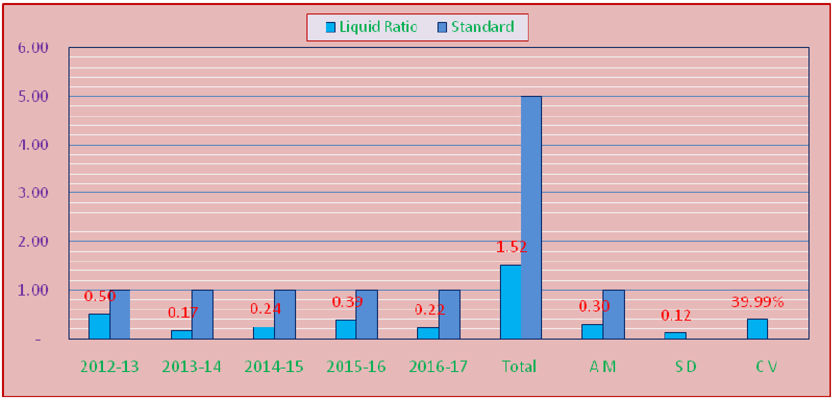
Liquid Ratio of CMPLDK

09. F U (Kolhapur C-2)	Cyprium Micronutrients Pvt. Ltd.			Last 5 Years Figures	
Financial Year	**L A**	**L L**	**LR or QR**	**STD.**	**Remarks**
2012 - 2013	41,26,558	82,74,548	0.50	1.00	-0.50
2013 - 2014	10,99,801	64,93,088	0.17	1.00	-0.83
2014 - 2015	24,76,923	103,28,322	0.24	1.00	-0.76
2015 - 2016	27,18,821	69,46,619	0.39	1.00	-0.61
2016 - 2017	27,23,802	121,68,766	0.22	1.00	-0.78
Total of last 5 Years	**131,45,905**	**442,11,343**	**1.5**	**5.0**	**-3.5**
Arithmetic Mean (A M)	**26,29,181**	**88,42,269**	**0.30**	**1.0**	**-0.7**
Standard Derivation (S D)	**9,61,386**	**21,31,121**	**0.12**	**-**	**0.12**
Coefficient of Variance (C V)	**36.57%**	**24.10%**	**39.99%**	**-**	**-17.52%**

The chart indicates that grey bars represents the standard liquid ratio and the blue bars represented actual liquid ratioof **CMPLDK**which is showing fluctuating trend. The liquid ratio of five years was decreases and it was lower than standard ratio. In the financial year 2012-2013 the liquid ratio was higher and in 2013-2014 it was lower as compare to other years.

Chart No. – 6

Liquid Ratio of CMPLDK



The average liquid ratio of **CMPLDK**was 0.30 in five years which was lower than the standard, it means that this unit is not having sound short-term liquidity and it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

TESTING OF HYPOTHESIS

Table No. 7

Correlation of Accounting Ratio

Accounting Ratio		NWC	NWCR	CAR	LR
NWC	**P.C.**	1	.557**	.365**	.436**
	S (2-T)		0.000	0.001	0.000
	N	75	75	75	75
NWCR	**P.C.**	.557**	1	**.738****	**.709****
	S (2-T)	0.000		0.000	0.000
	N	75	75	75	75
CAR	**P.C.**	.365**	.738**	1	.898**
	S (2-T)	0.001	0.000		0.000
	N	75	75	75	75
LR	**P.C.**	.436**	.709**	.898**	1
	S (2-T)	0.000	0.000	0.000	
	N	75	75	75	75
***. Correlation is significant at the 0.05 level (2-tailed) and**. Correlation is significant at the**					

0.01 level (2-tailed).
P.C = Pearson Correlation,S (2-T) = Sig. (2-tailed) and SND = Standard

The Null (H0) hypothesis "Insufficient working capital has adverse effect in the liquidity and profitability position of fertilizer units under study" is accepted. And alternate Hypothesis (H1) "Insufficient working capital has not effecting in the liquidity and profitability position of fertilizer units under study" is rejected.

The Null Hypothesis (H0) accepted and alternate Hypothesis (H1) is rejected.

FINDING

The researcher has found the following some points in the study of working capital of **Cyprium Micronutrient Private Limited, District Kolhapur.**

1.**Net Working Capital (NWC)** of this units was not having any short term investment and it was unsatisfactory in selected years because of negative balance in net working capital except fourth year.

2.The average **Current Ratio (CA)** of selected five years was 0.80 which is lower than the standard. This fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory

3.The average **Liquid Ratio (LR)** was 0.30 in selected five years which was lower than the standard. This unit is not having sound short-term liquidity and it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

SUGGESTION

The researcher has given the following some suggestions on the basis of study of working capital of **Cyprium Micronutrient Private Limited, District Kolhapur.**

1. This fertilizer unit should investment at least 1% of their net profit in short-term investments and loan and advance as current assets.
2. This fertilizer unit should reduce at least 10% of short-term borrowings in every financial year.
3. This fertilizer unit should maintain the standard ratios of liquidity such as current assets ratio 2:1, quick ratio 1:1 and standard of cash ratio.

CONCLUSION

As per table number 7 of accounting ratio of **Cyprium Micronutrient Private Limited, District Kolhapur (CMPLDK),** there is significant correlation exits between net working capital with liquidity such as current ratio, liquidity ratio of this fertilizer unit. But there is no statistically significant correlation between net working capital and liquidity.

REFERENCES

1."Research Methodology – Method and Techniques" by C. R. Kothari & Gaurav Garg, Third Edition 2014, New age international Private Limited Publishers, New Delhi.
2.Bhalla V. K. 'Working Capital Management' Chand & Company Pvt. Ltd. New Delhi.
3. 'An accounting study of working capital and its impact on profitability with special reference western Maharashtra' Ph.D. Thesis, The researcher Prof. Vijay B. Kadam.
4.http://www.krishi.maharashtra.gov.in
5.http://www.mca.gov.in

Politics & Ethics

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Abstract

Politics in simple terms is a association of group of people making decision for any country or tribes or cities. Now if we talk about this in relation with politics , we come to know that it simply mean the practices of making moral judgement about political action . The research done on the topic **Politics and Ethics**. Hereby give a basic study of the topic and their interrelation . Both the term give a significant impact on their respective place . Simply learning about this , tells that it's a branch of knowledge that deals with moral principals . The research also studies about both the field . Since ethics and politics are both two different aspect , but according to Aristotle , politics examine the good of city – state , while ethics examine the good of individual which he considered to be the best type of community . These are many ethical practices which are suggested to be implement in the politics . sometime talking about this two also become the part of ineradicable conflict between the ultimate value sphere , each of which has its own inhunt logic . Including this in politics , people nowadays are well known by the this two term not only in business but they need it today in political leaders . The research focusses to on answer by some well known knowledge about the political field and knowing their opinion basically . Research has tells that this are the rules societies' make to guide this individual and collected decision making processes . these rules are rooted in religion , morality , laws , education , experience and human strength and weakness . The paper studies about the ethical role in forming of constitution , the ethical provision for them and ground reality with aspect to the topic .

Keywords :- Ethics , Politics , Constitution , Aristotle ethics , community .

Introduction

The purpose to learn about some basics of what politics and ethics signifies. Learning about politics gives a straight view that, as history of politics define it as, a deep understanding of the cultural and historical context of politics and political decisions, social movements and many more. When we talk about modernity about this topic. It sees as a group of people having rulership over a national government, state government, and local government.Politics has an effect on all types of government including democratic, autocratic, monarchical, theocratic and others. The government is responsible for making decisions on different matters of public interest, issuing orders for the public health, directing the citizens towards development and growth, and performing a wide range of other related functions.Defining laws and regulations that tell people what they can or cannot do is one of the ways in which the government leads the people. These regulations and laws are enacted by the government for ensuring order and protection in the society. Beyond the laws, the government might also regulate the citizens and the functioning of the country in other ways. Most of the countries have specific groups or political parties for expressing their views and policies. Politics is the means for attaining valued things. Although, valued things are different in every society, the means of securing those things has never changed. The competition for power, authority and influence will always be the backbone of politics. Applying power, authority and influence to the valued things that support the public good, will produce the quality of life a society desires.Political awareness is essential because it is extremely important for us to know about what is happening around us. Not only that, it is also important to have a fully informed opinion on what is happening around us. Politics is not something far removed from our lives; political leaders make decisions that affect our lives directly. Being politically aware helps you have a say in the decisions the government will make, and even in the formation of the government that will govern your nation.Irrespective of the time we live in, politics remains relevant because it is the principal determinant of what governance is. And that is not just limited to the role that the government plays in our lives; it extends to the way we manage, or govern, our lives and the world that we live in. It is impossible and quite imprudent to live with no other concern than ourselves, because everything that happens around us directly or indirectly affects our own lives. Ignoring this fundamental fact can be disastrous.

Talking about ethical role of politics or role of it .Ethics is what guides us to tell the truth, keep our promises, or help someone in need. There is a framework of ethics underlying our lives on a daily basis, helping us make decisions that create positive impacts and steering us away from unjust outcomes.Ethics has to do with the personal characteristics of human beings for the basic reason that individuals live in the society. The philosophy of politics is also about the social life, behaviour and performance of human beings.The Ethic of Responsibility refers to the day-to-day need to use the means of the state's violence in a fashion which preserves the peace for the greater good.Government ethics applies to the processes, behavior, and policy of governments and the public officials who serve in elected or appointed positions. An ethical awareness of the obligation to act in the public interest will normally promote fairness and justice, and advance the common good.The ethical principles that nurses must adhere to are the principles of justice, beneficence, nonmaleficence, accountability, fidelity, autonomy, and veracity. Ethics are a system of moral principles and a branch of philosophy which defines what is good for individuals and society. The research study tells us about how and why are we correlating these two aspects.

Literature review

Ethics: Ethics is based on well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues.The study ofthe effects of moral principles and standards on human conduct.Political ethics (also known as political morality or public ethics) is the practice of making moral judgements about political action and political agents. While trying to make moral judgments about political issues, people also leverage their own perceived definition of morality.The Ethic of Responsibility refers to the day-to-day need to use the means of the state's violence in a fashion which preserves the peace for the greater good.

Politics: Politics (from Greek: Πολιτικά, politiká, 'affairs of the cities') is the method of rulership over a national government, state government and local government in groups, or other forms of ruling power relations among individuals, such as the distribution of resources or status.Studying Politics provides the kind of information and the broad skills especially important for citizens in a democracy who are supposed to show an interest in what their government does, and to vote accordingly.Studying Politics should help you to penetrate a little deeper beneath the outward appearance of things.

Constitution: The constitution is a political frame based on which principles or laws of a country are formulated. Under the constitution, the rights and duties of citizens are described. The relationship of people with governments is decided by the constitution.A constitution is primarily a set of rules and principles specifying how a country should be governed, how power is distributed and controlled, and what rights citizens possess. It is usually written down andcontained within a single document; the UK is unusual in having an uncodified constitution with many sources.

Aristotle ethics: Aristotle's ethics, or study of character, is built around the premise that people should achieve an excellent character (a virtuous character, "ethikē aretē" in Greek) as a pre-condition for attaining happiness or well-being (eudaimonia).The purpose of ethics for Aristotle is simply to find the ultimate purpose of human life, once again demonstrating his emphasis on teleology. Ethics falls under the category of practical sciences, since its concern is not knowledge for its own sake but rather for the purpose of application.Aristotle is one of the most important Ancient Greek philosophers who taught us many important lessons in subjects such as science, logic, ethics, poetry, theater, metaphysics, and about life in general. He lived to share his knowledge and had many students during his lifetime.

Importance of the topic :

Political ethics not only permits leaders to do things that would be wrong in private life but requires them to meet higher standards than would be necessary for private life. For example, they may have Less of a right to privacy than do ordinary citizens, and no right to use their office for personal Profit.Political ethics (sometimes called political morality or public ethics) is the practice Of making Moral judgments about political action, and the study of that practice. As a Field of study, it is divided Into two branches, each with distinctive problems and With different though overlapping literatures. One branch, the ethics of process (or The ethics of office), focuses on public officials and the methods They use. The other Branch, the ethics of policy (or ethics and public policy) concentrates on judgments About policies and laws. Both draw on moral and political philosophy, democratic Theory and political Science. But political ethics constitutes a free standing subject in Its own right. Most writers on the Subject do not try to apply foundational moral Theories but rather work with mid-level concepts and Principles that more closely Reflect the considerations that political agents could take into account in Making

Decisions and policies.

The key problems in policy ethics are not conflicts between ends and means, Or between the process And outcomes, but rather between the values of the ends or Outcomes themselves. Many of the salient Issues in policy ethics are driven by the General tension between partial and impartial claims or Obligations. (See IMPARTIALITY.) This can be seen clearly in the work on what has become one of The Most active areas, GLOBAL DISTRIBUTIVE JUSTICE. On the one side, the Partialists (holding a doctrine Sometimes called social liberalism) give priority to the Nation state, and require international transfer Only to sustain domestic

Research methodology

Getting straight on ethics in qualitative research is not an internal matter Only. Putting ethics and politics together is the right move intellectually, but It engages a major agenda beyond adjustments in qualitative theory and methOds. The overall issue is the Enlightenment mind and its progeny. Only when the Enlightenment's epistemology is contradicted will there be conceptual space for A moral-political order in distinctively qualitative terms. The Enlightenment's Dichotomy between freedom and morality fostered a tradition of value-free Social science and, out of this tradition, a means-ends utilitarianism. Qualitative Research insists on starting over philosophically, without the Enlightenment Dualism as its foundation. The result is an ethical-political framework that is Multicultural, gender inclusive, pluralistic, and international in scope.

Primary Data : Data can be collected in political science research in three major ways: with questionnaires, interviews, or through documents. A questionnaire contains written questions that people respond to directly on the questionnaire itself, without the assistance of the researcher. A 14 questionnaire can be handed directly to a respondent, or it can be mailed to the members of a sample, who then fill it out on their own and mail it back to the researcher. An interview involves an interviewer reading questions to respondents and recording their responses. Interviews can be conducted either in person or over the telephone. Both interviews and questionnaires contain two basic types of questions: closed-ended and open-ended. Closed-ended questions provide respondents with a fixed set of alternatives from which they are to choose while open-ended questions allow respondents to write their own responses, much as you do for an essay-type examination question. Theoretical considerations largely determine which type of question to one could adopt. Monettetal (1994: 155) advised that closed-ended questions should be used when all possible, theoretically relevant responses to a question can be determined in advance and the number of possible response limited. On the other hand, they recommend open-ended questions in exploratory studies in which lack of theoretical development suggests that only a few restrictions should be put on people's responses. In addition, they posit that when researchers cannot predict all the possible answers to a question in advance or when too many possible answers exist to list them all practically, then closed-ended questions are not appropriate. Documents are one form of available data. Available data refers to observations collected by someone other than the investigator for purposes that differ from the investigator's but that nonetheless are available to be analysed (1994). Documents can contain data recorded in books, monographs, journal and magazine articles, letters, memoranda, diaries etc. Documents can also make up part of records maintained by various individuals and institutions such as libraries, archives, the central bank, the police, the electoral commission, and health institutions.

Secondary Data : Here the study comes within past research and documentation studies and interview with well aware person about the research field and study. Data in political science comes in two major forms: words and figures. The data in the form of words are called qualitative data while the data in the form of figures are called quantitative data. Quantitative data are statistics based. In contrast, qualitative data come in various forms such as interview transcripts, recorded observations, and other documents – published and unpublished. What distinguishes qualitative and quantitative data is a set of assumptions, principles and values about truth and reality. Researchers that are inclined to quantitative data believe that the goal of science is to discover the truths that exist in the world and to use scientific method as a way to build a more complete understanding of reality. Although some qualitativists operate from similar epistemological position, most of them recognise that the relevant reality in the social world is that which takes place in subjective experience. Thus, qualitativists are often more concerned about uncovering knowledge about what people think and feel about particular events or phenomena that they are in making judgements about whether these thoughts and feelings are valid. Quantitative data can be analysed by the used of statistics. There are two broad types of statistics: descriptive and inferential statistics. Descriptive statistics are procedures that assist in organising, summarising, and interpreting data. Inferential statistics are procedures that allow us to make generalisations from sample data to the populations from which samples were obtained. Descriptive statistics include such simple statistical techniques as frequency distribution, measures of central tendency and dispersion.

Modelling and Analysis

The modelling and analysis part of this study mainly highlights the part of basic description and differentiation of both the topics that is politics and ethics their correlation and their importance in the society of politics. The analysis with in the figures are descriptive which will be giving basic response to the research.

Table 1: Relationship among power , politics and ethical behaviors.

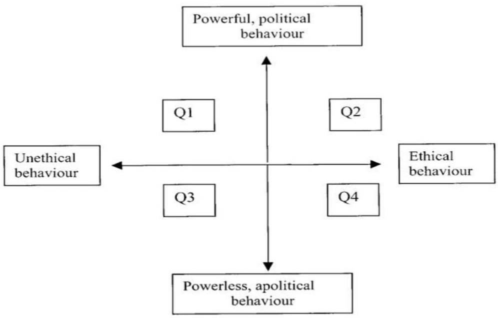
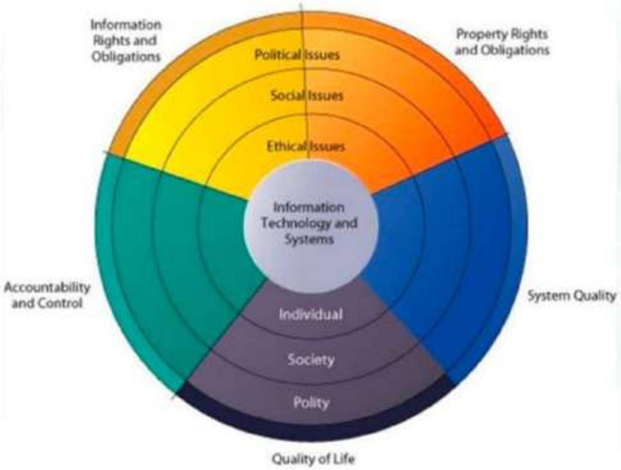


Table 2 : Ethical , social and political issues



Results and discussion:

This chapter presented an overview of the methodological issues surrounding the study of politics. It examined the three core aspects of political science research, namely logic, approaches and methods of political inquiry. The chapter explored the linkages between logic, approaches and methods of political inquiry. In a nutshell, the logic of political inquiry is the ontological and epistemological justification for approaches and methods of political inquiry, the approaches of political inquiry are the theoretical and philosophical basis for data collection and analysis, while methods of political inquiry are the procedural rules for data collection and analysis. The study of politics is composed of the interrelationship between these three important elements. This chapter reviewed the nature, features and basic assumptions of the logic, approaches and methods of political inquiry. It also gave a prior discuss of relationship between both aspects.

Conclusion:

Political science provides analysis and predictions about political and governmental issues. Political scientists examine the processes, systems and political dynamics of countries and regions of the world, often to raise public awareness or to influence specific governments.Traditional view of Political Science is idealistic, philosophical and Utopian. It gives emphasis on values, ideals and morals. 2. It lays emphasis on historical and explanatory methods, and considers the state, the government and institutions as matter of study.

Limitations:

- The time was limited.
- Cannot be used for testing.
- The result of this may change over time
- Data explains average exposure.

Acknowledgement:

The Researchers want to thank Prof. Madhuri Tayade Mam from Dr. Ambedkar Institute of Management Studies and Research, Deekshabhoomi, Nagpur, Maharashtra, India for her guidance and constant support during the whole of the completion of this Research Paper.

References:

1. Book- politics and ethics of Indian constitution . By Rajeev Bhargava 2008.
2. Alasdair Macintyre, ethics and politics , volume 2 2010, Cambridge University pres.
3. Cambridge.org
4. Rajyasabha.nic.in
5. Trust in government: Ethics measures in OECD countries.
6. Implementing effective ethics standards in government- OECD report.
7. Markkula Centre for applied ethics . What is government Ethics?
8. The Protestant ethics and spirit of capitalism . Hans Henrik Breven.
9. POLSC 401 : ethics and public policy
10. Research gate.net, role of ethics in Indian politics.
11. Maryville.edu/ history
12. Political research beyond political science 2016 September. Volume 14 ,issue 3- Sanford F schram
13. www.researchgate.com
14. Political science guide.com
15. Ethics , politics and research – SAGE journal
16. The journal of politics . volume 84
17. Models of political analysis – Jawaharlal Nehru University
18. Name of interviewer –Deeplaxmi Gajanan Lad (Shivsena Taluka Pramukh Mahila Aghadi , Hingna)

Feminist Perspective to Developing Women Empowerment

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Abstract

Women empowerment is always considered about equality- equality with men - equality in public and equality in private. This equality implies not only in the rights but also with the opportunities. It is also concerned with the choice - choice of education, of career, of lifestyle and so on. It is difficult to achieve equality in both public and private as the questions for each realm are different. To achieve equality action requires on three fronts - social, economic and cultural. Women are central to progress in each area. Hence all systems need revolutionary change. They need regular feeding, otherwise they will begin to show the cracks in their assumptions and that would again lead to patriarchal system. For this purpose feminism can be the best solution for the women empowerment as it highlights the gender and sex differences very skillfully and emphasizes the strengths of women who can do anything. What they require is scope, opportunity, encouragement and appreciation with which they improved and proved themselves across the time.

But huge majority thinks that feminism is anti-male. This opinion has been formed by patriarchal media. But feminists do not oppose men. Rather they fight to get their rights, opportunities and choices. Feminists offer a different model about gender and sexism which underlines women as human being. For feminism women empowerment implies consciousness-raising and building relationships. Feminists promote women's sense of self-worth, their ability to determine their own choices, fight for their rights and opportunities, influence the change- social, economical, cultural for themselves and others. This paper aims to discuss feminist perspective towards women empowerment.

Key words: Patriarchal, feminism, choice, care, women empowerment, womanhood, periodizations, sisterhood

Objectives:

1. To highlight the Changing role of women in twentieth century.
2. To emphasize the role of feminism in women empowerment.

Hypothesis

1. Certain domestic responsibility and attitudes proves obstacles in women empowerment.
2. Twentieth century proved a notable change in women’s status.

Introduction

Women empowerment can be studied through several aspects. It includes developing and accepting women's viewpoints, to take efforts to raise their status with the help of education, literacy, awareness programs, organizing trainings so on and so forth. It is concerned with social context like gender and religion, cultural context, legal context, Political context etc. Women empowerment means to participate fully in across all sectors – social, political, educational, economic, cultural, religious, legal , environmental etc. Such active participation is essential to build stronger society. It would lead to sustainable development of the society including economic achievement which may improve the quality of life of women, men, families and communities too.

In this research we are going to see the ways in which the nature of responsibility, care and choice has changed across time. It simply based on the observations where it is claimed that the kitchen and house work is the world of women. Rather it was and is universal principle that house work and kitchen is the woman's domain. This research is based on the observation of an age old lady of 80 years, a lady of 50 years who is a retired teacher, a working lady of 30 years and a college going girl of 18 years.

Most of the time not only of a day but of life of an aged lady of 80 years was engaged with housework and kitchen. There was no counting for the number of hours that women work and the kinds of work that they did. This was the era when she was appreciated for the devotion she gave for the family, the responsibilities she performed and care that she took. Rather women knew very well how to take care. They were naturally endowed the jewel to care for people. That was the period when the women were demonstrated their worth through bearing a child, especially a son and through caring for their families called as womanhood. Even they themselves never thought to express or fulfill their wishes. The lady of 50 years and who was a teacher had spent an hour less a day than previous lady although she was a working lady. The society had permitted her to do paid work but yet she has to pay attention to the family, children and all daily chores. She was held responsible for the behavior of the children. As she was able to earn money she was not given equal status to men in the family. She was not given equal right to express her views, opinions. She was not only held responsible for the household works but also judged on the basis of the balance she maintains between the two - personal and professional life/work. She was just a means to earn extra money. In this phase a woman was expected not merely to seek success in her career, but at the same time she should aspire to being a good wife and mother at home. In that phase women's struggle was confined only to prove her existence. Most of them succeeded in proving themselves besides having number of obstacles which interrupted their efficiency. Mr. Anand Mahindra had tweeted a picture which underlines the fact- woman managing work and home together actively, happily and successfully.

Such mindset has changed in the next some years where the working lady of 30 years has quiet relaxation in comparison to the first two ladies. She spends 4-5 hours a day for household. Employment, diminishing family size into nuclear families, help by other family members and introduction of electronic equipments – washing machine, mixture and oven are the basic reasons that have influenced women's involvement in the kitchen and at home. This has changed her attitudes towards housework and also reduced the time she used to spend in the kitchen and at home. Automatically work was done by or shared by men. This was the period where there was a strong questioning of sameness, equality between men and women. It also motivated women to think about their struggles as not being alone but as a group. They started to think about themselves, their sisterhood and their place in the society to be proved. So it produced a notion of togetherness which strengthens their fight.

Last observation of a college going girl of 18 years has a tremendous change in attitude, thinking and expectations. These upcoming generations strongly oppose inequality and take stand for the same. This is the phase where not only girls but also boys are given freedom to express themselves, to think for their own betterment equally. The roles of men and women are not set in stone but do change accordingly. Gender role and its influence do not diminish but just reconfigure in different formations of power in the society and given more attractive labels. Women empowerment for them implies the full participation and partnership of both women and men. It is required in productive and reproductive life. It includes shared responsibilities for the care and nurturing of children and maintenance of the household.

The idea of choice is observed as it is predicated upon individuals. Choice is always positional. There are many things to choose. Everybody is expected to make choices every day at every step. It has been observed that the choice is influenced by the age/period we live in. As it has been stated above the age old lady of 80 years has no right to choose the things. Later on the next lady who was a retired teacher was given limited access to her freedom of choice especially in her profession. Women choose careers in banks or school. Because they are confined to time schedule 9 to 5. This schedule enables them to juggle work life balance. It allows them to continue with the labor at home in the morning and evening as they do at work place. Still she was criticized saying that the women do not want to work and they cannot work long hours like men. In third observation of a working lady of 30 years the picture has changed and she could express her choice, moreover act likewise. Here she has proved her successful in all fields equal to men. She proved the society wrong which criticized her ability and efficiency. And the last observant has improved mentality where women and men are equal in real sense. To underline this we can examine the projects given at college level are equal to all irrespective of their gender difference. It's the phase where girls are promoted not only by women but also by men.

It's a call of time to reform our understanding of women's labor. One has to take greater recognition that how much efforts are taken by the women at home, at workplace in order to keep the wheel running. The recognition of women's economic independence is another important aspect for sustainable development of the society. Women are equal to men but have different abilities. They have specific value that ought to be valued in the public and private domain. Culture is an important and integral part of the society. In most of the cases it has been observed that the culture has became the barrier in the growth of women. It does not allow them to enjoy their rights. But the progressive society recognizes women's equal rights. We have witnessed and experienced rapid change in social and cultural environment which enforce us to think that women empowerment means the equal development of all women belonging to all strata – housewife, working lady or all age group – teenage, middle age, old age or all class- rich, middle, poor. All of them must be given freedom of choice, freedom of expression.

Education is the best means of empowering women with the knowledge, skills and self-confidence. It is necessary for them to participate fully in the development process of society and nation. Universal Declaration of Human Rights asserted that "everyone has the right to education". Governments committed themselves to the goal of access to basic education to all. Women's social, economic and political status can bring essential improvement of government in respect of transparency and accountability. It would lead to sustainable development in all areas of life. Women's literacy is the key to improve the health condition, nutrition awareness and educational ratio of the society. It's also important to promote them to participate in decision making at various fields including public and private. Equal participation of men and women in decision making will balance the composition of society. The same is needed for the strengthening of democracy and for its proper and useful functioning of government.

One has to understand the socio-political changes that took place by the time and that has formed and molded different mindset. Things appear differently at different points of time in different societies. Demands of one set of women are different from other set of women in all societies, at different periods. Hence feminist approach in different parts of the world seems to be so different, but has similar features in many ways. There is no clear starting point and end point of a viewpoint. There is no clear cut dividing line between two phases to which we call as periodizations. But it's just an aspect of social view towards women which is developing day by day emphasizing equality of women in all fields. Women have and will always be active participants in public debate, and the shaping of public domain and discourse may lead to a balanced democracy.

Reference:

1) Hooks, Bell. Feminism is for everybody: Passionate Politics. Cambridge, MA: South End Press
2) Menon, Nivedita. 2012. Seeing Like a Feminist. New Delhi: Zubaan.
3) https://indianexpress.com/article/parenting/family/working-mothers-anand-mahindra-viral-post-5573629/
4) An article "55 TaasRabtay?" in LokmatSakhidated 12 March, 2019
5) World Summit for Social Development, Copenhagen, 1995

ISSN : 2278-9308
February, 2022

Review Of Data Mining And Machine Learning Techniques In Heart Disease Prediction

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Abstract:

Heart disease is one of the top causes of life complications and, as a result, mortality. The diagnosis and treatment of heart disease is extremely difficult, especially in developing countries, due to the scarcity of effective diagnostic instruments and a scarcity of medical experts and other resources, all of which impair the appropriate prediction and treatment of heart disease. Inadequate preventive measures, as well as a scarcity of experienced or inexperienced medical personnel, are the main causes. The precautionary precautions are insufficient. Several clinical decision support systems on heart disease exist in today's digital environment. Predictions have been produced by several academics to make diagnosis easier and more efficient. This paper looks into the various clinical decision support systems for heart disease prediction proposed by various researchers using the state of the art. Techniques for data mining and machine learning The Nave Bayes (NB) and Decision Tree algorithms are two examples of classification algorithms (DT), Artificial Neural Networks (ANN) have been widely used to predict heart disorders, with varying degrees of accuracy acquired.

Keywords: *Data Mining, Machine Learning, Heart Disease, Classification, Prediction*

I. Introduction

Cardiovascular disease has become one of the most widespread diseases in the world at present. It is estimated to have caused around 17.9 million deaths in 2017 which constitutes about 15% of all natural deaths [1]. Cardiovascular disease is chronic heart disease and can be detected at the initial stages by measuring the levels of various health parameters like blood pressure, cholesterol level, heart rate, and glucose level [1]. The cardiovascular disease not only affects human health but also the economics and cost of the countries [2]. Nowadays, several data mining algorithms and machine learning algorithms are being developed under searched for predicting the different types of diseases [3]. Similarly, there are many research article which shows that numerous data mining, machine learning, and the hybrid algorithms are being studied, developed and investigated which can help detect the and predict the early stage of heart disease[4]. The heart disease diagnosis is the process of detecting or predicting heart disease from a patient's records. Doctors may not able to diagnose a patient properly in a short time, especially when the patients suffer from more than one disease [5]. The authors in [18] have surveyed numerous research papers from different years on the prediction of heart diseases and they concluded that data mining techniques are better at predicting heart diseases. Classification techniques are used widely in healthcare because of their capabilities of processing very large data sets. The commonly used techniques in healthcare are Naïve Bayesian, support vector machine, nearest neighbor, decision tree, Fuzzy logic, Fuzzy based neural network, Artificial neural network, and genetic algorithms [6].

II. Literature Review

Reference [7] presented a heart disease prediction framework using some supervised machine learning algorithms in R programming language. The algorithms used include Support Vector Machine (SVM), K-Nearest Neighbor (KNN), and Naïve Bayes (NB). The Cleveland datasets from the University of California, Irvine (UCI) machine learning repository consisting 303 instances and 76 features were used. The data was preprocessed due to missing values and the sample became 302 instances and only 14 heart disease features in size. The data was split into 70% and 30% for models training and testing respectively. It was a comparative analysis of the selected techniques in which the experimental results showed that the NB classifier performed the heart disease prediction better than the SVM and KNN, with an accuracy of 86.6%.

Reference [8] proposed a diagnostic system for predicting heart disease using Multi-Layer Perceptron Neural network (MLP) with back propagation as the training algorithm. The performance of the developed system was evaluated based on sensitivity, specificity, precision and accuracy. The Cleveland data of the UCI machine learning repository containing 303 instances and 76 features was employed for model training and testing. Data preprocessing was performed to remove 6 instances which contain missing values. Of the 76 features, only 14 were used as the most relevant to heart disease. Based on the experiments performed, the MLP-NN proposed model gave high accuracy of 93.39% for 5 neurons in hidden layer with running time of 3.86 seconds in the heart disease prediction.

Reference [9] proposed a logistic regression (LR) based approach of machine learning for heart disease prediction. Other algorithms such as NB, SVM, DT, and KNN were also explored using SK-Learn library for performance comparisons with the LR algorithm. According to them, the experimental results showed that the LR algorithm performed better at 86.89% accuracy. While other algorithms performed at 77.85% for KNN, 86% for NB, 78.69% for DT and 82% for SVM. Datasets used for model training and testing processes were not specified.

Reference [10] presented a machine learning-based technique for detection of heart disease using sampling techniques to handle unbalanced datasets. The sampling techniques used include Random Over-Sampling, Synthetic Minority Over-Sampling (SMOTE) and Adaptive Synthetic Sampling Approach (ADASYN). Framingham datasets from the Kaggle website, which contains 4239 instances with 15 features were used for the algorithm training and testing. Based on the features, the aim was to predict whether a patient had a 10-year risk of future coronary heart disease. The machine learning techniques used include LR, KNN, AdaBoost, DT, NB, and RF. The performances of these classification algorithms were measured and evaluation based on precision, recall, and accuracy. Each of these parameters varies according to the sampling technique used. From their experimental results, SVM classifier with Random OverSampling technique appeared the best in the heart disease prediction with an accuracy of 99%. However, RF performed better with SMOTE technique at 91.3% accuracy while DT classifier and RF again performed better with ADASYN technique at 90.3% accuracy. Therefore, the classification accuracy of this approach was solely based on the sampling techniques, which are not always necessary in all types of datasets.

Reference [11] implemented a machine learning-based approach for heart disease prediction using comparative analysis of DT and SVM classification algorithms in Python. Age, chest pain, blood pressure, cholesterol level were among the heart disease features considered in the unmentioned datasets. The unspecified sample was divided into 75% and 25% for model training and testing respectively, using cross validation method. Data preprocessing was carried out to remove inconsistencies and missing values using PANDAS algorithm and Mat Plot Lib was used for data visualization. Experimental results showed that DT classifier performed much better than the SVM. The DT classifier had an accuracy of 100% while that of SVM was 55%. Their conclusion was that the performance of a classifier depends on the type of heart disease datasets used, which showed that the DT classifier performance could not be generalized as the best model for heart disease prediction despite of the 100% classification accuracy.

Reference [12] proposed a heart disease prediction framework based on RF algorithm in machine learning using Python. They used the Cleveland heart disease datasets obtained from the UCI machine learning repository for the algorithm training and testing. This sample originally contains 303 instances with 76 features but after preprocessing and manual attribute selection of features, only 9 features were used. 75% of the sample was used for algorithm training while 25% was used for testing. A graphical user interface (GUI) was developed using Visual Studio Code for visualization of the experiments. The RF classifier was employed for the classification, where an accuracy of 97.56% was achieved. The heart disease diagnosis was divided into four (4) stages based on artery blockage, where an artery blockage greater than 50% indicates the presence of heart diseases. This model could not detect heart disease early, since 50% of artery blockage is still classified as normal or absence of heart disease.

Reference [13] proposed a heart disease prediction based on machine learning techniques using NB and DT algorithms in Python. The datasets used for training and testing of the model were obtained from the Kaggle website, which contain 13 heart disease features. Another dataset from the UCI machine learning repository was used for the simulation. The proposed model was implemented on the Scipy environment. Form their experiments, results showed that DT algorithm performed better than the NB in the prediction of heart diseases. Their study had a lot of shortcomings, which include unspecified datasets, unavailability of real experiments, imprecise results, and improper feature selection approach.

Reference [14] proposed a heart disease prediction framework called "Hybridization" that combined several machine learning algorithms into a single model. The Cleveland datasets from the online machine learning repository of the UCI consisting of 303 instances and 14 features were used in the model training and testing processes. Data preprocessing was carried out to reduce the attributes from 14 to 12. The range of classification algorithms applied included the NB, SVM, KNN, NN, J48, RF, and GA, taking into account their accuracies, sensitivities and specificities in the heart disease prediction. They were applied on the same dataset and feature one after the other. The results of the experiments showed that NB and SVM performed better in the heart disease prediction with the same accuracy of 89.2%.

Reference [15] performed a comparative study on heart disease classification and prediction using machine learning techniques. The algorithms used include NB, DT, RF, SVM, and LR in the Rapid-Miner. The common Cleveland heart disease datasets from the UCI machine learning repository consisting of 303 instances and 14 attributes were used. During learning and of the model, 10-fold cross validation technique was used. From the results of the experiments, DT algorithm appeared the highest in the heart disease prediction accuracy followed by SVM at 93.19% and 92.30% respectively.

Reference [16] performed a comparative analysis on some of the popular machine learning algorithms used for heart disease prediction. WEKA 3.6 version was used to study four classifiers including RIPPER, DT, ANN, and SVM. The usual UCI datasets for Cleveland containing 303 instances and 14 attributes were used for the model training and testing. Data preprocessing operation was performed which subsequently reduced the sample size to 296 instances. The performances of the selected algorithms were compared with other classifiers which include the KNN, NB and MLP. The experimental results showed that the selected algorithms performed better, with SVM having the performance of 90.00% accuracy.

Reference [17] conducted a study to identify the most significant features in heart disease prediction. In their system framework, seven classification algorithms in the Rapid-Miner studio were used, which include the KNN, DT, NB, LR, SVM, NN, and Vote. The Cleveland data containing 303 instances with 76 features obtained from the UCI machine learning repository was used. They performed a cross validation on the data using 10 folds cross validation approach. One subset was used for training and the remaining for testing. From the results of their experiment, Vote classifier appeared the best in the heart disease prediction with an accuracy of 87.4%.

Reference [18] also carried out a comparative investigation on heart disease prediction using support vector machine, decision tree, and k-nearest neighbor algorithms. They used the VA Long Beach dataset obtained from the UCI machine learning repository, which comprises of 270 instances and 12 attributes for the algorithm training and testing purposes. The model was evaluated based on accuracy, sensitivity, and specificity using confusion matrix. Their experimental results showed that Support

Vector Machine (SVM) performed better than KNN and DT in classifying the heart disease patients, with an accuracy of 92%, sensitivity of 100%, and specificity of 83%.

Sarath Babu et al. [19] proposed system depicts the early depicts the initial diagnosis of disease related to heart is done using machine learning. They used genetic algorithm, K-means Algorithm, MAFIA (Mining Maximal frequent item set from a database) and decision tree classification.

S. Bagvathy et al. [20] Data Mining algorithms are utilized for various purpose for information retrieval from large datasets of patients. Before this data pre-processing and transformation also. They comprise data mining techniques such as clustering and classification. Among clustering k-means clustering is utilized for evaluating the result based on knowledge. In K-means clustering algorithms a patient data (sex, age, sugar level and blood pressure) considered and related information about heart disease, they formed groups. In the next iteration again groups are formed according to similarity between them by calculation. Map reduce algorithm is used for parallel programming to reduce problems like network performance, load balancing and parallel programming.

Saba Bashir et al. [21] they had work on UCI dataset an open online source database which consist of large amount of disease related data. Preprocessing and discretization is done on dataset which changing raw data into fathomable context. The missing data, duplicate data and redundant data is pruned to improve the quality by performing data cleaning. Format conversion is required for some specific purpose is done under data transformation.

Discussion

From the above reviews it is observed that the techniques and algorithms used on the medical data set to predict heart disease are effective and smart techniques in data mining. The decision tree always outperforms other techniques in predicting heart disease in terms of accuracy, good performance. Bayesian classification also has good results after the decision tree and has results close to the decision tree technique. This means that it is characterized by accuracy and good performance and time as well. The decision tree has the advantage of being able to improve a lot after applying the genetic algorithm in order to obtain more accurate results to predict heart disease and reduce the amount of different data. The real challenge is when clinical decisions are made by physician experience rather than applying techniques to hidden data sets. Therefore, the data must be dealt with very seriously and the data must be real in order to apply the various techniques to that data to reach the best possible accuracy that helps the specialists to take appropriate decisions.

Conclusion

The majority of the research, according to the extensive literature assessment, employed the Cleveland heart disease dataset, which has just 303 occurrences with 14 characteristics. The sample size used to represent a certain geographic area is quite small and limited. A single dataset with limited heart disease features was used in a few researches that utilized other data sources. As a result, it was unable to generalize the diverse classification accuracies observed in heart disease prediction. Other multiple heart disease datasets from geographically diverse sources with more features should be explored for developing more efficient machine learning models in order to obtain a more generalized classification and prediction accuracy, and that is the fundamental intent of our ongoing research. This allows for more accurate classification and early warning of potential problems.

References

[1] Nalluri, S., Saraswathi, R. V., Ramasubbareddy, S., Govinda, K., & Swetha, E. (2020). Chronic Heart Disease Prediction Using Data Mining Techniques. In Data Engineering and Communication Technology (pp. 903-912). Springer, Singapore.

[2] Gokulnath, C. B., & Shantharajah, S. P. (2019). An optimized feature selection based on genetic approach and support vector machine for heart disease. Cluster Computing, 22(6), 14777-14787.

[3] Prasad, R., Anjali, P., Adil, S., & Deepa, N. (2019). Heart disease prediction using logistic regression algorithm using machine learning. International journal of Engineering and Advanced Technology, 8 (3S), 659-662.
[4] Das, Resul, Turkoglu, Ibrahim, et al.: Effective diagnosis of heartdisease through neural networks ensembles. J. Expert Syst. Appl.36, 7675–7680 (2009).
[5] Tarawneh, M., & Embarak, O. (2019, February). Hybrid approach for heart disease prediction using data mining techniques. In International Conference on Emerging Internetworking, Data & Web Technologies (pp. 447-454). Springer, Cham.
[6] Alotaibi, F. S. (2019). Implementation of machine learning model to predict heart failure disease. International Journal of Advanced Computer Science and Applications, 10 (6), 261-268.
[7] Anitha, S., & Sridevi, N. (2019). Heart disease prediction using data mining techniques. Journal of Analysis and Computation, 8 (2), 48-55.
[8] Subhadra, K., & Vikas, B. (2019). Neural network based intelligent system for predicting heart disease. International Journal of Innovative Technology and Exploring Engineering, 8 (5), 484-487.
[9] Prasad, R., Anjali, P., Adil, S., & Deepa, N. (2019). Heart disease prediction using logistic regression algorithm using machine learning. International journal of Engineering and Advanced Technology, 8 (3S), 659-662.
[10] Lakshmanarao, A., Swathi, Y., Sri, P., & Sundareswar, S. (2019). Machine learning techniques for heart disease prediction. International Journal of Science and Technology Research, 8 (11), 374-377.
[11] Reddy, P. K., Reddy, T. S., Balakrishnan, S., Basha, S. M., & Poluru, R. K. (2019). Heart disease prediction using machine learning algorithm. International Journal of Innovative Technology and Exploring Engineering, 8 (10), 2603-2606.
[12] Annepu, D., & Gowtham, G. (2019). Cardiovascular disease prediction using machine learning techniques. International Research Journal of Engineering and Technology, 6 (4), 3963-3971.
[13] Sridhar, A., & Kapardhi, A. (2018). Predicting heart disease using machine learning algorithm. International Research Journal of Engineering and technology, 6 (4), 36-38.
[14] Tarawneh, M., & Embarak, O. (2019). Hybrid approach for heart disease prediction using data mining techniques. Acta Scientific Nutritional Health, 3 (7), 147-151.
[15] Mohan, S., Thirumalai, C., & Srivastava, G. (2019). Effective heart disease prediction using hybrid machine learning techniques. IEEE Access, 7, 81542-81554.
[16] Khan, S. N., Nawi, N. M., Shahzad, A., Ullah, A., & Mushtaq, M. F. (2019). Comparative analysis for heart disease prediction. International Journal on Informatics Visualization, 1 (4-2), 227-231.
[17] Amin, M. S., Chiam, Y. K., & Varathan, K. D. (2018). Identification of significant features and data mining techniques in predicting heart disease. Telematics and Informatics. doi: 10.1016/J.TELE.2018.11.007.
[18] Hariharan, K., Vigneshwar, W. S., Sivaramakrishnan, N., & Subramaniyaswamy, V. (2018). A comparative study on heart disease analysis using classification techniques. International Journal of Pure and Applied Mathematics, 119 (12), 13357-13366.
[19] Sarath Babu, Vivek EM, Famina KP, Fida K, Aswathi P, Shanid M, Hena M, "Heart Disease Diagnosis Using Data Mining Technique", International Conference on Electronics, Communication and Aerospace Technology ICECA 2017.
[20] S. Bagavathy1, V. Gomathy2, S.Sheeba Rani3, Sujatha.K4, Bhuvana.M.K5, Monica.Murugesan6, "Early Heart Disease Detection Using Data Mining Techniques with Hadoop Map Reduce International Journal of Pure and Applied Mathematics Volume 119 No. 12 2018, 1915-1920, 2018.
[21] Saba Bashir, 2Zain Sikander Khan, 3Farhan Hassan Khan, 4Aitzaz Anjum, 5Khurram Bashir, "Improving Heart Disease Prediction Using Feature Selection Approache", Proceeding s of 2019 16th International Bhurban Conference on Applied Sciences & Technology (IBCAST) Islamabad, Pakistan, 8th – 12th January, 2019.

[22] Akshay Jayraj Suvarna1; Arvind Kumar M2; Ajay Billav3; Muthamma K M4; Asst. Prof. Gadug Sudhamsu5., "predicting the presence of heart disease using machine learning", LNCS Homepage, http://www.springer.com/lncs, last accessed 2016/11/21

[23] Mohan, S., Thirumalai, C., & Srivastava, G. (2019). Effective heart disease prediction using hybrid machine learning techniques. IEEE Access, 7, 81542-81554.

[24] Ayon, S. I., Islam, M. M., & Hossain, M. R. (2020). Coronary artery heart disease prediction: a comparative study of computational intelligence techniques. IETE Journal of Research, 1-20.

[25] Tilve, A., Nayak, S., Vernekar, S., Turi, D., Shetgaonkar, P. R., & Aswale, S. (2020, February). Pneumonia Detection Using Deep Learning Approaches. In 2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE) (pp. 1-8). IEEE.

[26] Saurabh Ghogare, "Comparative Analysis of J48 and LMT classifier using WEKA data mining tool on car reviews data", Research Journey international journal, Vol 110, PP. 99-105,2019.

[27] Saurabh Ghogare, "Performance comparision of RandomForest and Hoeffding Tree classifier using WEKA data mining tool on car reviews data", International journal of engineering research and Application,vol.09,no. 03,PP.37-42.2019.

[28] Saurabh Ghogare, "Performance comparision of tree based classifier using WEKA", Journal of the gujarat research society, vol. 21, no. 03, PP.70-75,2019.

[29] Saurabh Ghogare, "Performance comparision of rule based classifier:Jrip and DecisionTable using WEKA data mining tool", International Engineering journal for research & development, vol.4,no. 5,PP.1-5,2019.

[30] Saurabh Ghogare, "Introduction to WEKA & study on data mining tool with its comparative analysis International Journal of Electronics, Communication and Soft Computing Science and Engineering, PP. 187-191,2018.

[31] Saurabh Ghogare, "Universal Knowledge Discovery from big data", Vidyabharati international interdisciplinary research journal, vol.VI, PP. 136-140, 2017.

[32] Saurabh Ghogare, "Optimization of parallel data Accesssing in big data Processing", International journal of innovation and engineering research in engineering,vol.3,no. 1,PP. 222-227,2016.

[33] Saurabh Ghogare, "Performance comparision of RandomForest and Hoeffding Tree classifier using WEKA data mining tool on car reviews data", International journal of engineering research and Application,vol.09,no. 03,PP.37-42.2019.

Creativity and innovation Skills for the 21st Century

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Abstract
Creativity and innovation have been highlighted as essential skills for the 21st century, especially if we consider that both skills can promote human potential by eliciting positive aspects of the individual. These skills have been valued in different contexts. The purpose of this text is to discuss the notions of creativity and innovation as independent constructs and to discuss the relationships between these concepts according to the scientific literature. Three different propositions will be presented, namely, treating these constructs as synonyms, as distinct from each other or as complimentary.

Keywords
Creativity; Innovation; Positive psychology

Resumo
Tanto a criatividadequantoainovaçãovêmsendoressaltadascomohabilidadesessenciais para o século XXI, notadamentediante da constatação de que, ambas, atuam no sentido de favorecer o potencialhumano, constituindo-se emaspectospositivos do indivíduo, valorizados, cadavezmais, emdiferentescontextos. Nessesentido, o presentetextoenfocará as compreensõessobrecriatividade e inovação, comoconstrutosisolados e depois as relações que se estabelecem entre essesconceitos, de acordo com a literaturacientífica. Trêsdiferentespropostasserãoapresentadas, tratandoosconstrutoscomosinônimos, comoelementosdistintos e aindacomocomplementares.

Palavras-chave
Criatividade; Inovação; Psicologiapositiva

The development of humanity has been increasingly dependent on innovation and discovery. From this point of view, creativity is perceived not only as the expression of human potential but also understood as fundamental for societal growth. Considering that innovation depends on the occurrence of creativity, applied to a specific domain, there is the need to understand these phenomena, and to determine if they are independent, related or complementary.

Understanding creativity

Interest in the study of creativity can be explained by the need to further understand human potential and traits relative to the positive aspects of the individual (**Kaufman &Beghetto, 2009**; **Sternberg, Grigorenko, & Singer, 2004**). This characteristic has been valued because of its importance in promoting individual well-being, in both personal and professional achievements (**Wechsler & Nakano, 2018**), and in the important contributions that it can bring to humanity (**Krentzman, 2013**; **Pfeiffer & Wechsler, 2013**). These reasons make creativity an increasingly appreciated characteristic perceived as a valuable resource for individual and social development.

Creativity can be understood as being a multidimensional construct, involving cognitive variables, personality characteristics, family, educational aspects, and both social and cultural elements. These dimensions interact with each other according to individual thinking and creative styles and are therefore expressed and found in many different ways (**Sternberg, 2010**; **Wechsler, 2008**). Therefore, the creative phenomenon has been studied under the most different approaches, sometimes emphasizing the person, or the process or products, the environment, or even the interaction between two or more of these variables, thus implying that creativity has multiple ways to be identified (**Alencar&Fleith,**

2008; **Nakano & Wechsler, 2012**).

The study of the creative person includes research into both the cognitive value as well as personality variables. Cognitive aspects involved in creative thinking are mainly related to divergent thinking skills, emphasized in **Guilford's (1966)** work, which names them as fluency, flexibility, elaboration and originality and were later confirmed by Torrance's numerous works that look at the predictive value of these characteristics on adults' creative achievements (**Torrance, 1972**, **1993**). Personality variables associated with creativity are an amalgam of positive characteristics, such as curiosity, tolerance towards different ideas, autonomy, imagination, self-confidence, persistence, motivation, and others (**Almeida & Wechsler, 2015**; **Plucker&Renzulli, 1999**). Nevertheless, rather than believing that creative people possess all of these characteristics, there is a consensus among authors indicating there are many different paths along which people can display their creative potential (**Isaksen, Dorval, &Treffinger, 2011**).

The creative person, according to a humanistic perspective, has the consciousness and the abilities to address crisis in transformative ways (**O'Hara, 2017**). Therefore, the creative person can be understood as being in a process to reach self-actualization and to develop characteristics that are related to mental health, such as subjective well-being, resilience, optimism, quality of life, and other aspects emphasized by positive psychology (**Wechsler, Oliveira, & Suarez, 2015**). According to **Amabile's (1996)** conception, creativity would involve the interface of motivation with a specific area of knowledge. Thus, creative people would function on behalf of their intrinsic motivation, considering this as a key component to influence an individual's ability to express his/her talents. The state of *Flow* describes these moments of intense concentration and high involvement in which creative people forget schedules or environments when they are pursuing a highly motivating task (**Csikszentmihalyi, 1997**; **McCoach& Flake, 2018**).

Creative products, on the other hand, can be concrete or tangible, or intangible such as learning or developing a new skill (**Isaksen et al., 2011**). The question of evaluating creative products is always a central issue of debates, as there are so many criteria to be considered. An interesting proposal was made by **O'Quin and Besemer (2006)** in order to solve this problem, and this considers three main dimensions: novelty, resolution and style. The novelty dimension examines the original contribution the product brings to an area; the resolution aspect refers to how well the product solves the problem from which it was derived; and finally, the style aspect is related to the elaboration or the outcome of making that product more attractive. Another criterion was added by **Kaufman, Beghetto, and Pourjalali (2011)**, stating that a creative product requires not only that the solution be unique but also relevant to the task.

Understanding innovation

Innovation has been valued as a necessary individual characteristic in the globalized world. Taken as a concept of multidisciplinary interest, research on this phenomenon has been developed in several areas of knowledge including administration, education, economics, psychology and sociology, among others. As a concept, innovation has been defined as the development of the product or practice of new and useful ideas to benefit individuals, teams, organizations or a broader range of society (**Bledow, Frese, Anderson, Erez, & Farr 2009**). Then, there is the need to clarify that innovation is not just a matter of coming up with a new idea but also requires a valuable product. In this case, "product" is not limited to a tangible object but can also be a seen as a process to increase production and reduce costs in a way not yet tested in that specific context (**Cropley, Kaufman, &Cropley, 2011**).

The term "Innovation" is always linked to the insertion, implementation or development of an idea, product or service for the purpose of utility in society. Given its amplitude, different types of innovation were defined by the Organization for Economic Cooperation and Development (**OECD, 2016**) as the following: a) product innovation is the application of an idea or service that has undergone substantial development, the feasibility of which may be related to its functionality or other techniques that make new uses for that idea or service possible; b) process innovation, referring to the development of new methods to achieve a given production; c) organizational innovation, or new types of organization or means of administering organizations; and d) marketing innovation, whereby new methods are used to obtain the development of products and their associated packaging, forms of cost and promotional publicity.

The distinction between product or process innovation is based on the social impact of each of these terms.

The relationship between creativity and innovation

Given the globalization of business, which has increased the international mobility of managers and the tendency to expand innovative activity across countries, it has become increasingly important to understand the relationship between the processes of creativity and innovation (**Candeias, 2008**). Innovation is valued not only for individual and organizational performance but also for economic success and social development at the global level (**Westwood & Low, 2003**)

In the investigation of these two phenomena, several issues are present. For instance, is innovation different from creativity? Is the presence of creativity necessary to reach innovation, or can these processes operate independently? Such questions have been topics of interest to several researchers, indicating the importance of understanding these concepts and their possible interactions.

While the study of creativity goes back to the beginnings of psychology science, the application of psychological theories in understanding and explaining the relationship between creativity and innovation is more recent (**Reiter-Palmon, 2011**). The two characteristics were, until recently, investigated primarily separately (**Agars, Kaufman, & Locke, 2008**). For this reason, the gap resulting from this independence of research among the twonning to be investigated. There is a threshold of creativity that is necessary for innovation, according to **Runco (2011)**, as creative efforts may benefit from extreme originality, whereas innovation requires some originality, not maximum novelty, as the most important factor in effectiveness or public useful.

Creativity and innovation as synonymous

This view argues that both constructs can be considered synonymous, considering the final product is the same (**De Breu, Njistad, Bechtoldt, & Baas, 2011**). However, the literature has challenged this view, stating that creativity alone does not necessarily generate innovation and may assume, in part, responsibility for its promotion or being one of the sources of innovation (**Ribeiro &Moraes, 2014**).

Criticisms of this understanding involve the fact that if we consider these constructs as synonyms, we fail to recognize several important points that distinguish them (**De Breu et al., 2011**). First, creativity requires something appropriate, an idea, insight or solution that solves a problem, while innovations require that this idea be implemented, in the sense of making some progress. In contrast to creativity, innovation would require overcoming a number of barriers or steps to be implemented, including problem analysis, evaluation and implementation (**Zeng, Proctor, &Salvendy, 2011**).

Authors such as **Somech and Drach-Zahavy (2013)**, in a study that revised the literature on innovation, found that most studies refer to innovation as a generic concept and therefore do not differentiate between the two stages of innovation: the creativity stage of the generation of new ideas, and the implementation phase, which is the successful implementation of creative ideas. In this model, creativity often refers to the first phase of the innovation process and can be seen as a subprocess of innovation. This emphasis will be used and best explained in the following view. However, researchers have recently adopted an interactional approach, arguing that situational and personal factors can have a combined effect on innovation.

Creativity and innovation as distinct constructs

At the other extreme, such constructs have also been studied as distinct and unrelated concepts (**Cerne, Jaklic, &Skerlavaj, 2013**; **Reiter-Palmon, 2011**; **Stein & Harper, 2012**; **Zeng et al., 2011**). In

ISSN : 2278-9308
February, 2022

this view, researchers note the use of the terms indistinctly, given that both can be considered from a perspective related to the final product, evaluated in terms of its novelty and adequacy (in the case of creativity) or its usefulness (in the case of innovations) (**De Breu et al., 2011**).

The difference between the constructs is mainly related to the recognition that creativity has been identified as the most important determinant of innovation, constituting one of its sources (**Amabile, 1988**). The difference between creativity and innovation would lie in the fact that innovation particularly concerns the outcome of a process, whether it is a new product or even a new service; that is, putting an idea into practice within a context (**Amorim &Frederico, 2008**). Creativity, however, would be more directly related to the creation of new ideas without the need for their practical application (**Gurteen, 1998**; **Mundim& Wechsler, 2007**). Similarly, according to the authors, both creativity and innovation require a complete rupture of conventional thinking, similar to a radical paradigm shift, beginning with a divergence of viewpoints and attempting to achieve convergence (agreement), so that there are processes of divergence and convergence, of integrating the new with the old.

Another distinction to be made is that creativity requires something new and original, in terms of absolute rarity. Innovation requires that this novelty be for the current group or situation, so that it does not have to be original in the sense that it has never been thought of before and may be relative. It admits the possibility that the same idea, insight, or solution and even its implementation has already been generated, having only to guarantee that its adoption, in that situation, unit or department, is considered an innovation for those people involved (**Hammond, Neff, Farr, Schwall, & Zhao, 2011**). An important question is posited by **Glaveanu (2010)**: Novelty? for whom? useful for whom? This question emphasizes the point that a process or product can only be evaluated as more or less creative in relation to something (a group, a domain or a historical period).

However, the distinction between creativity and innovation may involve two types of risk, emphasized by **Isaksen et al. (2001)**. The first is to place too much emphasis on the product to be obtained, leading to the misunderstanding that other factors important for innovation are not needed, such as the person, the process and the environment. Indeed, most organizations that failed to achieve innovation forgot about the importance of the human element as well as the processes or operations needed to achieve innovation or environmental context for this to happen. The second risk is to limit creativity to a mythological view, understanding it only as the generation of different ideas, without any concern with its adequacy and solution of real problems, erroneously indicating that creativity only involves the production of new ideas (**Runco, 2009**). However, it must be remembered that creativity involves the realization of something different and meaningful, and thus innovation must be seen as a subset or a result of creativity. Therefore, innovation needs creativity in order to happen, and it is not possible to generate something new and useful for society without an earlier creative process.

Creativity and innovation as a complementary construct

Finally, the view that defends the idea that creativity and innovation are related concepts seems the most consensual. In this model, innovation involves two stages: the creativity phase (generation of new ideas) and the implementation phase (the succession of creative ideas). In this sense, creativity would be defined as the first stage of a problem-solving process, while innovation is focused on the implementation of the idea and its acceptance. However, both would require a rupture of conventional thinking and involve divergence and converge.

In the challenge of considering the relationship between the two important themes, it should be noted that both creativity and innovation have historically been complex phenomena, subject to innumerable contextual and social influences. These variables deserve multiple views so that they can be known and understood in the different fields of knowledge (**Giglio et al., 2009**).

The search for creative professionals who can innovate – that is, individuals who stand out for their mastery of efficient strategies to address new problems and solve them successfully – has been emphasized by different types of organizations (**Cropley, 2005**). These data indicate the need for a This change in attitude towards education involves a rethinking of teaching strategies and a challenge to old teaching styles in order to encourage students and future professionals to develop the creative and innovative skills that are so required and valued as essential skills in the 21st century.

The literature review points to several historical and conceptual issues that are being faced by researchers interested in the relationship between creativity and innovation. Some of them may be mentioned:

(1) although these characteristics are becoming more and more desired, especially in the organizational context due to the benefits that can be generated for the companies, difficulties in their identification are still present;

(2) important observation also refers to the fact that most of the studies involving the theme still turn to initial explorations on the relation of creativity with innovation;

(3) the need for other focuses to be investigated; for example, creative and innovative expression on a personal level in various contexts, such as social and educational, as well as the relationship with other constructs that make up positive psychology, such as hope, self-efficacy, self-esteem, optimism, resilience and affection. These limitations still constitute gaps in the Brazilian scientific literature, and research with these focuses should be conducted. It is necessary to mention, finally, the limitation relating to the existing psychological instruments to identify these abilities; thus, it is recommended that more research examine the areas of creativity and innovation assessment in order to enable a scientific basis for recognizing these phenom.

References

- Agars, M. D., Kaufman, J. C., & Locke, T. R. (2008). Social influence and creativity in organizations: A multilevel lens for theory, research, and practice. In M. D. Mumford, S. T. Hunter, & K. E. Bedell-Avers (Eds.), *Multi-Level issues in creativity and innovation: Research in multi-level issues* (pp.3-61). Amsterdam: JAI Press.
- Alencar, E. M. L. S., &Fleith, D. M. (2008). Barreiras à promoção da criatividade no ensino fundamental. Psicologia: *Teoria e Pesquisa, 24*(1), 59-6

Challenges and Opportunities in Higher Education Artificial Intelligence and Machine Learning

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Abstract

In the last decade, people have changed the way they travel, organize their time, and acquire information through information technology. Artificial intelligence (AI) and machine learning (ML) are mechanisms that emerged from data management and development. Incorporating these mechanisms into business is a trend many different industries, including education, have identified as game-changers. As a result, education platforms and applications are more closely aligned with learners' needs and knowledge, making the educational process more efficient. Therefore, AI and ML have great potential in e-learning and higher education institutions (HEI). We implemented a survey among students in the Republic of Serbia, with 103 respondents, to generate data and information on the amount of knowledge of AI and ML held by the student population, primarily to understand opportunities and challenges associated with these fields in HEIs. The study addresses critical issues, like common knowledge and stance of research bases regarding AI and ML in HEI; best practices regarding usage of AI and ML in HEI; students' knowledge of AI and ML; and students' attitudes regarding AI and ML opportunities and challenges in HEI. In statistical considerations, aiming to evaluate if the indicators were considered reflexive and, in this case, belong to the same theoretical dimension, the Correlation Matrix was presented, followed by the Composite Reliability. n the end, the results were evaluated by regression analysis. Regression analysis indicated that AI and ML enhance learning in several ways , including improving the skills of students, enhancing collaboration in higher education, and enhancing access to research.

Keywords: *artificial intelligence; machine learning; e-learning; higher education institutions*

Introduction

Machine learning (ML)and artificial intelligence (AI)dvancements allow people to go beyond classic computers to simulate and surpass human intelligence. The development of such technologies has already made a significant impact on education, giving students new capabilities.providing a collaborative learning environment in the HEI with great implications for the near future [1,2]. Data show that the Republic of Serbia operates 18 universities, of which nine are public, and the rest are privately owned [3].

Most reputable high education institutions have understood that AI and ML represent the present and future in both education and the world's progressive development. Such technologies provide an interactive and advanced educational experience to their students.The results are impressive: 65 per cent of universities in the United States of America support AI- and ML-assisted learning. Moreover, these systems provide valuable assistance to teachers and lecturers in the best schools, facilitating and improving learning in various ways. For example, estimates indicate that AI in education in the United States increased by 47.5 per cent between 2017 and 2021 [4].

Kumar found that AI and ML are improving the security and efficiency of the institution,providing a peaceful, flexible, and accessible computing environment for research and developing skills among students, and a collaborative learning environment in the HEI reinforces the importance of AI and ML to enhance customised learning [5].

The problem statement of the research is how to ascertain the current state of artificial intelligence in higher education, how to ascertain the benefits and drawbacks of artificial intelligence in higher education, and what recommendations exist on how to seize opportunities and overcome challenges to give to HEI. The main research questions that this study addresses are:

1] What are the significant opportunities that HEI can accept if they implement AI and ML technologies?

2] What are the significant challenges that HEIs face while implementing AI and Ml technologies?

2. Literature Review

There are the six main future challenges regarding the incorporation of AI in education as a way to improve the equity and quality of learning and to promote the realisation of SDG 4. It combines the two main topics of this document, namely the new opportunities of AI to improve learning and the way education should prepare students and future workers in an AI-powered world.

First challenge: a comprehensive public policy on AI for sustainable development

AI holds great potential for improving education systems: How can AI help learners, teachers, administrators and policymakers? On the other hand, education systems are expected to form learners who possess the skills needed to thrive in a society surrounded by AI. Currently, most of the AI developments in education come from the private sector. Companies such as Pearson, McGraw-Hill, IBM, Knewton, Cerego, Smart Parrow, Dreambox, LightSide or Coursera are advancing in the introduction of adaptive learning through intelligent algorithms that use Big Data to personalise learning. Most governments are struggling to manage this serge in private sector engagement with AI in education.

Second challenge: Ensuring inclusion and equity in AI in education

While AI can open numerous possibilities as presented in this paper, it can also be a disruptive technology and may deepen the existing inequalities and divides as the marginalised and disadvantaged population are more likely to be excluded from AI-powered education. The result is a new kind of digital divide: a divide in the use of data-based knowledge to inform intelligent decision-making (Hilbert,2015). Equity and inclusion should be core values when designing policies for AI in education

Third challenge: Preparing teachers for AI-powered education and preparing AI to understand education

There are no indications of a system-wide adoption of AI-based applications for teaching and learning or system management, even though the educational technologyindustry has yet to cease production on new developments. Their fundamental flaw is that, rather than addressing the existing problems and issues that teachers face, they promote new ways of organising teaching that collide with mainstream traditional practices, often without rigorous evaluations supporting the claimed benefits of new solutions. Not surprisingly, teachers hear what vendors have to say, but do not necessarily buy into it. Against this context, some countries have already designed policies that support the national EdTech industry's efforts to promote innovation, intensify efforts and modalities of qualifying and empowering the demand (teachers and schools), while supporting their innovative practices and, finally, exploring how AI can contribute to a richer, more evidence-informed policy and planning environment in education.

Fourth challenge: Developing quality and inclusive data systems

Given that data fuel AI, complete, reliable and timely data constitute an important prerequisite for installing AIenhanced data analytics systems. A fully functional data analytics system with comprehensive and up-to-date data opens possibilities for AI-enabled predictive and machine learning algorithms. Data enable intelligent systems. Without the needed data, no sort of algorithm, no matter how sophisticated, can function properly. As such, a datarich environment is a prerequisite to AI-enabled systems. However, data availability is a necessary yet insufficient condition. It follows that any AI-enabled system is only as good as the data it contains. After all, inaccurate data are likely to make machine learning algorithms generate incorrect outputs. Indeed, predictive algorithms can only make complete and accurate predictions if the data they are handling are itself complete and accurate.

Fifth challenge: making research on AI in education significant

While we can reasonably expect increased research on AI in education in the coming years, it is also worth recalling the difficulties that the education sector has in taking stock of educational research in a significant way for practice and policy-making. The particular domain of research on educational technology clearly demonstrates that what

- learn better, e.g. in a more personalised manner
- learn more, i.e. achieve better outcomes from learning
- learn different things, i.e. achieve learning goals that only technology can enable

Sixth challenge: ethics and transparency in data collection, use and dissemination

The ethical quandaries that come with the large-scale collection, production, analysis and dissemination of data about persons are another important consideration in the development of any concerted policy framework for AI. It must be noted, though, that seeking to understand the ethical implications of new technologies is by no means a new pursuit. Over the past 30 years, scholars and practitioners have sought to define some form of computer or information ethics that can be summarised as a question "What does the ethical use of technology look like?" (Floridi & Taddeo, 2016). However, the emergence of data science as the "latest phase of the information revolution" has shifted the discourse from *information* ethics to *data* ethics. Experts have forwarded the notion that "it is not the hardware that causes ethical problems… [I]t is what the hardware does with the software and the data that represents the source of our new difficulties" (Floridi & Taddeo, 2016).

AI and ML concepts and platforms, many educational (teaching and learning) issues can be addressed as well as organisational ones. Thus, critical concepts of the paper refer to artificial intelligence, machine learning, e-learning and higher education. Acronyms of major importance are addressed in Table 1.

Term	Acronyms	Definition
Artificial intelligence	AI	"the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages." [6]
Machine learning	ML	Machine learning is a branch of AI and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy." [7]
E-learning	EL	"Is the acquisition of competencies, knowledge, and skills through electronic media, such as the Internet or a company Intranet." [8]
Higher education	HE	"education at universities or similar educational establishments, especially to the degree level." [6]
Higher education institution	HEI	"organisations providing higher, post-secondary, tertiary,and/or third-level education." [9]

Artificial Intelligence

AI is a field of study that focuses on the artificial replication of human intelligence's cognitive abilities to create software or machines capable of performing tasks typically carried out by humans [9]. The term "artificial intelligence" is used, according to Russell and Norwig, "when a machine mimics the cognitive functions that humans associate with other human minds, such as learning and problem-solving" [10]

Machine Learning

In itself, ML is a complex area whose tasks require considerable time for execution,i.e., implementation. Therefore, efforts are actively being made, and initiatives are being implemented to optimise the execution time of the processes related to the ML context [11]. Providers in this category offer computer clusters that use public cloud suppliers, such as Amazon EC2, Rackspace, and others. In addition, a predefined piece of statistics software is installed, the preferred packages being the R system, Octave, or Mapple.

Enhancing Teaching and Learning in HEI

Despite teachers, researchers, managers, and students all facing perennial problems, new approaches to problems faced by these three groups are being developed with the assistance of AI and ML [12]. First, the teaching workforce's quality should be improved to raise educational standards. Second, to achieve a higher standard of learning, it is critical to identify the factors contributing to teachers' workload. Third, teacher performance management is critical for effectively achieving the goals and objectives of high-quality
educational standards. It is an ongoing process for identifying, evaluating, and developing
teacher performance.

Discussion

Assuming the hypothesis remains valid because the variables and the reliability of the model were checked considering that AI and ML are technologies that improve the safety and efficiency of the institution and contribute to learning, this leads to the assumption that the strong correlation between AI and ML can enhance customised learning . For example, digital algorithms were evidenced to improve medical care [13,14]. Furthermore, according to Shah [13], strategies can be created by integrating AI- and ML-based digital methods and secure computing technologies
Improving the security and efficiency of the institution; providing a peaceful, flexible, and accessible computing environment for research; and developing skills among students and a collaborative learning environment in the HEI reinforce the importance of AI and ML to enhance customised learning [5].

Improving the security and efficiency of the institution; providing a peaceful, flexible,and accessible computing environment for research; and developing skills among students and a collaborative learning environment in the HEI reinforce the importance of AI and ML to enhance customised learning [5].

Conclusion

College students today have an excellent opportunity to learn in an interactive and personalised setting. AI, in particular, is capable of assisting with both of these issues. AI, fed and learned from big data, can provide students with individualised learning experiences.

Colleges, universities, and different instructional establishments and EdTech agencies can advantage greater from those technology if they're inclined to attempt new tactics and, a result, advantage a aggressive advantage. If those establishments are keen to put in force AI methods, they'll meet the growing call for for adaptive and customized education. Adopting a statistics technological know-how technique focused on ML as a device is an thrilling new manner to sell AI and ML in better education.

Every studies, and this one isn't anyt any exception, has limitations. This studies's limitations are because of social desirability, generalizability, vague measures, and unasked questions. Keeping in thoughts that that is an unique studies paper and now no longer a overview paper, acknowledging the beyond associated paintings withinside the reference listing need to be limited. Nevertheless, suggestions for destiny studies that builds in this study's findings need to be included. Therefore, destiny studies need to be directed at offering concrete AI and ML platforms and initiatives for HEIs, in particular in low- and middle-earnings countries, and selling best practices that, as soon as accepted, should assist HEIs maximum correctly conquer the challenges they face.

References

1] Asthana, P.; Hazela, B. Applications of Machine Learning in Improving Learning Environment. In Multimedia Big Data Computing for IoT Applications; Tanwar, S., Tyagi, S., Kumar, N., Eds.; Intelligent Systems Reference Library; Springer: Singapore, 2020; Volume 163. [CrossRef]

2] Liu, S.; Chen, Y.; Huang, H.; Xiao, L.; Hei, X. Towards Smart Educational Recommendations with Reinforcement Learning in Classroom. In Proceedings of the 2018 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE),Wollongong, Australia, 4–7 December 2018; pp. 1079–1084. [CrossRef]

3] National Body for Accreditation and Quality Assurance in Higher Education (NAT). 2021. Available online: https://www.nat.rs/ (accessed on 1 July 2021).

4] Chang, R. Report Artificial Intelligence to Grow 47.5% in Education over Next 4 Years. 2017. Available online: https://thejournal.com/articles/2017/03/24/ai-market-to-grow-47.5-percent-over-next-four-years.aspx (accessed on 13 June 2021).

5] Kumar, A. National AI Policy/Strategy of India and China: A Comparative Analysis; Research and Information System for DevelopingCountries: New Delhi, India, 2021.

6]Oxford Languages Artificial Intelligence Definition. Available online: https://languages.oup.com/google-dictionary-en/(accessed on 13 June 2021).

7]Oxford Languages E-Learning Definition. Availableonline:https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095745661/ (accessed on 13 June 2021).

8]IBMMachine Learning Definition. Available online: https://www.ibm.com/cloud/learn/machine-learning (accessed on 12 June 2021).

9] IGI Global. What is Higher Education Institution? Available online: https://www.igi-global.com/dictionary/higher-educationinstitution/13096 (accessed on 7 September 2021).

10] Ministère de l'Éducation et de l'Enseigment Supérieur. Digital Competency Framework. Québec: Gouvernement du Québec. 2019. Available online: http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competencenum-AN.pdf (accessed on 12 June 2021).

11] SAS. The Artificial Intelligence of Things. White Paper. SAS Analytics Solutions. 2020. Available online: https: //www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/en/artificial-intelligenceof-things-110060.pdf (accessed on 12 June 2021).

12] Ili´c, M.; Popovi´c Ševi´c, N.; Risti´c, B. Integrating Human Resources and Customer Relationship Management for StudentSatisfaction in Higher Education: Gaining a Competitive Advantage. In Proceedings of the International May Conference onStrategic Management (IMCSM), Bor, Serbia, 25–27 September 2020; pp. 501–508.

13] Shah, P.; Kendall, F.; Khozin, S.; Goosen, R.; Hu, J.; Laramie, J.; Ringel, M.; Schork, N. Artificial intelligence and machine learning
in clinical development: A translational perspective. Digit. Med. **2019**, 2, 69. [CrossRef] [PubMed]

14] Gerke, S.; Babic, B.; Evgeniou, T.; Glenn, C. The need for a system view to regulate artificial intelligence/machine learning-basedsoftware as medical device. Digit. Med. **2020**, 3, 53. [CrossRef] [PubMed]

ISSN : 2278-9308
February, 2022

Role Of Emerging Trends And Technologies In Libraries

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Abstract

The important intention of the examine is to check the literature associated with the usage of rising technology through college libraries. The number one goal of the examine became to take a look at the middle literature associated with rising technology used withinside the college libraries and to discover the converting function of the college librarians in those technologically ready present day libraries. The examine additionally makes a speciality of the mind-set of library specialists in the direction of this contemporary surroundings. The findings of the examine are primarily based totally upon 4 themes, they are: "popularity of rising technology withinside the college libraries", "mind-set of librarians in the direction of the rising technology", "technological compatibility many of the specialists of the libraries" and "obstacles withinside the implementation of rising technology". Nevertheless, if there had been many researches executed at college libraries on rising technology, this examine is broadly speaking aimed toward enhancing information of those increasing technology through the library and data sciences profession.

Introduction

Technology these days performs a prime function in each component of life. It has revolutionized the sector through its huge effect on individuals, organizations, governments bodies, etc. Libraries, similarly, have transfigured themselves on occasion in presenting the excellent viable carrier/merchandise to their users. Academic libraries basically display a huge effect of technological advancements. Web-primarily based totally offerings, implementation of latest technology have significantly pampered the users. Technology frequently is continuously connected to getting concrete outcomes, getting rid of a few challenges, performing some operations the use of exquisite skills (Lan and Young, 1996). Nevertheless, it will become the responsibility of educational librarians to perceive and apprehend those technology to in shape their libraries with the expectancy in their users, thereby growing required technological skills. While generation developments are growing exponentially, it's far apparent that librarians might not be capable of include each unmarried fashion of their libraries. Therefore, they need to select the generation in this kind of manner on the way to assist them in a long term preserving in thoughts the data priorities in their users. However, the instructional library need to be the number one centre wherein those technology need to be skilled nearly or withinside the shape of a document, to stay at the leading edge of generation in a better studying institution. The intention of this examine is to analyze numerous growing library technology which might be useful and positive to college libraries.

Review of literature

Lubanga and Mumba (2021) the sector of studies and improvement, creativity and innovation of the library are fundamental factors in a technologically pushed international and are important elements of restructuring library products and services for green carrier shipping and superior consumer experience. This examine tested the significance of studies and improvement, creativity, and innovation on the University of Livingstonia (UNILIA) library withinside the twenty first century.

Saibakumo (2021) the long-time period survival and aid of educational libraries withinside the technological society relies upon at the growth and upgrading of data offerings. In educational libraries, technological tendencies have driven libraries to take allembracing, user-friendly, and generation-pushed techniques to shipping. This obvious hole seems to be crammed through new generation. The examine highlights the diploma to which new technology are understood, adopted, favoured and equipped to be blanketed in educational library operations in Nigeria.

Chingath (2020) expressed the principle goals of his examine, that is to illustrate the combination and seamless functioning of generation in libraries. Whereas, the writer additionally blanketed fundamental generation tendencies consisting of Robotics, Drones, Blockchain, Big Data and Mobile Apps in addition to their use and alertness in libraries. However, the fields and offerings of the library for which the generation may also follow have been additionally decided on and mentioned primarily based totally on a cumulative exam of the to be had literature and in addition studies through the writer.

Status of emerging technologies in the libraries:

Sixteen papers suggested at the popularity of rising technology withinside the college libraries each at country wide and worldwide levels. Lubanga & Mumba (2021) the outstanding issue for the life of latest products and services at UNILIA libraries is ICT i.e.; library 2.zero, structures on social media, emails, net and digital and public catalogues. Furthermore, UNILIA libraries were proven for you to adapt to the speedy converting surroundings and enhance current products and services even as additionally taking benefit of the brand new opportunities and tendencies in library and records technological know-how thru studies and creativity and innovation in era. Saibakumo (2021) nevertheless, withinside the midst of 18 new technology, adoption is stumbling whereas, only a few have readiness and consciousness of the cybrary, library website, WebOPAC, institutional repository and social media. The software and man or woman of mastering environments were inclusively utilized in technology just like the Integrated Library Management System, the Library Guide app, RFID and the net of things. Chingath (2020) discovered that every one of the technology in libraries have viability, which includes the improvement of an encrypted database, talking robots and flying books, etc. The advent of those technology will make contributions to a bigger development in library offerings.

Technological compatibility among the professionals of the libraries:

A extensive wide variety of papers (Fourteen) mentioned the technological compatibility many of the specialists of the college libraries. Chingath (2020) illustrates a roadmap for LIS specialists, specifically many of the more youthful generation, to combine library era and beautify library image. Ajie (2019) targeted at the possibilities and risks Nigerian records specialists face in this period of globalisation. Furthermore, the item additionally addresses the restrictions of the libraries. The literature states that in advance schooling techniques for the library's specialists had been in the main designed for freshly enrolled graduates who had been organized for worker participation. The improvement of latest era calls for libraries to broaden new methods of disclosing specialists to new technological abilities; that is primarily based totally on a collaborative worker mastering version with the Maker Movement's (Brown and et. al., 2017). Adequate/certified group of workers recruiting and library group of workers schooling/retraining (Enweani, 2018). A precis of the main issues pertinent to library specialists operating in a complicated and continuously converting atmosphere of handy mastering and mastering era (Hayman and Smith, 2014). Hussain and Jan (2018)propose that younger expert librarians have a extra hobby in Web 2.zero technological activities. LIS specialists should have an knowledge of ICT and net technology and their gear in addition to their verbal exchange skills (Jerry and Ramasesh, 2012).

Benefits of digital libraries

Libraries have continually been a critical a part of the mastering process. One can describe the library as a centrally prepared set inclusive of sources that encompass a whole spectrum of various sorts of media (text, video, hypermedia) in addition to human offerings. When we consider libraries, the primary issue that involves thoughts is the bodily additives which includes space, equipment, storage, racks complete of books and different educational material. No one could deny the position

ISSN : 2278-9308
February, 2022

studying play withinside the existence of college students. Since digitization has taken over maximum of the additives in college mastering and better training, mastering thru virtual libraries isn't always a issue of the beyond anymore. The decline in visits to traditional libraries indicates that scholars opt to get right of entry to records and examine content material with out traveling a library in person. While many libraries and universities are digitizing their substances to be handy to participants and the overall public, allow us to check the primary advantages of virtual libraries for better training:

1. Instant get right of entry to to sources: There isn't anyt any luxurious which includes getting access to considerable understanding and applicable records touching on precise subjects. A Digital library cuts quick the effort and time one might placed into traveling a traditional library and locating the proper book. With alternatives like in-constructed content material seek with only some key phrases or titles, looking for what you want from lots of sources will become easy.

2. No bodily boundaries: Accessing the virtual library is a good deal simpler and efficient, not like a traditional library, college students do not have to test the outlet and last hours to plot their visits; with simply a web connection, you may get right of entry to a virtual library every time, everywhere. Digital libraries offer the scholars with the ease of mastering at their very own comfort. Students can get right of entry to and examine the library substances in numerous virtual formats (eBooks, audiobooks, movies on call for 24 hrs/day) every time and everywhere the usage of their favored devices.

3. Preservation of sources: Conventional libraries want to make investments closely withinside the upkeep and maintenance of library sources. The bodily library sources are accessed and reused through readers frequently, wherein it will become tough to save you the deterioration of books, vinyl records, cassette tapes and different sources. Whereas with virtual libraries, the content material is digitized, and the virtual sources are handy to a massive wide variety of readers frequently with out focusing at the maintenance of bodily substances.

4. Real-Time Interactions: One of the primary advantages of the usage of the virtual library is that scholars can make clear their doubts then and there with new-age control software program which can facilitate interplay among readers and administrators. The readers also can engage through putting in on line groups and discover a decision to their doubts in real-time. This dynamic and real-time interplay characteristic has the capacity to make the readers transfer from traditional libraries to virtual libraries.

5. Updated records: Digital libraries assist you get right of entry to the up to date sources with the today's era to be had, the traditional libraries can also additionally fall at the back of in shopping the today's versions of books, magazines, and different content material sources. But virtual libraries in better training institutes or companies can replace the virtual library frequently. Many publishers in recent times permit virtual libraries to make the today's versions and magazines handy to the readers primarily based totally at the pay-as-you-examine version. Hence, virtual libraries assist have interaction readers through presenting get right of entry to to the today's publications.

Conclusion

The motive of the have a look at is to have a look at literature to be had at the utility of era in libraries. This literature evaluate enables library specialists and librarians approximately the era utilized by libraries and additionally the limitations confronted through them. Furthermore, it increases consciousness of the demanding situations those new technology poses each for customers and for libraries. This evaluate article examines library records offerings on this context of the net surroundings. It gives an perception into the brand new technology that are turning into the want of the hour of each individual. Users have now known the fee of era and subsequently as a result their expectancies and needs are developing. The evaluation of the literature showcases that with the developing intervention of era, demanding situations associated with it additionally grows equally.

Therefore, it's far essential for library sources and offerings to head in sync with the rising library technology.

References

1. Witten, Ian H.; Bainbridge, David Nichols (2009). How to Build a Digital Library (2d ed.). Morgan Kaufman. ISBN 9780080890395.

2. Lanagan, James; Smeaton, Alan F. (September 2012). "Video virtual libraries: contributive and decentralized". International Journal on Digital Libraries. 12 (4): 159–178. doi:10.1007/s00799-012-0078-z. S2CID 14811914.

3. Pitti, D. and Duff, W. M. (2001). Introduction. In Pitti, D. and Duff, W. M., editors, Encoded Archival Description at the Internet, pages 1–6. The Haworth Press, Inc.

5. European Commission steps up efforts to place Europe's reminiscence Archived 2007-10-sixteen on the Wayback Machine at the Web thru a "European Digital Library" Europa press release, 2 March 2006

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

A Comparison of Rural and Urban Students on the levels of Health Related Physical Fitness

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Abstract

The purpose of this study was to compare the health related physical fitness of Rural and Urban Students ofAkola region of Maharashtra. The research was a descriptive comparative method. A total of 66 students (33 Rural, 33 Urban) were selected randomly from the 6 Schools of Akola region of Maharashtra. The criterion measures adopted for this study were Flexibility, muscular strength and Endurance, and speed. The data collection tools used in the study were Sit & Reach, Sit Ups, 50 yard dash. The independent Sample't' test was used to compare data on Physical Fitness Components between rural and urban pupils. The threshold of significance was retained at 0.05 in order to test the hypothesis. The statistical examination of physical components indicated that there was a substantial difference between rural and urban pupils in metrics such as sit-ups, sit and reach, and 50 m sprint. The findings also revealed that rural kids outperformed urban students in all physical fitness components such as muscular strength and endurance, flexibility, and speed. Finally, the study determined that rural pupils were more physically fit than urban students.

Keywords: Physical fitness, rural students, urban student.

Introduction

Physical fitness is defined as the capacity to do everyday chores enthusiastically and alertly while yet having energy left over for leisure activities and fulfilling emergency demands. Or, "Physical Fitness" refers to "an individual's organic potential to execute the routine tasks of everyday living without undue exhaustion or fatigue, with reserves of strength and energy available to fulfill satisfactorily any emergency demands unexpectedly thrown upon him."The purpose of this study was to compare the health related physical fitness of Rural and Urban students of Akola region of Maharashtra.

Physical fitness may be described as a set of health-related or skill-related attributes. It refers to your ability to complete physical duties efficiently as they pertain to a certain sport or your daily activities. Being physically fit improves your mental, emotional, and social health in addition to your physical health.

Material And Methods

The research was a descriptive comparative method. A total of 66 students (33 Rural, 33 Urban) were selected randomly from the 6 Schools of Akola region of Maharashtra. The criterion measures adopted for this study were, Flexibility, muscular strength and Endurance, and speed. The study's data gathering instruments included sit-and-reach, sit-ups, and a 50-yard sprint. The data of Physical Fitness Components was compared between rural and urban kids using an independent Sample 't' test. The threshold of significance was retained at 0.05 in order to test the hypothesis.

Results

Table No.1: Descriptive statistics of Sit-ups, Sit & reach and Speed between Rural and Urban students

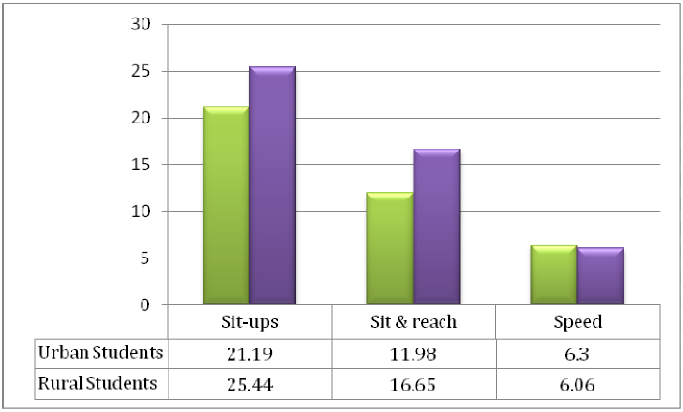
	Urban Students				**Rural Students**			
Variables	**N**	**Mean**	**Standard Deviation**	**St. Error Mean**	**N**	**Mean**	**Standard Deviation**	**St. Error Mean**
Sit-ups	33	21.19	2.31	0.51	33	25.44	6.05	0.87

Sit & reach	33	11.98	3.70	0.55	33	16.65	2.66	0.45
Speed	33	6.30	0.70	0.29	33	6.06	0.36	0.33

Table No. 2: Independent sample't' test of Sit-ups, Sit & reach and speed

Physical fitness variables	't' value	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Sit-ups	1.453	64	0.005	4.25000	1.1100
Sit & reach	3.664	64	0.003	4.63000	0.65744
Speed	2.856	64	0.039	0.24450	0.59644

Graph 1: MeanComparison Sit-ups, Sit & Reach And Speed Between Rural And Urban Students



Discussion Of Findings

The acquired data was analysed by the researcher in accordance with the goals of the research study. The statistical examination of physical components indicated that there was a substantial difference between rural and urban pupils in metrics such as sit-ups, sit and reach, and 50 m sprint.The results of descriptive statistics have indicated that the mean scores in sit-ups, sit and reach and speed in case of urban students were found (21.19±2.31, 11.98±3.70, 6.33±0.70)respectively while in case of rural students the mean were found (25.44±6.05, 16.65±2.66, 6.06±0.36) respectively.

Conclusion

In the present the results also showed that all the physical fitness components the Muscular strength and Endurance, Flexibility and speed rural Students were found to be better than urban students. Finally the researcher concluded that the rural students were more fit as compare to urban students. This clearly shows that children of rural area are more fit as compare to urban area students.

References

1. Millar, K. D, (2002). Measurement by the physical educator. (4^{th} edition) New York: McGraw Hill Companies.
2. Phillips A.D, Hornak J, (1979). Measurement and evaluation in physical education Canada: John Wiley & Sons, Inc.,

3. Shukla,N.B., De,A.K., Sharma,S.S., &Bhushan,S., (1991). Motor fitness on rural and urban Indian sports women.

4. Thomas D. Fahey,Paul M, Insel,Walton, Roth, (2001).fit and Well core Concepts and Labs in physical fitness and wellness. (4th edition). Mayfield Publishing Company.

5. Suresh Jang Shahi, "Attitudes of Physical Fitness among Girl Students in Nepal" International Journal of Scientific and Research Publications, ISSN 2250-3153, Volume 8, Issue 9, September, Pp.609-613, 2018

6. NargesAliniya& Zahra Hojatti "Compare of Physical Fitness between Urban and Rural ElementaryStudents in Iran"International Journal of Management and Humanity Sciences. Vol., 4 (1), 4440-4443, 2015

Growth of Most Preferred ICI Based Banking Services in Scheduled Commercial Banks in India.

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Banking sector is one of the most important service sector among the all other services. Banking sector plays very significant and important role in growth and development of every country. With the help of internet we get bank service at anytime and anywhere. We can transfer the money form on bank branch to any other branches by online mode. It is possible due to use of information and communication technology (ICI) in banking sector. ICT to improve the efficiency of employee and profitability of bank. With the help of ICI banks can provide the various banking services to their customers and that's helps to strengthen their competitive positions in rapidly changing and emerging economics. Core banking system is good example of ICI based banking services consist of Automated Teller Machine (ATM), cash Deposited Machine (CDM), Retail Electronic Clearing, Prepaid payment Instrument (PPI). Real gross settlement system (RIGS) Mobile Banking services and clearing corporation of India Ltd. (CCIL). It helps to provides fast quick and efficient banking services to their customers at anytime and anywhere services to their customer at anytime and anywhere. ICI services helps to save the time money energy and efforts statement of problem.

The role of information and communication technology is increasing in banking sector with the help of ofICI, banks provides fast various banking services such as ATMS, CDM, Mobile Banking services, Online Banking services, RTGS, NEFT and point of sale Machine (POS) etc. In past research study was given more focus on impact of ICI based banking services profitability and efficiency. Customer satisfaction and customer service delivery. Etc. Most of research was focused on problems in adoption and implementation of ICI based banking services. But present research study focuses on which factors greatly affecting on adoption and implementation of ICI based banking services on which factors greatly affection on adotion and implementation of ICI based banking services among the customers and which ICI based banking services mostly preferred by customers and why they prefer that services? And what is the reason behind of that so that proposed research work entitled "Growth of Most Preferred ICI Based Banking Services in Scheduled commercial Banks in India.

Objectives of Present research study :-

2) To find out the widening of most preferred ICI based banking services among the customers of India scheduled commercial banks.
3) To examine the factors affecting on use of ICI based baking services in scheduled commercial banks in India.
4) To study the required steps to ICI based banking services in scheduled commercial banks in India.

Scope of research study :-

Present research study is about the growth of most preferred ICI based banking services among the customers and which factors greatly affect on use of ICI based banking services. Present research study to find out what basis customers prefer to various ICI based banking services in Indian scheduled commercial banks

Conceptual framework:-

Present research study focused on the most preferred ICI based banking services such as cards, prepaid payment instrument (PPI) and mobile banking services. Cards consist of credit cards and debit

ISSN : 2278-9308
February, 2022

cards which usage at ATMS centers and Point of Sale machines (POS). Prepaid Payment Instruments (PPI) consist of M- Wallet , PPI Cards and Paper Vouchers.

I) Prepaid Payments Instruments (PPI):-

Prepaid Payment Instruments are methods of payment which facilitate to purchase of various goods and services against the value store on such instruments. Without storing the value on such instruments, we cannot purchase the goods and services. The valuestored on such instruments represents the value paid for by instruments consist of M-vallet , Prepaid Payment Instruments Cards, Paper Vouchers, Smart Cards, Magnetic Stripe Cards, Mobile Accounts, Internet Account and any other such Instruments used to access the prepaid amounts.

II) Mobile Banking Service:

Mobile Banking services is one of the most convenient ICI based banking services in Indian scheduled commercial banks. It refrs to use of Smartphone with internet connection to perform the financial transactions including check of account balance transfer the payments, bill payment, mini statement , DTH mobile recharge, change m-pin, merchant payment and generate OTP through the Smartphone only. We can use mobile banking services at anytime and anywhere. IT helps to save time, money. Energy and efforts.

Research Methodology:-

Present research study was purely based on secondary data. Data was collected from report of RBI on payment system indicator, RBI report on trend and progress in Indian banking sector, report on technical committee on mobile banking services. Three are various ICI based banking services such as Automated teller machine (ATMS). Cash Deposit machine (CDM), Internet banking services, electronic fund transfer system (EFTS), Mobile banking service etc. present research study only took most preferred ICI based banking services such as cards usage at ATMs and POS machine, prepaid payments instruments and mobile banking service. This research study used compound annual growth rate (CAGR) statistical method to find out the growth rate in most preferred ICI based banking services in scheduled commercial banks in India. Present research study was based on all scheduled commercial banks consist of public sector banks, private sector banks and foreign sector banks.

Date Interrelation And Analysis :

Table 1.1 Growth of credit and cards usage of ATMS and pos Machines (2012-13 to 2016-17) (Volume in Million And Value In Billion)

ICT Year Products		2012-13	2013-14	2014-15	2015-16	2016-17	CAGR
Cards	Volume Value	6174.48 18670.65	7219.13 22159.58	8423.99 25415.27	10038.67 29397.65	12055.87 30214.00	18.2 12.8
1.Credit Cards	Volume Value	199.23 1244.27	512.03 1556.72	619.41 1922.63	791.67 2437.02	1093.51 3321.21	28.6 27.2
1.1 Usage ATMs	Volume Value	2.51 14.43	2.96 16.87	4.29 23.47	6.00 30.41	6.37 28.39	26.2 18.4

ISSN : 2278-9308
February, 2022

1.2.Usage At Pos	Volume Value	396.72 1229.84	509.08 1539.85	615.12 1899.16	785.67 2406.62	1087.13 3283.82	28.7 27.8
2. Debit Cards	Volume Value	5775.25 17426.39	6707.10 20602.86	7804.57 23492.65	9247.00 26970.63	10962.36 26901.79	17.4 11.5
2.1 Usage At ATMs	Volume Value	5308.39 16683.42	6088.02 19648.35	6996.48 22279.16	8073.39 25371.36	8563.06 23602.73	12.07 9.1
Usage At Pos	Volume Value	466.86 742.97	619.08 954.51	808.09 1213.49	1173.61 1589.27	2399 3299.07	50.6 45.2

Source : RBI Report On Payment and Settlement System (2012.13 To 2016-17)

Above Table 1.1 Shows that rate of growth of cards usage at ATMs and pos Machine during the period of 2012-13 to 2017 Table 1.1 Indicates that rate of growth of volume (28.6%) and value (27.8) of credit cards was higher than rate of growth of volume (17.4%) and value (11.5%) of debit cards at given a period of time In case of debit cards rate of growth of volume (50.6%) and value debit cards rate of growth of volume (50.6%) and value (45.2%) fo debit cards usage at POS was higher than rate of growth of volume (12.7%) and volume (9.1%) of debit cards usage at ATMs centers at given a period of time On the Other hand, rate of growth of volume (50.6%) and volume (45.2%) of debit cards Usage at POS was higher than rate of growth of volume (28.7%) and volue (27.8%) of credit cards usage at POS at given a period of time

In conclusion, rate of growth of credit cards usage at ATMs higher than rate of growth of debit cards usages at at ATMs centers at given a period of time and rate of growth of debit cards usage at POS is higher rate of growth of credit cards usages at pos at given a period of time This research study found contradictory results because of credit cards mostly uses for shoppers and customers can paid their amount by credit cards usage at Pos but this research study found that rate of growth of credit cards usage at ATMs is higher than credit usage at Pos at given a period of time

Table 1.2.Growth of Prepaid Payment Instruments (PPT) (2012-13 to 2016-17)

(Volume In Million and Value In Billion)

Year and ICT Product		2012-13	2013-14	2014-15	2015-16	2016-17	CAGR
M-Wallet PPT	Volume Value Volume	32.70 10.01 33.76	107.51 29.05 25.60	255.00 81.84 58.91	603.98 205.84 143.47	1629.98 532.42 333.11	165.7 170.1 77.2
Cards Paper Voucher	Value Volume Value	49.62 0.48 19.60	28.36 0.53 23.63	105.35 0.55 26.24	253.77 0.56 27.97	277.52 0.56 28.06	53.8 3.9 9.4

Source: RBI Report on Payment and Settlement System (2012-13 to 2016-17)

Above Table 1.2 Shows That rate of growth of Volume (165.7%) and value (170.1%) of usage of M-Wallet was higher than Volume and value of PPI cards and paper voucher during the period of (2012-13 to 2016-17 In conclusion, Use of M-wallet in prepaid payment system is higher than any other prepaid payment instruments such as PPT Cards and paper voucher at given a period of time.

Table 1.3 Growth of Mobile Banking Service (2012-13 To 2016-17)

	Mobile Banking Service	
Year	Volume	Value
2012-13	53.30	59.90
2013-14	94.71	224.18
2014-15	171.92	1035.30
2015-16	389.49	4040.91
2016-17	976.85	13104.76
CAGR	106.9	284.6

Above Table 1.3 Shows that rate of growth of volume (106.9%) and value (284.6%) of mobile banking services of credit cards, debit cards PPT cards and paper voucher during the period of 2012-13 to 2016-17 In conclusion, usage of mobile banking services is greater than credit cards, debit cards, PPT cards and paper voucher at given a period of time. People are more prefer to use mobile banking service as compare to other selected ICT based Banking services at given a period of time.

ICT based transaction required Steps:

There are given some required steps to

1)TCT based banking Transaction by RBI.
2) Developing the application
3) Data Preparation
4) Data Transmit
5) Debiting the amount from remittance banks account
6) Crediting the amount at beneficiary's bank account
7) task at beneficiary branch

These are the Steps which are given by RBI for a development of ICt based banking Services in India .

❖ Transformation Of payment system from physical cash to digital cash.

Now India banning sector has transformed from Traditional banking Service to modern information of India Tries to reform in the banking sector so that formed various comities such as Committee on Committee On Legal Framework For Electronic Banking Service (1995) Report On the Committee On Banking Deform (1991-1998) Report of Vasudevn Committee On Technology Up Gradation In the Banking Sector , Working Group On Internet Banking Services (2001), And TECHNICAL Committee On Mobile Banking Service (2004) etc. All the committees emphasized to enhance the use of information ad communication technology in banking sector transaction. At presen, Indian banking sector transforms from physical cash payment to digital cash payment. There are given some following steps to transformation of payment system from physical cash to digital cash. In this way Indian banking payment system was transformed from physical cash payment to digital cash payment system.

❖ Factors affecting on adoption of ICT based banking services.

Present research study was found that various factors affecting on adoption of ICT banking services such as customer's awareness, policy, security, ease of use, occupation, educational level, bank's policy, life style and age. There are positive relationship between uses of ICT based banking services and awareness police security, ease of use and other factors. All above factors are affecting on use and adoption of ICT based banking services among tee customers of scheduled commercial bans in India.

❖ Findings and Conclusion :

1) Use of M-Wallet in prepaid payment system is higher tan any other prepaid payment instruments such as PPI cards and paper voucher at given a period of time.

2) This research study found that rate of extension rate of extension of debit cards usagers at ATMs centers at given a period of time ad rat of widening of debit cards usage at Pos is higher than rate of growth of credit cards usages at POS at given period of time.

3) Indian banking payment system is transformed from physical cash payment system to digital cash payment system.

4) Rate of extension of usage of mobile banking service is greater than rate of growth of usage of credit cards, debit cards, PPI adds and Paper voucher at given period of time.

5) There are positive relations between uses of ICT based banking services and awareness policy, security ease of use, occupation, educational level, banks policy, life style ad age.

In conclusion use of ICT based banking service is increasing day transaction ad people also prefer to use of ICT based transaction system instead of traditional banking services. It hels to save te time, money, energy and efforts. Indian banking sector is transformed from payment system to digital cash payment system.

References :

1) Kumbhasr V.M. (2011) Factors Affecting The Customer Satisfaction In E- Banking Some Evidence From Indian Banks, Management Research And Practice, Vol-3, P.P-(1-14)

2) Margaret T and Thompson S.H.T. (2000), Factors Influencing The Adoption Of Internet Banking Journal of the Association for Information System ,Vol-1, Article -5

3) A1-Samdi, M.O.(2012), Factors Affecting On Adoption Of Electronic Banking An Analysis of The Perspective Of Banks Customers International Journal Of Business And Social Science Vol-3 , No-3

4) Maitlo G.M. Kazri, Z.H.Khaskheley,A and faiz M Shaikh (2015) Factors That Influence The Adoption Of Online Banking Services In Hyderabad . International Journal Of Economics And Managements Science, Vol-4, Issues -1

5) Gaula, R. (2012). The Indian Banking Industry Evaluation , Transformation And The Road Aheadpacific Business Raview International , Vol-5,
Issues-1

6) Luka, M.S and Frank , I.I (2012). The Impacts of ICTs on Banks International Journal Of Advanced Computer Science And Application, Vol-1 , No-9

7) J.Deepali (2013) Financial Inclusion: Journey So For And Road Ahead. (RBI Bulleting)

8) Bhandari, k.andSoni, H.(2016). Indian Banking Sector. Then, Now and Road Ahead International Research Journal of Engineering And Technology (IRJET), Vol- 03, Issue- 04, E- ISSN-2365-0056, P-ISSN-2395-0072.

Role Of Internet Of Things (Iot) In Libraries

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Abstract

IoT is totally a new technology for the librarian. Librarians are notbehind in using the new technology in libraries. Library has the long history of it. Every time they adopted the new changes in libraries. Present paper discuss about the IoT and its application in libraries. IoT is concept where the things are connected in network with the internet. Here things mean object. IoT works in network where all devices are connected with internet. IoT has great scope to use it in libraries. The present paperdiscussabout the area of libraries where IoT can be used.

Keywords:IoT, Internet of Things, cloud Computing. Smart Libraries, RFID

Introduction

The world has been changing rapidly. Information Communication technology brought the significant changes in human's life. ICT and Internet has occupied all parts of human's. Laptop, Smartphones and tabs are become important to people. We cannot imagine our life without it. Mobile technology gaining the popularity in people. Libraries and information center are always adopted the new technology. Every time Libraries & Information center make changes to their nature with change of technology. ICT make the library services more convenient and more reachable to user. In this rapidly changing era libraries has still more scope for development.

The Internet of Things, or "IoT" for short, is about extending the power of the internet beyond computers, laptop, smartphones and tabs to a whole range of other things, processes and environments. Those "connected" things are used to gather information, send information back, or both receiver and sender. IoT allows businesses and people to be more connected to the world around them and to do more meaningful, higher-level workor business.

Here in the India libraries as we know them are facing profound challenges. Uncertainties about the future of print contribute to discussions around the perceived declining value of traditional book repositories. Meanwhile, ever-reducing public funding is forcing many libraries to make cuts to their services, or close altogether.

But it's not all doom and gloom. For many communities, libraries remain vital resources, providing access to a wealth of knowledge, free computer use, and community activities. And technology, far from doing away with the printed word, may be able to support it. Perhaps the IoT can help libraries – by optimizing use of space, enhancing the visitor experience, and preserving valuable rare collections through smart room management.

What is Internet of Things?

The Internet of things (IoT) is the expansion of Internet connectivity into physical devices and everyday work. Embedded with electronics, Internet connectivity, and other forms of hardware (such as sensors), these devices can communicate and interact with others devices over the Internet without the human interference, and they can be remotely monitored and controlled.

The concept of the Internet of things has evolved due to convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. Traditionalfields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of things. In the consumer market, internet of things technology is most similar with products pertaining to the concept of the "smart home", covering devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers.

The IoT concept has been facing the prominent criticism, especially in regards to privacy and security concerns related to these devices and their intention of pervasive presence.

HISTORY

The concept of a network of smart devices was discussed in 1982 at Carnegie Mellon University, with a modified Coke vending machine becoming the first Internet-connected appliance, able to report its inventory and whether newly loaded drinks were cold or not.Mark Weiser's 1991 paper on ubiquitous computing, "The Computer of the 21st Century", as well as academic venues such as UbiComp and PerCom produced the contemporary vision of the IoT. In 1994, Reza Raji described the concept in IEEE Spectrum as "[moving] small packets of data to a large set of nodes, so as to integrate and automate everything from home appliances to entire factories". Between 1993 and 1997, several companies proposed solutions like Microsoft's at Work or Novell's NEST. The field gained momentum when Bill Joy envisioned device-to-device communication as a part of his "Six Webs" framework, presented at the World Ecoomic Forum at Davos in 1999. Kevin Aston was the first to introduce the IoT concept.

Key technologies of internet of things (iot)

Radio frequency identification (rfid)

Internet of things is an Internet based technology in which RFID (Radio Frequency Identification) tags are used. RFID system mainly consist two component electronic tags and readers. Electronic tags can be attached to object while reader can read or read / write, which depends on the memory structure and technology.

Cloud Computing

Cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics, intelligence and more - over the Internet ("the cloud") to offer faster innovation, flexible resources and economies of scale. You typically pay only for cloud services you use, helping lower your operating costs, run your infrastructure more efficiently and scale as your business needs change.

Magic Mirror

As the technology is getting more advanced, mirrors have more and more applications. Magic mirror included camera and Wi-Fi enabled sensors, provides interaction computers and people. This technology is useful to apply for various types of information, such as location recognition, review of the contents, similar like material. Also the information of the users' review is stored in the database.

Pressure Pad Sensor

Pressure pad sensor consisting of a thin sheet sensor pad facilitated with Wi-Fi technology is connected to dispensation unit, which records and controls the system. Regular movement of the user in particular passageway is to be recorded so that the collection of books of recorded section can be increased to provide sufficient information. Pressure pad sensor can also be linked to electrical energy system to minimize electrical energy loss in the library.

Wireless Sensor Network (Wsn)

Wireless sensor network (WSN) refers to a group of spatially dispersed and dedicated sensors for controlling, monitoring and recording the physical conditions of the environment and organizing the collected data at a central location. Wireless sensor network can measure environmental conditions like temperature, sound, pollution levels, humidity, wind, and so on. With the help of Wireless sensor network valuable information can processes analysis and disseminate to the system.

components of iot

Following are the key components of IoT

1. Sensing

The primary step in IoT workflow is gathering information at a point of activity. This can be information captured by an appliance, a wearable device, a wall mounted control or any number of commonly found devices. The sensing can be biometric, biological, environmental, visual or audible (or all the above). The unique thing in the context of IoT is that the device doing the sensing is not one that typically gathered information in this way. Sensing technology specific to this purpose is required.

2. Communication

This is where things start to get interesting. Many of the new IoT devices we are seeing today are not designed for optimal communication with cloud services. IoT devices require a means for transmitting the information sensed at the device level to a Cloud-based service for subsequent processing. This is where the great value inherent in IoT is created. This requires either WiFi (wireless LAN based communications) or WAN (wide area network*i.e.* cellular) communications. In addition, depending on the need short range communication, other capabilities may also be needed. These could include Bluetooth, ZigBee, Near-field or a range of other short range communication methods. For positioning, GPS is often required as well.

3. Cloud Based Capture & Consolidation

Gathered data is transmitted to a cloud based service where the information coming in from the IoT device is aggregated with other cloud based data to provide useful information for the end user. The data being consolidated can be information from other internet sources as well as from others subscribing with similar IoT devices. Most often, there will be some data processing required to provide useful information that is not necessarily obvious in the raw data.

4. Delivery of Information

The last step is delivery of useful information to the end user. That may be a consumer, a commercial or an industrial user. It may also be another device in the M2M workflow. The goal in a consumer use case is to provide the information in as simple and transparent a method as possible. It requires execution of a well thought out, designed and executed user interface that provides an optimized experience across multiple device platforms – tablets, smartphones, desktop – across multiple operating systems – iOS, Android, Windows, etc.

application of iot in libraries

IoT has more scope in libraries. More value base services can be added to library with use of IoT. Information Communication Technology had brought the tremendous changes in the field of library and information science. To attract more users and solve the various deficiencies of libraries IoT can be used. Lots of sector is using the IoT technology successfully like medical, industries, agriculture and government department. Human futures totally depend on the IoT technology and libraries are not except from this. Following are the area in which IoT can be used.

1. Book Uses Analysis

IoT can be helpful in library to analysis of book usages. It can be helpful for user to get notification of most demanded books and it's also helpful for libraries staff to place more order for the books.

2. Access to library and its resources

With use of IoT more and more access to resource can be provided. Libraries having mobile app for e resource can provide virtual library card which may be used for to access e resource in the library. When a user search library catalogue in mobile app the app provide the complete map of resource for locating the resource in library. It also provides the additional information for resources by connecting the site like amazon and other.

3. Locating the book by GPS

IoT could help librarian in providing the location base services to its users .With implication of IoT in libraries user can locate the book and other resource in the library by using GPS. GPS provide the path way to user to locate the books or other resources. It would help user to get direction of stack where his favorite books are kept. With help of IoT user can checked other interested title of his list and can checked the status of the book on shelve.

4. Collection Management

IoT is a technology where the communication is done between the system and decision is taken. It can indicate the librarian which books are more demand. On which subject libraries has less number of books? By using IoT technology direct order for the purchase of book can be placed. IoT can be more efficient in collection development of library.

5. Information literacy/ Library Orientation

Information literacy or Library orientation is offered to new user of library to educate them about how to use library and its resource. IoT can help libraries to self-guided virtual tour for the new users. It's helpful to make new user familiar with library and its resources. Library having the setup beacons like wireless devices at various sections. Whenever user enter the section the audio or video providing the complete information of that section will be automatically start.

6. Recommendation Services

Recommendation services can be provided to user with the help of IoT and real time data, based on the history of their borrowings. Whenever user searches the any information in database the IoT base system provide the recommend the other resource which can be helpful to user or researcher. Whenever user is near to library user can get the notification of new arrival of his interested subject.

7. Stock Management

IoT can be helpful in library for the various activities of libraries like Stock Verification. With the help of IoT in library the misplace book in library can be easily identify. Book reservation, books status and book return information can get instantly to user. Books thief can be prevent with its use.Alerts like new arrivals, special collections, library archives, shelving assistance to the users is possible.

8. Sensors for safety of security

Fire safety is very much needed in library. Library can be preventing from the fire or smoke whenever the situation like this arrives the sensor immediately indicate it's to librarian and other staff and fire can be stop. Whenever someone can attempt to take book out of library without permission of library staff it horn the alarm. Also the it will prevent the unauthorized person to use library.

9. Other uses

IoT technology can be used in libraries in other matters also like in book search in OPAC, getting books information from QR code, to collect books fine,Maintenance of infrastructure. IoT can also be helpful to get register of user on entry gate through biometric.

Conclusion

Io technology is in primary step of using. Medical and Health center, Transportation, Agriculture, V2X Communications, Building and home automation, Industrial applications these sector are applying the IoT Technology in their day to day work. IoT has great potential in libraries and information center for its application in various day to day works. Librarian can more value added services. Till date IoT has not use very much in libraries but some western libraries are taking some positive steps towards application of IoT in libraries. It will be great learning experience for librarian in the field of new technology use in libraries. Internet has change the libraries so much, by using internet Digital Library Virtual Libraries these concept become the reality. IoT technology can change concept of digital library to Smart Libraries where interaction is done between the system to system and decision is taken. By using IoT in libraries, libraries can become the 'Smart Library' and Librarian 'Smart Librarian'

REFERENCES

1. Ashton K. (2009). That 'Internet of Things' thing, in the real world things matter more than ideas. RFID Journal. 22: p.1.
2. A. Kaladhar1 and K. Somasekhara Rao (2017).Internet of Things: A Route to Smart Libraries, Journal of Advancements in Library Sciences, Volume 4, Issue 1.
3. Shamprasad M Pujara and K V Satyanarayana (2015). Internet of Things and libraries, Annals of Library and Information Studies, Vol. 62, September 2015, pp. 186-190.
4. Ning, H. and Zhang, Y. (2008).RFID and Internet of Things:RF Analysis and service. Electronic Industry Press, Beijing.
5. https://en.wikipedia.org/wiki/Internet_of_things

Global Waves of E- learning during COVID 19

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Abstract

The current study emphasizes the global waves of the e-learning process during COVID 19. E-learning tools are playing a vital role in the course of this pandemic but in developing countries like Nepal, technological, education literacy background and socio-economic challenges exist. These challenges might act as an interruption to the E-Learning process. The implementation of lockdown and social distancing has been imposed as one of the preventive measures to spread the coronavirus infection which has resulted in complete paralysis of global activities. Especially the education system which is completely locked and to continue with the academic curriculum, there is a shift from the systematic learning process to electronic learning. This can be cited with an amplified number of online classes, conferences, meetings, etc. It can be noted that the world is completely reliant on information technologies during this crisis. Hence, the current study provides an insight into the process of electronic learning and its benefits along with the updated version of its usage. To best of our known facts, there have been ample scientific reports on this particular situation of the impact of e-learning during COVID 19. The present study is an accumulation of the components of e-learning tools along with the upcoming perspective on education using information science.

Keywords: E-learning, COVID 19, Global platform, Google apps, online education

Introduction

During the current pandemic crisis when the complete globe is sailing amid the storm, technology has played a vital role. Technological progress and the internet have changed the lives of people immensely and have also brought a gigantic change in various fields (Nadikattu, 2020). Exclusively in the education system E-learning has been found to be a significant tool for effectively continuing the teaching-learning process during the lockdown. The web has become one of the important mediums of learning that opens the door for people around the world to access education easily at free or lesser cost (Noor-Ul-amin, 2013). E-learning has fixed its root especially in the field of modern education. The requirement of modern learners is somewhat diverse and E- learning has been found beneficial for fulfilling their needs. The mediums of E-learning and principles of artificial intelligence are slowly gaining popularity in the world (Misko et al., 2004; Soni, 2020). It is providing a solution to the learners who are unable to access the traditional means of education due to the present pandemic situation. The present paper is going to describe the aspects and waves of various E-learning platforms that the educational institutes have been following globally in diverse fields during the pandemic crisis of COVID-19.

Role of E-learning in COVID-19 crisis

Education is one of the key aspects in building a good nation (Baiyere et al., 2016). The outbreak of the COVID-19 virus has caused a sudden interruption of schools, colleges, universities and other government institutions. During these hard times, teachers have been utilising e-learning platforms to impart education to the students. E-learning denotes to a learning system that is conducted via electronic media. It was first used in 1999 at a CBT systems conference. It is also termed as virtual or online learning. It offers a way to share reading materials using internet through emails, documents, presentations or webinars. IT has become an important part of modern education and it shows huge involvement of ICT in the present teaching-learning process (Anderson, 2005). Educationalists can share study materials and lectures in the form of PPT, PDF or Word document by uploading them on their corresponding university web-pages, on whatsapp or through e-mails to maximum students during this lockdown. According to Felix, (2020), Lectures have been also occupied through WeChat, by sharing audio-visual videos through e-mails, by different online teaching apps like Zoom, Superstar, g-suite cloud meeting and so on. Because of COVID-19 a better number of students are found to use the learning platform and apps. Certain of the platforms are already established like ED-TECH and cloud computing as they are accessible in reasonable prices and are easy to access.

Global-changeover to online-education in Educational institutes during the pandemic crisis.

Subsequently the outbreak of the COVID-19 virus, educational institutions from all around the world have transferred from the traditional methods of learning to imparting education through online means. The education system has been unpredictably shifted from the conventional classroom environment to electronic devices and online applications (Mnyanyi & Mbwette 2009) Most universities in India have asked the Professors and students to opt for e-learning platforms for educational purposes and to encourage students to study from their respective residents (Li, et al., 2013). The faculty members were urged to provide study materials in the form of PPT, PDFs or Word documents and other forms such as audio, videos to upload on online platforms. Chinese universities have executed online education since the starting of the 21st century .The mass spread of the virus, educational procedures have been accomplished via apps like Zoom and Google meet. Innumerable undergraduate and graduate courses have been provided to students through online means. In Iraq, students have been using online platforms and applications since the universal lockdown. Mostly apps like Google classroom, Teams and Zoom have been used to accomplish the academic needs. The Education Ministry of Georgia has provided the application of Microsoft Teams for all the community schools. The ministry has also act as a team with Georgian Public Broadcaster and has started an educational programme named - 'Teleskola' or TV school to certify well understanding of class lessons (The Government of Georgia. 2020). Virtual classrooms have been formed on different online platforms to provide education in private schools. Two platforms G-Suite and Edu-Page are broadly used in this education process (Google. 2020 and Edupage 2020). The Association of African Universities have formed an online resource page to support educational institutions in appropriate planning of class lessons and to effortlessly shift to E-learning methods. The outbreak of the Pandemic has begun the association to offer efficient learning through online mode of education. The Association of American Colleges and Universities are providing a widespread range of webinars to support educators and learners. Virtual seminars and discussions are been conducted to help the students to handle with the ongoing tough times.

Uploading study materials in their respective university websites.

In this pandemic situation, eminent companies like Google, Microsoft, Zoom and Slack have offered many features of their products that could be beneficial in the field of education for free to the educational institutes. According to the recognized report Microsoft team users were 750 as of 10th March but by 24th March it has risen up to 138698 which is indeed a significant growth. . (OECD, 2020). Zoom has elevated the video calling time limits in Italy, Japan, US and China on request (Rani Molla, 2020). The world quiet demands much more access to zoom and Google Meet communication solution facilities. Thus, globally there has been an enormous and sudden change in the field of academia with the spread of the deadly COVID-19 virus. There has been a global transition to online methods of teaching and learning (Basilaia, et al.,2020). The conventional classroom atmosphere has been switched by digital means to stop the spread of the virus and to ensure safety of the educators and learners.

Advantages of E-learning

E-learning accomplishes the needs of today's learners at their own comfort and requirements. Thus it has proven to be fruitful because of several reasons. It can be availed at any time at the learner's own convenience by purchasing the subscriptions of different platforms or logging in to access the courses (Colchester et al., 2017). It can share and offer teaching-learning materials in various formats such as slideshows, audios, videos, PDFs, e-mails, word documents and so on. Webinars and direct communications with teachers by many chat forums or messaging is also an open choice in E-learning process. It delivers clear, easy, gradual directives for better understanding of the learners. It is often regarded as the most suitable way for self-learning. It offers a varied range of materials for the learners that covers more or less all topics and doubts (Bajaj and Sharma, 2018).

Challenges of E-learning

Due to the pandemic crisis there has been a massive, disruptive shift from existing educational system to virtual education system. An online course requires complete lesson plans to design good study materials. Certain challenges of online education include, lack of online teaching skills in educators, online preparation of lesson plans as it is very time-consuming, lack of proper support from the technical groups, and traffic overload in online educational platforms. Not only the teachers but the students are also facing encounters due to their deficiency of proper learning attitude, lack of suitable materials for learning, more involvement in classroom learning, inability of self- discipline, and the insufficient learning environment at some of their homes during self-isolation.

Beneficial role of E-learning platforms during the Pandemic

E-learning has especially proven to be beneficial during this COVID-19 crisis. More students have opted to Ed-tech and other online platforms for education during this current pandemic. Online platforms like Vedantu, Unacademy and Byju's have been offering free access to live classes to help students learn easily from homes and a significant elevation in students have been recorded for using these educational apps. Educationalists of the online platforms have also started to take more live classes (Owusu-Fordjour et al., 2020). Furthermore, Vedantu has been offering free access to live classes to learners. Another online platform Courser has declared free access to its courses to many universities in the world till 31stJuly. SC Edu-page cloud-based web portal unity and a mobile app have been broadly used at 150,000 schools in around 173 countries across the globe for the education management with free access and user-friendly functionality (Edupage. 2020). The app contains features like curriculum management, attendance control, time-table automation, homework assigning, messaging features and grading Parents can also communicate with the teachers by using this app

Strategies to improve student's engagement during E- learning

Strategies can improve the E-learning competences of the students when educators implement them efficiently. For the execution of large-scale online education, it is very essential to generate advance contingency plans to overcome the technical problems like traffic overload in the online educational platforms. Educators have divided the teaching material into numerous smaller modules to enhance the focus of students and to ensure their better understanding. Faculty members have appropriately dropped the swiftness of their speech to drag their attention, allow them to note down the key points from the lectures and the jot down the essential information from the board in an audio-visual lecture. Inexperienced faculty fellows consulted online teaching assistants to ensure the objectives and needs of each and every class that has to be taken by them. Educators have modified their various teaching practises by providing creative and skilful assignments that can fulfil the learning requirements of the students for engaging them during the online classes. The faculty incorporated online teaching methods and offline self-learning. Professors can engage students in discussion to encourage their perceptions and can provide feedbacks on their assignments. Through this mode of teaching student will not learn surface, equivocal and fragmented knowledge. Instead the students would familiarity thorough learning through diverse discussions. Inadequate pre-class learning foundation, limited participation in class discussions, and inadequate discussion seriousness are common phenomena in traditional in-class teaching, similarly, those issue should not be overlooked in virtual teaching (Su et al., 2016; Johnson et al.,2019). The difficulty, dimension and quality of teaching material should match the student's online-learning behavioural characteristics and academic readiness. Timely feedback should be shared by the educators with their students to inspire them

Inequities faced by learners and Educators in the present scenario

Educators are experiencing huge weight on their psychological health as they have to endure the load of the education system during these difficult times. They have to follow administrative and ministerial advices. Teaching through online modes has become a challenging task for most of the educators. Absence of resources is also becoming a great hurdle for the teaching-learning process. Sometimes the unhealthy atmospheres and technical issues are reasons behind discontinued process of teaching-learning. Apprentices sometimes do not have proper means to learn from the online medium. As most of the learners and educators are familiarized with the traditional way of teaching-learning processes the outcome on E-learning is obtained comparatively low. Due to absence of motivation and shaky mental health issue E-learning is not providing expected success in the global education system.

Means to bridge the uneven gap between learners and educators

Education materials and pedagogical requirements should be greatly introduced in all emergency prospectuses which could keep educators and learners safe and mentally healthy in the current pandemic crisis (Pragholapati, 2020). Education ministers or the government should provide resources for the disadvantaged children and focus on the educational needs of marginalized learners. Most significantly National authorities in their particular countries should provide efficient measures to express the vital significance of well- being for both students and educators.

Recommendations

It has been recommended by Google that the Google classroom platform can be united to Google meet system for creating laboratory practices for STEM courses (Google. 2020). Other appropriate educational platforms can also be integrated to Google meet system for lab practices. Educators and learners should be provided apt trainings to become efficient users of educational apps that are widely used globally such as Zoom, Google classroom, Teams etc during the COVID-19 crisis. The pandemic situation demands tech-savvy and highly skilled educators. Thus, educators should enrich their knowledge and skills that is required for the maximum usage of technological devices, E-learning tools, educational apps and other online platforms like TV School, Online portals, Google Meet, Slack, Zoom, Edu-Page etc. Students should be exhilarated to use diverse educational apps and should be provided with easy, effective and interesting study materials by the educators to drag student's attention towards E- learning. Various online-learning types can be also promoted to the students and educators. They could get appropriate online-training to use various learning methods such as knowledge-based training, hybrid training, synchronous training and asynchronous trainings.

Conclusion

Different countries though-out the world have introduced numerous solutions in this pandemic to carry forward the education system. TV transmission, virtual libraries, resources, guidelines, online channels, video lectures, are highly familiarised at around 96 countries. The quality of E-learning needs much improvement. Due to the sudden out-break of COVID-19 there was insufficient time to assure the quality of the E-learning or online teaching-learning process because the focus was to save and continue the education process at any cost and in all possible format during the global crisis. Though there are limited challenges correlated to E-learning, it has actually emerged as a benefit to learners and educators around the world. The global crisis has specially manifested the immense importance of e-learning in today's modern world. Deprived of the means of e-learning platforms education would have come to a sudden halt since the outbreak of the virus.

References:

- (Edu EDUPAGE. (2020). EduPage,'EduPage features'. Retrieved on 16 June 2020 from https://www.edupage.org/
- Anderson, J. (2005). IT, e-learning and teacher development. International Education Journal, 5(5), 1-14.

- Baiyere, A., & Li, H. (2016) 'Application of a virtual collaborative environment in a teachingncase'. In AMCIS 2016: Surfing the IT Innovation Wave - 22nd Americas Conference on Information Systems.
- Bajaj, R.V., & Sharma, V. (2018). Smart Education with artificial intelligence based determination of learning styles. Procedia Computer Science, 132, 834-842. Basilaia, G., Dgebuadze, M., Kantaria, M., & Chokhonelidze, G. (2020). Replacing the Classic Learning Form at Universities as an Immediate Response to the COVID-19 Virus Infection in Georgia. International Journal for Research in Applied Science and Engineering Technology (IJRASET), 8, 101-8. Retrieved on 16 June 2020 from https://doi.org/10.22214/ijraset.2020.3021
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G.J., 2020. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet. Retrieved on 16 June 2020 from https://doi.org/10.1016/S0140-6736(20)30460-8
- Johnson, S., Bamber, D., Bountziouka, V., Clayton, S., Cragg, L., Gilmore, C., Griffiths, R.,Marlow, N., Simms, V., & Wharrad, H.J. (2019). Improving developmental and educational support for children born preterm: evaluation of an e-learning resource for education professionals. BMJ Open, 9.
- Khalid, M.S., Slættalíð, T., Parveen, M., & Hossain, M.S. (2015). A systematic review and meta-analysis of teachers' development of digital literacy. Li, Y., Wu, S., Yao, Q., & Zhu, Y. (2013). Research on college students'online learning behavior. E-Education Research, 34(11), 59–65.
- MES. (2020). Ministry of Education, Science, Culture and Sport of Georgia. 'Ministry of Education, Science, Culture and Sport of Georgiato strengthen distance learning methods'. Retrieved on 16 June 2020 from
https://www.mes.gov.ge/content.php?id=10271&lang=eng

ISSN : 2278-9308
February, 2022

Challenges And Opportunities In Higher Education

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Abstract

The global has found out that the financial fulfillment of the states is at once decided via way of means of their schooling structures. Education is a Nation's Strength. A advanced state is unavoidably an knowledgeable state. Indian better schooling machine is the 0.33 biggest with inside the global, subsequent to the US and China. Since independence, India as a growing state is contentiously progressing with inside the schooling field. Although there had been lot of demanding situations to better schooling machine of India however similarly have lot of possibilities to triumph over those demanding situations and to make better schooling machine a great deal better. It desires more transparency and accountability, the position of schools and universities with inside the new millennium, and rising clinical studies on how humans study is of maximum important. India want properly professional and incredibly knowledgeable those who can force our economic system forward. India offers incredibly professional humans to different nations therefore; it's far very clean for India to switch our u . s . from a growing state to a advanced state. The present day examine objectives to focus on the demanding situations and to factor out the possibilities in better schooling machine in India.

Introduction

India's better schooling machine is the sector's 0.33 biggest in phrases of college students, subsequent to China and the US. In future, India can be certainly considered one among the most important schooling hubs. India's Higher Education quarter has witnessed a wonderful boom with inside the wide variety of Universities/University degree Institutions & Colleges when you consider that independence. The 'Right to Education Act' which stipulates obligatory and unfastened schooling to all kids withinside the age organizations of 6-14 years, has added approximately a revolution with inside the schooling machine of the u . s . with records revealing a dazzling enrolment in colleges over the past 4 years. The involvement of personal quarter in better schooling has visible drastic modifications withinside the field. Today over 60% of better schooling establishments in India are promoted via way of means of the personal quarter. This has improved established order of institutes that have originated over the past decade making India domestic to the most important wide variety of Higher Education establishments with inside the global, with scholar enrolments at the second one highest (Shaguri, 2013).The wide variety of Universities has improved 34 instances from 20 in 1950 to 677 in 2014. Despite those numbers, worldwide schooling score businesses have now no longer located a lot of those establishments with inside the quality of the sector ranking. Also, India has did not produce global elegance universities. Today, Knowledge is power. The greater know-how one has, the greater empowered one is. However, India maintains to stand stern demanding situations. Despite developing funding in schooling, 25 consistent with cent of its populace continues to be illiterate; simplest 15 consistent with cent of Indian college students attain excessive school, and simply 7 consistent with cent graduate (Masani, 2008). The nice of schooling in India whether or not at number one or better schooling is substantially bad compared to primary growing countries of the sector. As of 2008, India's post-secondary establishments provide simplest sufficient seats for 7 consistent with cent of India's university-age populace, 25 consistent with cent of coaching positions national are vacant, and fifty seven consistent with cent of university professors lack both a master's or PhD degree (Newsweek, 2011). As of 2011, there are 1522 degree-granting engineering schools in India with an annual scholar consumption of 582,000 (Science and

Technology Education, 2009) plus 1,244 polytechnics with an annual consumption of 265,000. However, those establishments face scarcity of school and issues had been raised over the nice of schooling (Mitra, 2008). Despite those demanding situations better schooling machine of India similarly have lot of possibilities to triumph over those demanding situations and feature the functionality to make its identification at worldwide degree. However, it desires more transparency and accountability, the position of universities and schools withinside the new millennium, and rising clinical studies on how humans study is of maximum important. India offers incredibly professional humans to different nations therefore; it's far very clean for India to switch our u . s . from a growing state to a advanced state.

Growth of Higher Education Sector in India

As better schooling structures develop and diversify, society is more and more more involved approximately the nice of programmes, public exams and worldwide scores of better schooling establishments. However those comparisons have a tendency to overemphasise studies, the usage of studies overall performance as a yardstick of institutional value. If those approaches fail to deal with the nice of coaching, it's far in component due to the fact measuring coaching nice is challenging (Hernard, 2008) India has been usually been a land of students and learners. In historic instances also, India become seemed everywhere in the global for its universities like Taxila, Nalanda, Vikramshila and its scholars. By independence India had 20 universities, 500 schools enrolling approximately 2,30,000 college students.

Challenges in Higher Education in India

It is our 69th 12 months of independence nevertheless our schooling machine has now no longer been advanced fully. We aren't capable of listing a unmarried college in pinnacle a hundred universities of the sector. Various governments modified throughout those six decades. They attempted to enhance the schooling machine and carried out numerous schooling rules however they have been now no longer enough to position an instance for the universe. UGC is constantly operating and that specialize in nice schooling in better schooling quarter. Still we're dealing with lot of troubles and demanding situations in our schooling machine. Some of the primary demanding situations in better schooling machine in India are mentioned below:

Enrolment: The Gross Enrolment Ratio (GER) of India in better schooling is simplest 15% that's pretty low in comparison to the evolved as properly as, different growing international locations. With the growth of enrolments at college stage, the deliver of better schooling institutes is inadequate to satisfy the developing call for withinside the usa.

Equity: There isn't anyt any fairness in GER amongst specific sects of the society. According to preceding research the GER in better schooling in India amongst male and woman varies to a extra extent. There are nearby versions too a few states have excessive GER whilst as a few is pretty in the back of the country wide GER which mirror a good sized imbalances withinside the better schooling gadget.

Quality: Quality in better schooling is a multi-dimensional, multilevel, and a dynamic concept. Ensuring fine in better schooling is among the most demanding situations being confronted in India nowadays. However, Government is constantly focusing at the fine schooling. Still Large quantity of faculties and universities in India are not able to satisfy the minimal necessities laid down with the aid of using the UGC and our universities aren't in a function to mark its location most of the pinnacle universities of the sector.

Infrastructure: Poor infrastructure is any other mission to the better schooling gadget of India specifically the institutes run with the aid of using the general public quarter be afflicted by bad bodily centers and infrastructure. There are huge quantity of faculties which can be performing on 2d or 0.33 ground of the constructing on floor or first ground there exists readymade hosieries or photocopy shops.

Opportunities in Higher Education

India is a huge usa, with an envisioned populace of younger humans elderly among 18 to 23 years to be round a hundred and fifty millions. The sheer length of the marketplace gives large possibilities for improvement of the better schooling quarter in India. India now boasts of getting greater than 33,000 faculties and 659 universities, which has been pretty a awesome increase over the last six many years. The yr 2012 witnessed 21.four million enrollments, which makes India the third biggest instructional gadget withinside the world. Unfortunately, the academic infrastructure of India is insufficient to address such large volumes. In spite all of the authorities spending withinside the instructional quarter, it's far simply too inadequate to satisfy the developing necessities. Therefore, better Education quarter has now been diagnosed as one of the promising regions for personal and overseas investments. It gives significant funding possibilities in each non-regulated and controlled segments (Nexus Novus, 26 July, 2013). Indian better schooling gadget is developing very rapid no matter numerous demanding situations however there's no purpose that those Challenges can not be overcome. With the assist of new-age mastering tools, it is straightforward for usa like India to conquer those issues and convey a paradigm shift withinside the usa's better schooling quarter. With one of these colourful usa with large populace well educated, the opportunities are endless. If information is imparted the usage of superior virtual coaching and mastering tools, and society is made aware about wherein we're presently lagging in the back of, our usa can effortlessly end up one of the maximum evolved international locations withinside the world. There are possibilities for strategic engagement and potential constructing in better schooling management and control on the country stage. There are possibilities for India to collaboration at country wide and global stage on regions of systemic reform, consisting of fine assurance, global credit score recognition, and unified country wide qualifications framework. Equality of tutorial possibility in better schooling is taken into consideration critical due to the fact better schooling is a effective device for lowering or removing profits and wealth disparities. The concept of equalising instructional possibilities additionally lies withinside the truth that "the cappotential to earnings with the aid of using better schooling is unfold amongst all training of humans. There are awesome reserves of untapped cappotential withinside the society; if presented the risk they are able to upward thrust to the pinnacle. A awesome deal of skills of the best stage is, in truth, misplaced with the aid of using an inegalitarian gadget of schooling" (Balachander, 1986).

Conclusion

Education is a system with the aid of using which someone's body, thoughts and person are shaped and strengthened. It is bringing of head, coronary heart and thoughts collectively and therefore allowing someone to expand an all spherical persona figuring out the nice in him or her. Higher schooling in India has improved very swiftly withinside the closing six many years after independence but it isn't similarly available to all. India is nowadays one of the quickest growing international locations of the sector with the yearly increase price going above 9%. Still a huge segment of the populace stays illiterate and a huge quantity of children's do now no longer get even number one schooling. This isn't simplest excluded a huge segment of the populace from contributing to the improvement of the usa absolutely however it has additionally avoided them from using the advantages of some thing improvement have taken location for the advantage of the humans. No doubt India is dealing with numerous demanding situations in better schooling however to address those demanding situations and to reinforce better schooling is utmost important. India is a rustic of large human aid ability, to utilise this ability well is the problem which had to discuss. Opportunities are to be had however a way to get advantages from those possibilities and a way to cause them to available to others is the problem of concern. In order to preserve that price of increase, there's want to growth the quantity of institutes and additionally the fine of better schooling in India. To attain and acquire the destiny necessities there's an pressing want to relook on the Financial Resources, Access and Equity, Quality Standards, Relevance, infrastructure and on the give up the Responsiveness.

References

1.Shaguri, Obadya Ray, Higher Education in India Access, Equity, Quality, EAN World Congress Scholar, Global Access to Postsecondary schooling, 2013.
2.Masani, Zareer, India nevertheless Asia's reluctant tiger, BBC Radio four, 27 February 2008.
3.Newsweek, Special Report: The Education Race, August 18–25, 2011.
4.Science and Technology Education". Press Information Bureau, Retrieved 2009 08-08
5.Mitra, Sramana, How To Save The World's Back Office of Forbes, 03.14.2008
6.Henard, Fabrice, Report, Learning our Lesson: Review of Quality coaching in Higher Education, 2008.
7.Higher Education in India: Twelfth Five Year Plan (2012-17) and past FICCI Higher Education Summit 2012.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Challenges & Opportunities Of Higher Education In India

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Abstract

The world has understood that a state's economic prosperity is directly influenced by its educational system. Education is a nation's greatest asset. A developed country is invariably a well-educated country. After the United States and China, India has the world's third largest higher education system. Since independence, India has made slow but steady progress in the realm of education. Although India's higher education system has faced numerous obstacles, it also faces numerous chances to overcome these challenges and improve the higher education system. The function of colleges and universities in the new millennium, as well as rising scientific knowledge on how individuals learn, all require increased transparency and accountability. India requires highly qualified and educated individuals who can propel our economy forward. As a result of India's ability to provide highly skilled individuals to other countries, it is very simple for India to transition from a developing to a developed country. The purpose of this study is to highlight the challenges and potential in India's higher education system.

Keywords: - Challenges, Opportunities, Education, Universities, Accountability.

Introduction

To different people, higher education means different things. In terms of level, higher education entails obtaining a higher educational qualification through the teaching-learning process in higher educational institutions such as colleges and universities. After China and the United States, India has the world's third largest higher education system in terms of students. India will become one of the world's largest educational centres in the future. Since independence, India's Higher Education industry has seen a massive expansion in the number of Universities/University level Institutions & Colleges. The 'Right to Education Act,' which mandates compulsory and free education for all children aged 6 to 14, has ushered in a change in the country's education system, with figures revealing a stunning increase in school enrolment over the last four years. The private sector's involvement in higher education has resulted in significant developments in the field. In India, the private sector now promotes more than 60% of higher education institutions. This has hastened the establishment of colleges that have sprung up over the previous decade, giving India the world's greatest number of Higher Education institutions and the second highest number of student enrolments (Shaguri, 2013). From 20 in 1950 to 677 in 2014, the number of universities has increased 34 times. Despite these figures, several of these institutions are not ranked among the top in the world by international education rating agencies. Furthermore, India has not been able to produce world-class universities.

Today, knowledge is the most powerful weapon. The more information one has, the more powerful one becomes. India, on the other hand, continues to face significant obstacles. In comparison to other major developing countries, the quality of education in India is significantly lower, whether at the primary or secondary level. In 2008, India's post-secondary institutions only had enough seats for 7% of the country's college-age population, 25% of teaching positions were vacant across the country, and 57% of college professors lacked a master's or PhD degree (Newsweek, 2011). In 2011, India had 1522 degree-granting engineering colleges with an annual student intake of 582,000, as well as 1,244 polytechnics with an annual student intake of 265,000 (Science and Technology Education, 2009). However, these institutions are experiencing a faculty shortage, and concerns about the quality of education have been raised.

Despite these obstacles, India's higher education system has a lot of opportunities to overcome them and establish its international identity. However, greater transparency and accountability are required, as is the role of universities and colleges in the new millennium, as well as emerging scientific research on how people learn. As a result of India's ability to provide highly skilled people to other countries, it is relatively simple for India to transition from a developing to a developed country.

Higher Education In India

Higher (tertiary) education in India begins after the 10+2 (ten years of primary and secondary school followed by two years of senior secondary school). In India, the higher education system is quite complicated. It covers a variety of institutions such as universities, colleges, national institutes of importance, polytechnics, and so on. Central universities, which are formed by the government of India, by an act of parliament, and are responsible for arranging and distributing resources required by the university grant commission (UGC), State universities, Deemed universities (aided and unaided), and Private universities are among the various types of universities. India is a federal country, and the Indian constitution makes education a joint duty of the central government and the states. While the centre coordinates and sets standards in higher and technical education, the state is responsible for school education. Several regulatory bodies and research councils are responsible for higher education in India under the Department of Higher Education.

Growth Of Higher Education Sector In India

Society is becoming increasingly concerned about the quality of programmes, public assessments, and international rankings of higher education institutions as higher education systems grow and diversify. These comparisons, on the other hand, tend to overemphasise research, using research success as a metric of institutional worth. It's partly because measuring teaching quality is difficult that these approaches fail to address teaching quality. India has long been a place of thinkers and students. India was once known around the world for its universities, such as Taxila, Nalanda, and Vikramshila, as well as its scholars. India had 20 universities and 500 colleges by independence, with approximately 2.3 Lakhs students enrolled.

In terms of higher education statistics, India has made remarkable progress since independence. This number has risen in recent years. The federal government and state governments are attempting to develop talent by increasing the number of universities and colleges in order to expand higher education. There is no doubt that the private sector has contributed significantly to India's educational advancement. In India's education system, the public and private sectors are not in competition with one another, but rather work together. The University Grants Commission (UGC) is the major regulating organisation that enforces standards, advises the government, and assists in coordination between the centre and the states.

Challenges Of Higher Education Sector In India

- Gap between Supply and Demand: India has a low rate of enrolment, or gross enrolment ratio (GER), in higher education, at only 19 percent. When compared to China and Brazil, the GER is 26% and 36%, respectively.
- Lack of high-quality research: Top Indian institutions such as IITs, IIMs, and other national-level research organisations have enough of funds. However, due to a lack of high-quality research, the research money is not underutilised. Few Indian higher educational institutes are internationally recognised due to a lack of focus on research and internationalisation.
- The inadequate quality of curriculum in Indian higher education is a problem. The curriculum at higher educational institutions is outdated and irrelevant.
- Although the number of research articles produced in India has steadily increased over the last few decades, it has a low citation impact when compared to countries such as Germany, the United States, France, and China.

- Faculty shortages and a high student-to-faculty ratio: More than 30 percent of teaching jobs at most state and central institutions is empty. In recent years, the number of students enrolled in higher education has increased at a quicker rate.
- Inadequate Infrastructure and Facilities: With the exception of India's most prestigious higher educational institutions, most colleges and universities lack basic and advanced research facilities. Many institutes lack sufficient infrastructure and fundamental facilities such as libraries, dorms, transportation, and sports facilities, all of which are necessary to rank a quality institution.
- There is now virtually little collaboration between higher educational institutions and industry.
- Graduates' low employability is one of India's biggest issues. Only a small percentage of graduates in India are considered employable. As we move away from the top institutes, we see a dramatic reduction in placement results.

Opportunities In Higher Education

India is a huge country, with a population of young people aged 18 to 23 years estimated to be in the 150 million ranges. The sheer magnitude of the market presents enormous chances for India's higher education sector to grow. India presently has over 33,000 colleges and 659 universities, which represents a phenomenal expansion over the last six decades. India has the world's third largest educational system, with 21.4 million students enrolled in 2012. Unfortunately, India's educational infrastructure is incapable of handling such massive loads. Despite all of the government's educational spending, it is just insufficient to fulfil the expanding demands. As a result, the higher education sector has been highlighted as one of the most attractive areas for both domestic and international investment. It provides a plethora of investment opportunities in both the unregulated and regulated markets.

Despite significant hurdles, the Indian higher education system is rapidly expanding, and there is no reason why these obstacles cannot be surmounted. It is simple for a country like India to overcome these challenges and induce a paradigm change in the country's higher education sector with the use of new-age learning tools. The possibilities are unlimited in such a lively country with such a large population that is adequately educated. If advanced digital teaching and learning technologies are used to transfer knowledge, and society is made aware of where we are now falling behind, our country can quickly become one of the most developed in the world.

At the state level, there are possibilities for strategic engagement and capacity building in higher education leadership and management. Quality assurance, international credit recognition, and a unified national qualifications framework are examples of areas where India can collaborate at the national and international level on systemic reform. Because higher education is a potent tool for lowering or eliminating income and wealth inequality, equal educational opportunity is deemed crucial. The concept of equalising educational possibilities is also based on the reality that "the ability to benefit from higher education is distributed across all socioeconomic classes." There are vast amounts of untapped potential in society; given the opportunity, they can rise to the top. An inequitable educational system, in reality, squanders a considerable deal of high-level talent."

The desire to improve graduates' employability is presenting opportunities for collaboration in enterprise education and entrepreneurship, industry connections, research skills, and a wide range of transferable abilities, including English. The growing interest in Indian higher education institutions in the vocational skills market opens up opportunities for international collaboration. Increased support and participation in venues (conferences, workshops, seminars) that promote debate and dialogue with other countries around the world are needed to strengthen partnerships and increase mutual understanding in higher education.

Suggestions For Quality Improvement

1.Industrial collaboration must be present in higher educational institutions for the development of curricula, the organisation of expert talks, internships, live projects, career counselling, and placements.

2.For better quality and collaborative research, the government should foster collaboration between Indian higher education colleges and top international institutes, as well as create links between national research laboratories and research centres of top institutions.

3.There is a need to focus on graduate students by providing them with courses that allow them to achieve greatness and get a deeper understanding of the subject so that they may get jobs after being hired by corporations, reducing the need for unneeded rush to higher education.

4.To make India's educational system more globally relevant and competitive, new and transformative approaches must be implemented from primary to higher education levels.

Conclusion

We have highlighted the current state of higher education in India in this paper. We also identify obstacles in higher education such as the demand-supply imbalance, a lack of high-quality research, infrastructure and basic facilities issues, faculty shortages, and so on. To strengthen the higher education system, we must improve teaching pedagogy, create synergies between research and teaching, and make it easier for higher education institutions, research organisations, and businesses to collaborate. This is important not only for economic progress, but also for social cohesion and the empowerment of the country's youth. Education is the process of forming and strengthening a person's body, mind, and character. It is the bringing together of the head, heart, and mind, allowing a person to develop an all-around personality that recognises the best in him or her.

Although higher education in India has grown significantly in the six decades since independence, it is not equally accessible to all. Without a doubt, India faces numerous obstacles in higher education, but addressing these challenges and boosting higher education is critical. India has a large human resource potential; yet, how to appropriately utilise this potential is a topic that has to be discussed. Opportunities abound, but the question of how to reap the benefits of these opportunities and make them available to others is a source of anxiety. In order to maintain that rate of growth, the number of colleges as well as the quality of higher education in India must increase. Financial Resources, Access and Equity, Quality Standards, Relevance, Infrastructure, and, finally, Responsiveness must all be reconsidered in order to meet and exceed future standards.

References

• Higher Education in India: Twelfth Five Year Plan (2012-17) and beyond FICCI Higher Education Summit 2012.

• Kumar, Anuj & Ambrish, Higher Education: Growth, Challenges and Opportunities, International Journal of Arts, Humanities and Management Studies, Volume 01, No.2, Feb 2015.

• PWC report on "India-Higher education system: Opportunities for Private Participation, 2012.

• Other Various Websites, Journals, etc

ISSN : 2278-9308
February, 2022

FMCG Products- A Study on Perception of Consumers towards FMCG goods.

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Abstract

The consumer plays important role in Marketing, because in this changing environment we find consumer needs and wants to buy products also changes in it. Fast Moving consumergoods are very essential goods in everyone's day to day life. These items are sold quickly having short shelf life. These products include both non-durable such as cosmetics, toiletry, pharmaceuticals,consumer electronics etc. In fact, Indian FMCG sector is the major contributor to Indian Economy. FMCG sector in India is witnessing tremendous growth over the years. In this background, a primary study conducted to know the consumer perception towards FMCG goods, the result analyzed and presented in tabular format.

Keywords: **FMCG, Consumer, Non-durable, Indian Economy,**

Introduction:

Initially between 1950 and 1850 there will be less investment in the FMCG sector. It shows that, Indian Government more focused on development of local shops and retailers. But the main drawbacks are these shops provide very less variety of products. However, it gives opportunity to FMCG to invest more in these sectors because it gives variety of products. In this way, it boosted FMCG sector in India. The tremendous growth in FMCG in India contributes over 11 percent over the last decade. In fact, it is estimated that household incomes are expected to increase consumer spending to US$ 3.6 trillion by 2020. In rural India accounting for more than 700 million consumers and accounting for 50% of the total FMCG market, it dominated by unbranded, unpackaged, homemade products. The FMCG are more keenly observing emerging consumer trends and identifying new consumer segments and accordingly drawing up plans and strategies to capture market share.

Literature Review:

MahaboobBashaA,M (2016), The study conducted to know the behavior towards fast moving consumer goods in SPSR Nellore district of Andhra Pradesh. Identified that, creatingawareness about product and brand is very essential to grab the market opportunities. In other hand, availability of good quality of less price and brand loyalty will become competitive weapon to fight with competitor.

Vijayakumar K. and Nijanathan R (2019), They identified that, FMCG goods become part of the live hood of consumers. In fact, FMCG provides more option to consumers to consume product on daily basis. They identified that, Consumer nearly focus on quality and brand will influence the buying behavior of consumers. In order to keep competitiveadvantage, companies in position to create their customers and attracting new customers in other hand market should satisfy need and wants of customer.

Kajal Chatterjee, KrishneduAdhikary and Srimani Sen (2014), They identified the social and economic factors which influences the purchase intention of customers. of FMCG factors responsible, the companies comping up with new innovative plans to tackle the challenges due to intense completion towards brand loyalty, and expectations for htcustomers. They identified that, ISM and the Fuzzy MICMAC method which helps to recognize important FMCG factors for their requirements.

ShaikShamsuhuddin, T.Venkateswarulu and T HamiefuddinShaik (2020),EPRA International Journal of Economics, Business and Management Studies (EBMS), Vol 7, Issue 2, September 2020". They identified that, FMCG products generally include wide range of products like detergents, electronics, pharmaceuticals, beverages, cosmetic products etc. in this study, consumer awareness about Mosquito

Refill products increased and customers full aware of which products should buy and also they aware of where they get branded products.

Rakesh Dondapati and RabiyathulBasariya (2020), Now days, people are more conscious about environmental products, with the growing concern towards global warming, non-bio degradable solid waste, harmful impact of pollutants etc. Hence, Business and Government should work in this director towards development of more ecofriendly products to show more interest in developing eco-friendly products and make sure that products should not be too high.

Rubha C.N (2021), They identified that most of the consumer worry about quality of the shampoo and tooth paste, they worried about usage of chemicals in these products and pricesof these products are high. In fact, consumer are real kings, so they are not finding any difficulty in purchasing the products.

AsthaJoshi(2017), Conducted a study to examine customer taste towards various integrated markeing communication tools in FMCG sector. they identified,the growth of FMCG merely influences on availability of large variant of FMCG products and increasing awareness of these products. In order to sustain in this competitive, companies must prioritize IMC tools to make their products more popular.
Pragaibh Sharma (March 2020), they conducted a study to analyses the customer preferences about household of Patanjali Products in Mathura District. Data collected from 170 households and result analyzed. They identified, people will buy Patanjali Products because of Originality of products and quality of these products. In fact, the market is changing every now and again with the earth and the expanding rivalry around the globe which have intensified the job of the brand. They survey conducted to know the which of the format do you consider to make purchase?

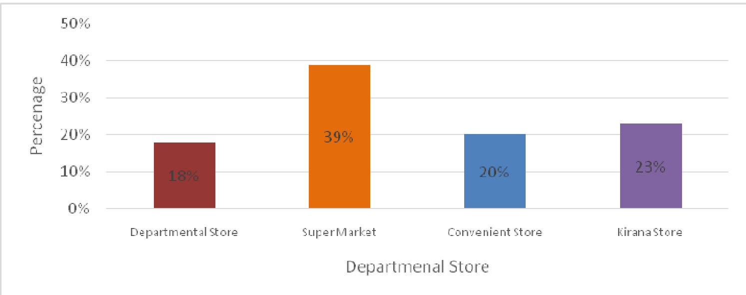
The following table shows the frequency percentage of respondents with respect to opinion towards consumer prefer to make purchase.

Table:1- Consumer Preference to make purchase

Stores	Percentage
Departmental Store	18%
Super Market	39%
Convenient Store	20%
Kirana Store	23%

Source: Compiled from Primary Source

Chart:1: - Consumer Preference to make purchase

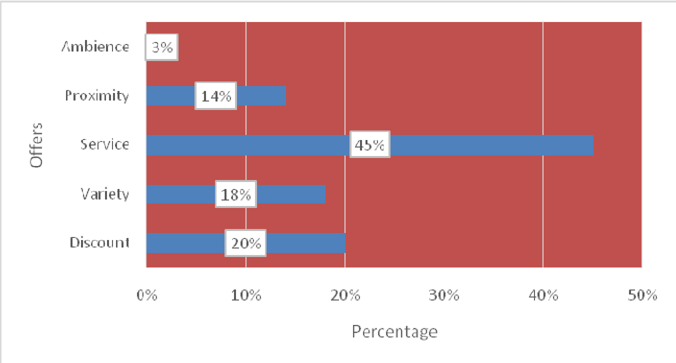


Source: Compiled from Primary Source

From the above table 1 and Chart 1, It clearly states that, the majority of consumers uses super market (39%) to purchase of FMCG goods, In other hand, 23 % preferred to use Kirana Stores to buy regular products and 20% of respondents uses Convenient Stores to buy goods and only 18 % of respondents use departmental stores to buy consumer goods. In another study is conducted to know the reason for making purchase in your preferred store. In this background, survey conducted and result presented in Table:2.

Table:2:-Reason for making purchase in your preferred store.

Chart:2:- Reason for making purchase in your preferred store.



Author's compiled

The above table and chart shows the 45% majority of respondents felt that they main reason for making purchase because of service offered by FMCG goods. Discount and Variety of products are other variable considered by respondents in selecting FMCG goods and very less percentage of respondents that is 3% considered Ambience is other factor consider by respondents in making purchase. The another study is conduced to know the reason for shifting of Brands.

Reason for Shifting of Brands

a) Survey conducted to know the perception of customer shifting of brands

From the survey it is clear that, 89 percent of respondents felt and agreed that they are looking after various schemes offered by FMCG and only very less percentage about 11% felt that, they are not looking after schemes. Then survey conducted to know, what type of schemes are respondents expected from FMCG. In this background, Survey analysis shows that

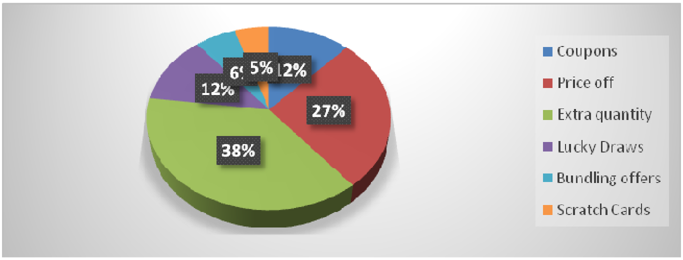
Table:3- Type of Schemes preferred by Respondents

Schemes	Percentage
Coupons	12%
Price off	27%
Extra quantity	38%
Lucky Draws	12%
Bundling offers	6%
Scratch Cards	5%

Author's compiled.

ISSN : 2278-9308
February, 2022

Chart:3- Type of Schemes preferred by Respondents



Author's compiled.

From the above chart it clear that majority of respondents looking for different schemes in the FMCG's product. In this background, following variables like Coupons, Price Off, Extra quantity, Lucky Draws, Bundling Offers and Scratch Cards considered for survey. From the survey it clear that, 38% of respondents felt that they need schemes like extra quantity, and 27% of respondents agreed that they want schemes like Price Off, and very less percentage of respondents prefer offer like Bundling offers (6%) and Scratch Cards (5%). In other hand, Survey conducted to know the reason for shifting of brand to another brand if they get some promotional schemes. In this background, survey conducted to know the reason for shifting brand to another brand while considering other variables like Cost, Quality, Satisfaction, More benefits and Seasonal Change.

Table:4; - The following benefits will derive by respondents

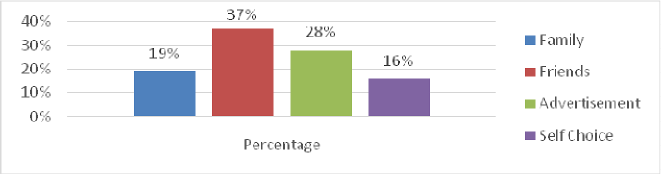
Benefits	Percentage
Cost	12%
Quality	40%
Satisfaction	33%
More Benefits	11%
Seasonal Change	4%

Authors compiled

From the above survey, it is clear that, majority of respondents shift from brand to another brand because they get extra quality it is agreed by 40% of respondents, and other reason for shifting is Satisfaction we derived from 33% and very less percentage of respondents felt and agreed that 4% respondents shift from brand to brand because of Seasonal Change. in this way, another survey conducted to know the who will influence brand change.

Chart showing the person who will influence respondents in making purchase in FMCG goods

Chart 4: Showing influence of respondents on purchase of FMCG goods



Author's compiled.

From the chart it is clear that , majority of respondents felt that, Friends will influences shifting of brands (37%), and 28% of respondents felt Advertisement will influences brand change and only 16% of respondents felt that Self choice is another reason for shift brand. In another study carried out to know which media will influence brand preference.

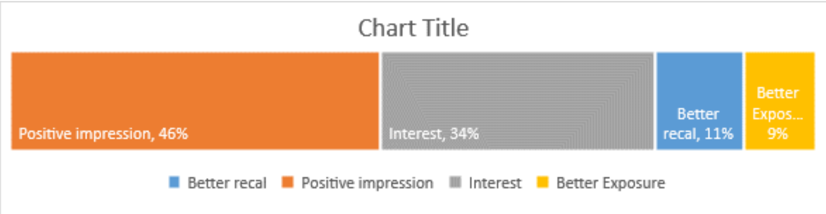
Table:5:- Shows the frequency of respondents which media influences brand preferences.

Media	Television	News papers	Pamphlets	Word of Mouth
Percentage	35%	21%	18%	26%

Author Compiled

From the above table it clears that 35 % of respondents felt and agreed that Television is the main media which influences brand preferences. And Newspapers (21%) which influences brand preferences and in the same way another main reason for brand preference is Word of Mouth (26%) and only 16% of respondents felt that Pamphlets which influences media.In other study is carried out to know the impression has influenced by respondents. The table shows the reason for Impression of advertisement on purchasing perception of respondents.

Chart:5:- Shows the impression of advertisement on purchasing perception of respondents



Authors compiled

From the above chart clearly shows that, the main reason for influencing brand preference is because it creates positive impression (46%) , Interest (34%), Better recall (11%) and Better Exposure (9%), will influences advertisements.

Conclusion:

FMCG sector is one of the fast moving sector, it gives high return and it felt one of the best investment option one can look it. In fact, it gives returns nearly 2.5 times to 4 times which compared to a bank deposits. There is very less risk in these sectors. It is clear from the study, that FMCG's sector is growing and will continue to grow very fast. The study on the consumer behavior towards the FMCG's product has received a pivotal position in the market. there are many competitors in the market, The FMCG's was able to maintain and hold its top rank providing quality product at reasonable price to consumer.

References:

1.AsthaJoshi(2017), "Consumer Perception towards Integrated Marketing Communication tools in FMCG sector", IJARIIE-ISSN(O)-2395-4396, Vol-3, Issue-1.

2.Basha, Mahaboob. (2016). A study on Consumer Behavior towards FMCG Goods an Empirical Study with Special Reference to SPSR Nellore District of Andhra Pradesh. 4. 289-295.

3.Kajal Chatterjee, KrishneduAdhikary, Srimani Sen ad SamarjitKar (2014)," Identification and Analysis of Factors Affecting Consumer Behavior in Fast Moving Consumer Goods Sector" Business Perspectives- (ISSN 0972 7612) National Institute of Technology, Durgapur, West Bengal, India, pp 2-17.

4.Pragaibh Sharma (March 2020), "Customer Preference and Perception for Patanjali Products with Special Reference to the Households in District-Mathura (UP) –India. International Journal of Scientific and Technology Research, Vol 9, Issue 3, March, ISSN 2277-8616, pp 171-175.

5.Rakesh Dondapati and RabiyathulBasariya (2020), Consumer Perception Towards Eco-Friendly FMCG products and Its influences on their purchase decision: An Observed Research", International

Journal of Innovative Technology and Exploring Engineering (IJITEE), ISSN: 2278-3075, Vol-9, Issue -2, December 2019, pp 1123-1128.
6.Rubha C.N (2021), "Consumer perception towards fast moving consumer goods", Aegaeum Journal", ISSN:0776-3808, Vol 9, Issue 2, page no 202-213,
7.ShaikShamsuhuddin, T.Venkateswarulu and T HamiefuddinShaik (2020), " A Study on consumer buying behavior towards FMCG's mosquito refill products with reference to selected district of state of Andhra Pradesh" ,
8.Vijayakumar K. and Nijanathan R (2019), "A Study on Consumer Buying behavior towards FMCG products with reference to Karur District", IJRAR- International Journal of Research and Analytical Reviews(IJRAR), E-ISSN 2348-1269, P-ISSN 2349-5138, Vol 6, Issue 1, Page no pp 265-270, February-2019.
www.euitymaster.com
9.www.ijariie.com
10. en.m.wikipedia.org
11. ibnlive.in.com

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Emerging Trends In Mobile Marketing

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The mobile phone is a small gadget that has had a huge impact on our day-to-day lives. Mobile is a portable wireless communication device. It has already had a profound impact on the way we communicate and conduct ourselves daily. This continues to be felt as the mobile phone enables new ways to market and new markets in which to transact.

Mobile phones are a developing technology, which means that new and better features are being packed into ever smaller devices, adding to the interactivity and search ability of the Internet with several fundamental features native to the mobile phone and the way we use it.

While the Internet and the personal computer have had a profound impact on the world we transact in, it is the mobile phone that presents an exciting opportunity for even more of the world to access the benefits of these inventions.

Features of Mobile Phone:-

1.The mobile phone is personal.
2. The mobile phone is always carried.
3. The mobile phone is always on.
4. The mobile phone has a built-in payment system.
5. The mobile phone is available at the point of creative inspiration.
6. The mobile phone can provide accurate audience measurements.
7. The mobile phone captures the social context of media consumption.

Mobile marketing is a multi-channel online marketing technique focused at reaching a specific audience on their Smartphone's, feature phones, tablets, or any other related devices through websites, E-mail, SMS and MMS, social media, or mobile applications. Mobile marketing can provide customers with time and location sensitive, personalized information that promotes goods, services, appointment reminders and ideas. Mobile marketing has a great scope as people spend maximum time on their mobile devices and hence to reach customers has become easy. Mobile marketing is the same with internet marketing where marketer needs a user for them to advertise their products and provide their services.

Mobile marketing is any advertising activity that promotes products and services via mobile devices, such as tablets and smart phones. It makes use of features of modern mobile technology, including location services, to tailor marketing campaigns based on an individual's location.Mobile marketing is a way in which technology can be used to create personalized promotion of goods or services to a user who is constantly connected to a network.Mobile marketing may include promotions sent through SMS text messaging, MMS multimedia messaging, through downloaded apps using push notifications, through in-app or in-game marketing, through mobile websites, or by using a mobile device to scan QR codes.Nowadays, Mobile marketing is one of the most necessary aspects of digital marketing. Multinational companies like eBay and Amazon extended their business to the mobile digital space by creating their application specifically for their line of business.

Features of Mobile Marketing : -

1) Large scale adoption and the versatility of smart mobile devices across the world
2) *Multi-way communication:* marketer to consumer, consumer to marketer, consumer to consumer communication along with interaction with the platforms serving these marketing campaigns to the customer

3) *24 × 7 availability:* mobile phone is normally switched on even while the target customer is sleeping or travelling hence ensures the delivery of marketing content anytime anywhere
4) *Marketing channels:* availability of multiple channels and tools for mobile marketing with the growth of smart phones with latest features and enhanced computing powers.
5) *Personalisation:* offers high potential for highly personalized and localized campaigns with better targeting due to effective use of analytics.

Mobile marketing is important because your customers treat their mobile phones like someone who is closer to them than their lovers, parents, or pets. Who wouldn't love mobile phones? Mobile phones now outnumber us. There are more mobile phones on the planet than humans. Mobile phones are the best devices for you in advertising your products. Mobile marketing makes businesses succeed faster than older forms of marketing.

Advantage of Mobile Marketing:-

1) Mobile marketing is much easier to access. You don't need high-level technology or significant technical experience to get started. It's also easier to measure the success of mobile marketing campaigns.
2) Mobile marketing offers a better value because the postage and printing costs of using traditional marketing channels are eliminated and therefore prices are very reasonable
3) Mobile marketing campaigns are simplified, flexible, and easy to execute because they are delivered to the potential recipients within seconds.
4) The mobile marketing messages can be easily shared by the customers who have already received them with other people
5) By using mobile marketing techniques, marketers can reach people all over the world because the delivery of marketing messages is almost always guaranteed, unlike the use of other forms of unsolicited direct marketing channels

Mobile marketing is ads that appear on mobile phones, tablets, and other mobile devices. Mobile marketing ad has various formats, style, and customization. It depends on the number of website, social media platform and mobiles apps that offer a unique and customizable mobile ad option.

Channels of Mobile Marketing :-

1) SMS\ MMS
2) Push notifications
3) Mobile Application
4) Bluetooth mobile marketing
5) Mobile Internet marketing
6) Application Marketing
7) Mobile Games
8) Barcodes/ QR Codes
9) E-Mail
10) Display Banners
11) Video
12) Social Media

Marketing through cell phones' SMS (Short Message Service) became increasingly popular in the early 2000s in India and some parts of Asia when businesses started to collect mobile phone numbers and send off wanted (or unwanted) content. On average, SMS messages have a 98% open rate and are read within 3 minutes and the response rate for SMS marketing, making them highly effective at reaching recipients quickly. It is the strategy where marketers send short text messages to their potential customers. Short messages still are the most popular mode of communication and also the majority of the mobile user immediately read all the messages that they receive. SMS marketing is popular both in large and small business because it is extremely expensive compared to other strategies. So SMS

ISSN : 2278-9308
February, 2022

marketing remains as the famous type of mobile. ACL Mobile Ltd., SMS Gateway Hub, SMS Gateway Centre, Txt Local, Tube light Communications, this is a Popular SMS providers in India

MMS mobile marketing can contain a timed slideshow of images, text, audio and video. This mobile content is delivered via MMS (Multimedia Message Service). Nearly all new phones produced with a colour screen are capable of sending and receiving standard MMS message. This strategy aims to create a better impression with the use of videos, sounds, and images. Comparing MMS marketing and SMS marketing, MMS is more expensive. Also some mobile phone isn't capable of receiving MMS messages. Push notifications were first introduced to smart phones by Apple with the Push Notification Service in 2009.

The Mobile marketing that utilizes the use of Bluetooth technology. Bluetooth allows a marketer to deliver free SMS, MMS to their potential buyers. So Bluetooth marketing is widely popular in places that are locally oriented with business.

Mobile Internet marketing is commonly known as mobile marketing. That involves the use of phones and World Wide Web. It is the classic web pop-out ads.

With the strong growth in the uses of smart phones, app usage has also greatly increased. The annual number of mobile app downloads over the last few years has exponentially grown. Therefore mobile marketers have increasingly taken advantage of Smartphone apps as a marketing resource.

In-game mobile marketing, there are essentially three major trends in mobile gaming right now: interactive real-time 3D games, massive multi-player games and social networking games. This means a trend towards more complex and more sophisticated, richer game play.

The popularity of mobile-based video platforms is increasing day by day. Display marketing involves the digital banners, which have resemblance to the traditional banners/poster for branding and awareness campaigns. Banners of various sizes are displayed on the popular mobile apps

Social media makes it easy to create a personal connection with your customers via comments and messages. And you can make your business more appealing with customer referrals and recommendations. Many Smartphone owners use them to access social media. Pew Internet shows that globally, Facebook and WhatsApp are hugely popular, used by 62% and 47% of people respectively. So social media as one of your main mobile marketing strategies

References :-

1) Mobile Advertising The Indian Perspective – Pradeep Nair and Harsh Mishra - Nov. 2014
2) Mobile marketing : A Contemporary Strategic Perspective : Demetris Vrontis and Alkis Thrassou - Jan 2014
3) Mobile marketing campaigns : Practices, Challenges and Opportunities.-Vikas Kumar and Saurbh Mittal –Jan 2020
4) Ramya.L, Kartheeswaran (2019), Future of digital marketing in 2020. Deekshith, Kinslin.D (2016), A study on digital marketing and its impact.
5) Digital Marketing Trends – Naim Preniqi and Kaltrina sylaj –Oct 2020
6) Emerging Trends in Digital Marketing in India – M.K.Ganeshan and Dr. C. Vethirajan –Feb 2020
7) Mobile Marketing Association website www.mmaglobal.com
8) www.digitaldeepak.com
9) www.infocubic.co.jp
10) www.digitalvidya.com
11) www.smcventure.com
12) www.researchgate.net.
13) Shankar,Ravi(1998),Marketing on the Net,(Dissertation),Banaras Hindu University,Varanasi, India.
14) Pratik Dholakiya (14 April 2015). "3 Digital Marketing Channels That Work for Every Advertiser"
15) "4 Important Digital Marketing Channels You Should Know About". Digital Doughnut. Retrieved 17 October 2015

Phytochemical Investigation and Pharmacological Properties of Ficus racemosa Linn. - A Review

R. P. Rahate[1], Dr. D. S. Hedaoo[2]

ABSTRACT:

Ficus racemosa Linn. (Family; Moraceae) a large ephemeral tree spread all over India which is generally known as Gular in hindi, Gular fig, Cluster fig or Country fig. It is famous plant used as medicinal purpose in India for various disorders treatment. Different parts (stem, root, leaves, fruit, seeds, latex and even whole plant) of Ficus Racemosa showed a number of pharmacological actions like hypoglycemic, hypolipidemic, renal anti-carcinogenic, anti-diuretic, anti-tussive, hepatoprotective, radio protective, anti-ulcer, anti-inflammatory, anti-diarrhoel and anti-fungal. β-sitosterol, glauanol acetate. The extract of fruit is used in diabetes, leucoderma and menorrhagia also relieve inflammation of skin wounds, lymphadenitis, in sprains and fibrosis. The goal of this review article is to identify the biological activity of the different parts of an indigenous medicinal plant, viz., Ficus racemosa (Family: Moraceae). Also study the possible phytochemical and pharmacological profiles of extracts. This mini-review also gives idea of insights on Ficus's phytochemical compounds and their importance as medicinal properties.

Keywords:

Ficus racemosa Linn., Moraceae, Cluster Fig, Goolar Fig, Traditional medicine, Phytoconstituents , Biological Activity, Pharmacology.

Introduction:

For medicines plants are one of the most valuable sources, because of its great remedial potentials and wide occurrence in India the practitioners of traditional systems of medicine have been using Ficus Racemosa L. Indian scientists and researchers have doing several studied on the pharmacological effects of extracts of various parts of gular plant by using ethanolic, methanolic and aqueous solvent extraction[1-6]. On the basis of this pharmacological studies and their different compounds scientist use this plant for different diseases[7-9].

Ficus racemosa is known by different name as.

Bengali: Dumur, Hpak-Lu, Jagyadumbar, Mayen, Taung Tha Phan, Thapan, Ye Thapan. Kannada: Alhi, Atthimara, Atti Malayalam: Athi (Kerala), Athiathial, Atthi. Marathi: Audumbar, Umb Nepalese: Dumrii. Oriya: Dimri. Sanskrit: Gular,Hemadugdhaka, Jantuphala, Sadaphalah, Udumbar, Udumbara,Udumbarah, Assamese : Jagna Dimaru Thai : Ma-Duer Uthumphon, Ma-Duer Chumphon Vietnamesesung: ʃuŋ, suŋ

Chinese: Ju Guo Rong Introduction

Taxonomy

Kingdom : Plantae
Division : Magnoliophyta
Class : Magnolipsida
Order : Urticales
Family : Moraceae
Genus : Ficus
Species : racemosa
Synonym : F. glomerata Roxb.

It is the holy tree of Hindus and Buddihists and one of the four trees that constitute the group "Nalpamaram"(Classification of medicinal plants based on Ayurvedic formulations). All the parts of this plants are established for medicinal uses. Height of tree is medium tall, growing 10-16 meters in height[11-13]. The dark green leaf provides a good shade. Bark of the tree is reddish grey. The leaves are dark green, 7.5-10 cm long, ovate or elliptic, in large clusters from old nodes of main trunk[13-15]. The seeds are very small, innumerable, grain-like. Roots of F. racemosa are long, brownish in colour. It's having characteristic odour and slightly bitter in taste. The shapes of roots are irregular[15-18]. The fruits is similar to figs and look green when raw, then turn to orange, dull reddish or dark crimson on ripening. Size of fruit of Ficus Racemosa Linn is 3/4 inch to 2 inches long, circular and grows directly on the trunk[19-21]. Roots are useful in dysentery, hydrophobia, Diabetes. Roots sap clears heat stroke, chronic wounds & malaria in cattle. The latex of roots is applied on affected areas of cuts and muscle pains. A fluid which is yielded by incision in the root is given as a tonic by native doctors[21-23]. Recently antioxidant properties of roots are proven. The bark is astringent, antidiabetic, refrigerant and useful as a wash for wound, highly efficacious in threatened abortions and also recommended in uropathy. Powered leaves mixed with honey are given in vitiated conditions of pitta. A decoction of the leaves is good wash for wound and ulcers[25-27].

Tender fruits are used in vitiated conditions of pitta, diarrhea, dyspepsia, hemorrhages. The ripe fruits are astringent, stomachic, refrigerant and carminative also useful in menorrhagia andhaemoptysis[28-29]. The latex is aphrodisiac and is administered in haemorrhoids , diarrhea. Gum is used for the treatment of acidity [31].

Phytochemistry :

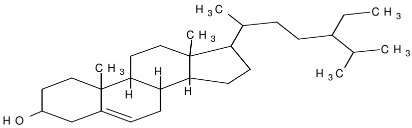
Very few work on phytochemical has been done on Ficus recemosa. The separation and purification of chemicals from different parts of plant is carried out by using different chromatographic techniques, paper chromatography, thin layer chromatography, gas liquid chromatographic technique, high pressure liquid chromatography, column chromatography and high performance thin layer chromatographic technique[11-15]. The choice of technique depends upon property and volatility of compound to be identified or separated. Extraction from plants also done by different methods like fractional distillation, simple extraction by using separating funnel and by using Soxhlet apparatus[15-18].

The fruits were shed dried for two days at room temperature. Then powder of dried fruits were made by grinding. Given powder is taken and refluxed and extracted by using soxhlet extraction apparatus using different solvents for 24 hrs[29-33]. The solvent portion was transferred in rota-vapor and extract occurs which was dark brownish green. The percentage yield of extracts was 5%. Ethanolic extracts were prepared in 2% gum acacia solution for oral administration[31-34].

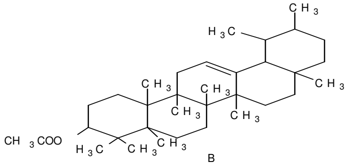
From different parts of F. racemosa several extracts by using water and organic solvents were identified for blood sugar lowering activity in streptozotocin-induced diabetic rats [35-36]. Stem bark extract from petroleum ether significantly reduced the blood sugar level. The pet. ether extract of the stem bark completely inhibited the enzyme glucose-6-phosphate dehydrogenase from rat liver[35]. However, only glucose 6- phosphate but not arginase extract from fruits and latex inhibited from rat liver [36].

Ethanol extract from fruits showed antioxidant activity in DPPH free radical scavenging assay. 3-O-(E)-Caffeoyl quinate showed significant antioxidant activity[31-34]. Fruit contains glauanol, hentriacontane,β sitosterol, glauanolacetate, glucose, tiglic acid (E), esters of taraxasterol, lupeol acetate (D), friedelin (F), higherhydrocarbons and other phytosterol. The stem bark shows the presence of two; Leucyanidin-3-O-β- glucopyranosides, leucoperalogonidin 3-O-α-L-rhamnopyranoside, β-sitosterol, unidentified long chain ketone, lupeol, its acetate, α-amyrin acetate. A new tetracyclic triterpene, glauanol acetate which is characterized as 13 α, 14 β, 17 βH, 20- α H-lanosta-8, 22-diene 3- β – acetate and racemosic acid were isolated from leaves [32-34] . Stem contains hentriacontane, campesterol, kaempferol, stigmasterol, methyl ellagic acid. Root contains cycloartenol, euphorbol and its hexacosanoate, taraxerone, tinyatoxin; Bark euphorbol and its hexacosanate, ingenol and its triacetate, taraxerone [35-39].

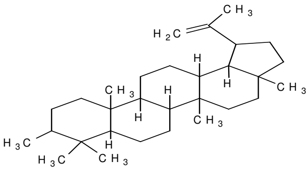
The stem bark of Ficus racemosa Linn contains tannin, wax, saponin gluanol acetate, β-sitosterol (A), leucocyanidin- 3–O– β– D - glucopyrancoside, leucopelargonidin – 3 – O – β – D - glucopyranoside, leucopelargonidin – 3 – O – α – L - rhamnopyranoside, lupeol (C), ceryl behenate, lupeol acetate, α-amyrin acetate(B), leucoanthocyanidin and leucoanthocyanin from trunk bark lupeol, β-sitosterol and stigmasterol were isolated [40]. Fruit contains glauanol, hentriacontane,β sitosterol, glauanolacetate, glucose, tiglic acid (E), esters of taraxasterol, lupeol acetate (D), friedelin (F), higherhydrocarbons and other phytosterol [41]. Structures of some extracts are given below.



A



B



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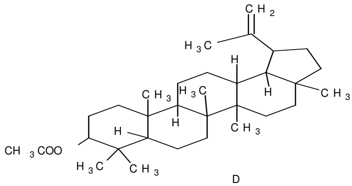
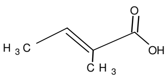
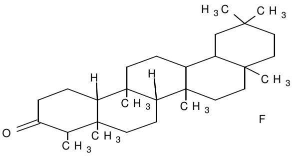


D



E



F

PHARMACOLOGICAL ACTIVITIES:

Antidiuretic: The bouillon of the bark of F. racemose is declare as an antidiuretic activity and its power is study on rats using three doses (250, 500 or 1000 mg/kg). It had a rapid onset (within 1 h), peaked at 3 h and lasted throughout the study period (5 h) [21-23].

Antitussive: The extract from methanol of stem bark was evaluate for its antitussive potential against a cough induced model by sulphur dioxide gas in mice. The extract contain maximum inhibition of 56.9% at a dose of 200 mg/kg (p.o.) 90 min after administration [24-26] .

Anthelmintic: Anthelmintic activity shown by crude extracts of bark were evaluated for using adult earthworms; they exhibited a dose - dependent inhibition of spontaneous motility (paralysis). Antibacterial: Leaves contain hydro alcoholic extract was found effective against Actinomyces vicosus. The MIC was found to be 0.08mg/ml^{-3} [27-31].

Antifungal activity: The extract of of Ficus racemosa leaves by using 50% methylene dichloride in hexane flash column fraction was found to have antifungal activity [33-37]. The extract inhibited the growth of several plant pathogens (Alternaria sp , Curvularia sp, Colletotrichum gloeosporioides, , Corynespora cassiicola and Fusarium sp). Active compound Psoralen was identified and was shown to be biodegradable, having the ability to developed as a fungicide against pathogens causing diseases on crops of economic importance [39-44].

Anti bacterial activity: For antibacterial activity different extracts of leaves were tested potential against Escherichia coli, Bacilus pumitis, Bacillus subtilis, Pseudomonas aureus. Out of all extracts tested, petroleum ether extract was the most effective extract against the tested microorganis[45-46].

Antipyretic: The methanol extract of stem bark was assess on normal body temperature and yeast induced pyrexia in albino rats at the dose of 100. 200 and 300mg/kg p.o. This extract shows the significant dose dependent reduction in normal body temperature and yeast provoked elevated temperature which extended to 5th after drug[46-49].

Conclusion:

From all these findings it was prove that the extract from different part of ficus species has a greater effect against microbes, worms and renal carcinoma in rat compared with the standard drugs. Ficus Racemosa Linn (Family-Moraceace) is very important in various diseases. Ficus Racemosa Linn shows the many pharmacological activities such as antidiuretic, anti-tussive, gastroprotective, anti-ulcer antifertility etc. The use of Ficus Racemosa Linn is very ancient. It is strongly believed that detailed information as presented in this review on various therapeutic actions of the constituents might provide detailed evidence for the use of this plant in different medicines. Further investigations should be conducted to isolate and characterize the active components of these ficus species.

References:

1. Deep, P., Singh, K. A., Ansari, M. T., & Raghav, P. (2013. *International Journal of Pharmaceutical Sciences Review and Research*, *22*(1), 29-34.
2. Chaware, G. K., Kumar, V., Kumar, S., & Kumar, P. (2020). *International Journal of Fruit Science*, *20*(sup2), S969-S986.
3. Murti, K., & Kumar, U. (2012). *Asian Pacific journal of tropical biomedicine*, *2*(4), 276-280.
4. Krishna Murti; Upendra Kumar (2012). *Enhancement of wound healing with roots of Ficus racemosa L. in albino rats. , 2(4), 0–280.* doi:10.1016/s2221-1691(12)60022-7
5. Bhalerao, S. A., Verma, D. R., Teli, N. C., Didwana, V. S., & Thakur, S. S. (2014). *Journal of Applicable Chemistry*, *3*(4), 1423-1431.
6. Hossain, M. S., Sayeed, M. A., & Uddin, M. N. (2014). *Journal of Scientific and Innovative Research*, *3*(4), 446-449.
7. Jain, R., Rawat, S., & Jain, S. C. (2013). Phytochemicals and antioxidant evaluation of Ficus racemosa root bark. *Journal of Pharmacy Research*, *6*(6), 615-619.
8. Shah, S. K., Garg, G., Jhade, D., & Pandey, H. (2c16). *Journal of Pharmaceutical Sciences and Research*, *8*(5), 317.
9. Dubey, P. K., Yaduwanshi, P., & Gouttam, V. (2018). *World Journal of Pharmaceutical Research*, *7*(12), 325-341.
10. Rao RB, Murugesan T, Sinha S, Saha BP, Pal M and Mandal SC, Phytother. Res., 2002, 16 , 590.
11. Kumar, A., Mishra, A., Mishra, A. K., & Singh, H. (2019). *Oriental Pharmacy and Experimental Medicine*, *19*(1), 59-69.
12. Mandal, S. C., Maity, T. K., Das, J., Saba, B. P., & Pal, M. (2000). *Journal of ethnopharmacology*, *72*(1-2), 87-92.
13. Murugesu, S., Selamat, J., & Perumal, V. (2021). *Plants*, *10*(12), 2749.
14. Suvarna, S., Rao Priya, S., Jadhav, R. S., & Dukare, T. P. (2019). A PHARMACOLOGICAL REVIEW ON FICUS RACEMOSA.
15. Mohiuddin, A. K., & Lia, S. A. (2020). *Op Acc J Bio Sci & Res*, *4*(1).
16. Ahmed, F., & Urooj, A. (2010). *Pharmaceutical biology*, *48*(6), 672-681.
17. MUDHAFAR, M., ALSAILAWI, H., ABDULRASOOL, M., JAWAD, R. K. M., & MAYS, A. (2021). *International Journal of Chemistry Research*, 7-18
18. Lavanya, A., Reddy, B. M., & Neeharika, V. EVALUATION OF FICUS RACEMOSA LEAF FOR **Wound Healing Activity.**
19. Mate, G. S., Nawale, R. B., & Wakure, B. S. (2019). *International Journal of Bio-Pharma*

Research, *8*(5), 2587-2592.
20.Kumar, C. P., & Sachin, J. (2013). *International Journal of Pharmaceutical Sciences Review and Research*, *20*(2), 101-106.
21. Murti, K., Kumar, U., Lambole, V., PB, S., & AP, M. (2010). *Pharmacologyonline*, *2*, 802-807.
22. Goyal, P. K., & Jain, R. (2012). *J. Pharm. Res*, *5*, 4074-4075.
23. Rao RB, Murugesan T, Sinha S, Saha BP, Pal M and Mandal SC, Phytother. Res., 2002, 16 , 590.
24. Chopra RN, Chopra IC and Varma BS, Supplement to Glossary of Indian Medicinal plants, reprinted edition,CSIR, NewDelhi, , pp.29,(1992).
25. Anonymous, the wealth of India , raw material s, council of scientific and in dustrial research, New Delhi, vol IV 35- 36 (1952)
26. Chopra RN, Nayar SL, Chopra IC, Glossary of Indian M edicinal Plants, CSIR: New Delhi. 1986, 119-120.
27. Prabhakar YS, Suresh KD, A survey of cardio-active drug formulations from Ayurveda II: porridges, oils, clarified butters, elect uaries, past es, ash preparations and calcined pow ders, Fitoterapia, 61, 1990, 395-416.
28. Vedavat hy S, Rao DN, Herbal folk medicine of Tirumala and Tirupati region of chittoor. District, Ant hra Pradesh, Fit oterapia, 66, 1995, 167-171.
29. Bheemachari J, Ashok K, Joshi NH, Suresh DK, Gupta VRM , Acta Pharmaceutica Sciencia, 49, 2007, 133 -138.
30. Nadkarni AK. Indian M ateria M edica, 3rd ed., 1954, 2571-2575.
31. Husain A, Virmani OP, Popli SP, Misra LN, Gupta MM, Srivastava GN, Abraham Z & Singh AK. Dictionary of Indian Medicinal Plants, CIMAP, Lucknow, India.1992, 546.
32. Suresh C, Jawakhar L and Sabir M, J Indian Chem Soc, 56 (12), 1979, 1269-1270.
33. Deva raj KB, Gowda LR and Prakash V, An unusual thermostable aspartic protease from the latex of Ficus racemosa, phytochemistry, 69(3), 2008, 647-655.
34. Sophia D, Manoharan S. Hypolipidemic activities of Ficus racemosa linn. African J Traditional Complement Med 2007; 4:279-288.
35. Channabasavaraj KP, Badami S, Bhojraj S. J Nat Med 2008;62:379-383.
36. Shrivastava PN, Mishra GS and Shukla YN, Proc at Acad Sci Ind, Sec A, 1977, 47(1), 1-3.
37. Padmaa MP, Phytochemicals in Ficus recemosa, at Pro Rad., Vol. 8(1), 2009; pp.84-90
38. Patel SM , Vasavada SA, Bull M edico Et hnobotany Res, 6, 1985, 17-27.
39. Rao CHV, Verma AR, Vijay KM , Rast ogi S, J Ethnopharmacol 115, 2008, 323-326.
40. Husain A, Virmani OP, Popli SP, M isra LN, Gupta M M , Srivastava GN, Abraham Z, Singh AK. Dictionary of Indian M edicinal Plants, CIM AP, Lucknow, India, 1992, 546.
41. Suresh C, Jawakhar L, Sabir M , J Indian Chem Soc, 56(12), 1979, 1269-1270
42. Jahan IA, Nahar N, Mosihuzzaman M, et al. Nat Prod Res 2008;23:399-408.
43. Mandal SC, Mukherjee PK, Saha K, Das J, Pal M and Saha BP, Nat. Prod. Sci., 1997, 3 38.
44. Rehman NN, Khan M and Hasan R, Pure Appl. Chem., 1994, 66 , 2287.
45. Shrotri DS and Aiman R, Indian J. Med. Res., 1960, 48, 162. 46. Gupta SS, Indian J. Physiol. Pharmacol., 1964, 8, 37.
47. Jain SR and Sharma SN, Hypoglycaemic drugs of Indian indigenous origin Planta Med., 1967, 15, 439.
48. Singh AK, Choudhri R and Manohar SJ, Conf. Pharmacol. Symp. Herbal Drugs, 1991,15, 13.
49. Baslas RK and Agha R, Himalayan Chem. Pharm. Bull., 1985, 2, 13.

B.Aadhar' International Peer-Reviewed Indexed Research Journal

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308

February, 2022

Role of Make in India in Industry Development

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Introduction :

The industry sector does not seem to be evolving due to the pace of service sector being developed in India . So the problem of unemployment and poverty continues . Industry sector is an area where development of agriculture and services helps in spontaneous development . In the last few decades, the industry sector has had a large share of gross domestic product . In 1979, India adopted a new monetary policy . The main focus of this fiscal policy was the rapid development of the manufacturing sector . Efforts were made from the Second Five Year Plan to stimulate the industrial sector .

Industry sector has a significant share in the economic development of any country . Over the past few years, many developed countries of the world have been hit by economic slowdown . China is no exception to that . All the countries appear to be struggling to get out of the economic recession, but most importantly, this economic recession has not had much effect on India . India's growth rate in the period 3 to 5 is 5 to 9 . 5 % if the ten years from 2004 to 2014 an average of 7 to 8 % was . It was meant to be distributed to the entire society, but it did not .True development depends only on how rapidly the growth rate reaches the lower levels of society . Considering the increasing unemployment and poverty reduction in India, there is no alternative to industrial development to overcome it .

With the adoption of a new economic policy by India, the growth rate has been steadily increasing . But while the importance of agriculture was decreasing at one time, it did not happen at the pace at which the industrial sector was supposed to develop . In countries like India, if there is an increase in the labor-intensive manufacturing sector, the unskilled workers will be able to get huge employment . Prime Minister Narendra Modi introduced the concept of ' Make in India ' to promote integrated industrialization . The topic of this dissertation is selected to understand the nature of the concept of Make in India and to study its applicability .

- **Objectives of the dissertation**

1. Analyze the industrial status of India and realize the importance of industrialization.
2. To overcome the obstacles in the development of industrialization .
3. To understand the nature of the concept of Make in India .
4. To practice the concept of Make in India .

- **Dissertation assumptions -**

India's industrial sector has the highest employment potential . However, it does not appear to be expected to invest in the industry sector as compared to other countries . Entrepreneurs are not convinced that their investment will be profitable, which is why the government needs to try and change policy to eliminate the pessimistic environment in the industry .

- **Research Methods -**

Since the concept of Make in India has been delayed for a year, only secondary sources have been used for the research paper presented . The proposed make in India the concept , various magazine articles , Lok Sabha and Rajya Sabha discussion , bibliography , according to economists , newspaper is the basis of the news .

- **Background and Requirements of Make in India -**

Unemployment has not diminished as the service sector has evolved in India . Considering India's population, the majority of citizens fall into this category of efficient - productive . The role of the industry sector in India is of paramount importance for the proper utilization of this age group and their participation in economic development . With the development of industries, India will contribute to self-sufficiency and employment growth . A part of the ' Make In India ' Yes .

About the Phase II development process and the second one tappyatuna #nd is that tappyatuna the third stage . It is considered as a sequence of development from primary sector to second sector and second sector to third sector . As development progresses, the importance of agriculture decreases as the importance of agriculture decreases, and eventually the importance of industries decreases as the importance of the service sector increases and unemployment and poverty decline . Similar experiences have been experienced by developed countries around the world . But India had a different experience . In the years after independence, the contribution of agriculture sector to the economy was highest . Agriculture's share of gross domestic product was 6 % higher . The industry sector contributes 20 % and the share of the service sector, 30 % was . However, the scale of shifting of additional workers related to the agricultural sector to the agricultural sector was very slow .

After 1949, however, the regional distribution changed dramatically . While the share of the gross domestic product of agriculture was decreasing, the share of service sector increased more rapidly than the share of industry . The development of the service sector is very different from that of other industrialized countries of India except for the industrial phase of the Kahaj . The growth of the industrial sector has not accelerated as it should . Sthula domestic production of industrial sector in the last five decades, he has not changed much during the 16 to 26 % was the limit . However, the share of the service sector reached 5 % .

1.The first stage - the second Five-Year Plan (1, 9, 56 - 61) MAHALANOBIS pattern 1 9 65 - Industrial utpadanacatvaranaca period
2. Phase II - 1969 to 1979 - Industrial landing period
3 . Phase Three - 1969 to 1979 - Revival Period
4 . The fourth stage - 4 to 4 % growth rate of 19 to 4 years
5 . Fifth Stage - Period 2 After a very disappointing period, the growth rate of the industrial sector is only 2 . 5 % left .

The industry sector in India is the region with the potential to become a transformative sector for high growth . Make in India is a strategic initiative to transform India into a global mass production center . This initiative has been launched to encourage the creation of new products, especially in the field of industry .

- **Barriers to industrialization -**

There are several reasons why the industrial sector in India has not developed much . Following are some of the major reasons .

1. Strict rules and regulations - There are many rules to be followed for establishing businesses in India . There are many rules and regulations for land acquisition , resettlement , environment and other compliance . Due to lack of transparency in the business, foreign investors do not come to India .
2. Different licenses - It takes a long time for different types of licenses to start a new business . This creates a situation where there are no licenses and no industry .
3. Lack of marketing skills - Lack of marketing skills, but actually lack of marketing skills . Indians can be made but not sold .
4. Lack of exportable quality - We are lacking in the production and quality of goods and services that can compete in global competition . The competition power of Indians is very low .
5. Lack of infrastructure - Regular electricity supply , abundant water supply , good roads , affordable - abundant capital , market and communication facilities have not yet been successful .
6. Closed Projects - In the past few years, many industries have closed down . Some of the steel , cement and processing industries are suspended . Specially closed industries include the public and cooperative sectors .

7. Lack of transparency - In this way, there is no need for foreign investment in India because there is so much money in India that it is not fully invested . There are companies that do not invest in India despite the profits because there is no such environment in India . The question of why Indians are not investing in India but why foreigners will do it is easy to make a deal, but actual implementation is difficult .
8. Industrial Dispute - The development of the industry sector depends on the relationship of many entrepreneurs and workers . However, due to the conflict between entrepreneurs and workers, many well-known industries have either closed down or migrated elsewhere .
9.Lack of skilled manpower - Only 1 in 3 to 3 years . 8 crore employment was available but during this period GDP was 5 % which means that while GDP was rising, there was no increase in employment . If unemployment was assigned to another #nd is ready manusayabalaci state that the lack of hand .
10. Raw materials and growing up to learn the #nd Prices - industry sector is essential for the development of kaccamala goods . Likewise, there should be space available for setting up industries, but in India, the cost of raw materials and space is constantly increasing .
Make in India was announced to overcome all the above problems and revitalize the industry sector .

- **Make in India a nourishing environment -**

Until now, India's focus was on the market-oriented service sector, but over the years, the industry has seen a decline . Three - four years of industry growth with 0 . Because of the disappointing situation in the manufacturing sector due to the 5 % , we have decided to implement the ' Make in Idea ' concept to attract attention to the business sector and increase employment . Because India has a nourishing environment that will boost Make in India . The three major side of the world number two's population , 63 % grow rate higher than productive population and the demand for consumer class features with India is the only country . Therefore, India can become a super power in the industrial sector . Overall

- **Forms of Make in India -**

Make in India is a strategic decision taken by India to strengthen the global production sector and create a nurturing environment for them by promoting industries . Increasing global participation , stimulating industries and investment limits and controls for high value industrial sectors have been relaxed . The effort is to remove the rules that attract the maximum investment and hinder investment .

- **Logo -**

The lion rupees industry has taken the logo for Make in India . The lion is a symbol of power and is used as a symbol of power and industry . Lion walk or fright is a friendship . Make in India is not a national slogan but a national movement . As D ù the same made in China, India introduced ganane Singh This will create a new identity . Prime Minister Narendra Modi keeping in mind the above 15th ù Gust and attract foreign investment in India's Independence Day 2014 to bring the world's production center at emerging countries ' Make In India ' This ambitious plan was announced by the Red Fort . September 2014 in VigyanBhawan, New Delhi, India udyogapatamjagavinya to believe in the corporate è did not appeal to investment in India .

New technology and modernity will be encouraged to strengthen India's financial position . In India, the mark of India will be ' Made in India ' on the pockets of such goods, by producing the highest quality and necessary goods in India . This will be possible only when such goods are manufactured in India . The name of the country where the object is made is thrown on it . The ' Made in China ' rather than ' Made in India ' will get to see . If this happens, the biggest benefit will be the reduction in the prices of related goods . But if the form of the export of objects of construction in the country are engaged in the #nd will increase income . A provision of Rs 29 crore has been made for Make in India . The government plans to give 20 complete plan easily the 581 million , is to complain to spend 000 million .

- **The main purpose of the Make in India scheme -**

1. Increasing job creation capacity
2. Emphasis on skill development program
3. Eliminating unnecessary laws and regulations .
4. One having ù Licensing nalaina through the portal .
5. Make India a global manufacturing hub .
6. Provide infrastructure for the industry .
7. Encourage and encourage them in entrepreneurship .
8. Maintain high quality and quality and keep an eye on the impact on the environment .

- **Provisions in Make in India -**

While the importance of agriculture in India is declining at one time, the industry sector has not grown at the pace it should have been . In countries like India, if there is an increase in the labor-intensive manufacturing sector, the unskilled workers will be able to get huge employment . The concept of ' Make in India ' was introduced to promote integrated industrialization . Various provisions have been made to increase investment in India .

1. Relaxation in the rules
2. Easy licensing
3. Smart Cities
4. Creating a Global Market
5. Industrial corridor
6. National Skills Mission
7. Promotion of traditional crafts
8. Promoting Foreign Investment
9. Promotion of Sustainable
10. Small and Medium Enterprises
11. Guide to New Entrepreneurs

- **Problems or challenges**

1. Land Acquisition Disputes - Difficult to process
2. Improvement in the functioning of various state governments
3. Lack of infrastructure in many states
4. There is no concrete decision on reforming labor law
5. Tax rates should be stable
6. Lack of skilled manpower - skills development required
7. Emphasis on quality
8. Innovation needs to be emphasized
9. Need to reduce the fiscal deficit
10. Social environment needs change
11. The global economy is hit hard - the economic downturn
12. Small businesses need to be linked to larger businesses

The ambition is that this initiative will maintain high quality and quality and will have little impact on the environment .

- **Summary -**

The results of any decision will not appear overnight or in one year . It will take some time . If India wants to compete with China, a policy that emphasizes only the manufacturing sector cannot be implemented . For this, we need to first understand the differences between China and India as well . Although such a policy has been successful in China, the situation in India is completely different from that of China . The only policy that can be dangerous rabavane the production cinakaduna implemented learn and niryatabhimukha development does not require that the nakakala easily the policy . For this, India needs to focus on domestic demand and try to create a uniform market . Moreover, there is a need to encourage savings to increase investment in the country . B Reserve said the move cache former is expressed by the Governor RaghuramRajan . So that the global market will be supported by the producers if the demand goes down . Not only will it solve all the problems by increasing investment, but free trade policy is equally important . One can hardly hope that she will not live in Make in India .

- **Reference -**

१ . ChakravartyKasturi and Mishra Nitin (April 3) , ' Need for Make in India ', Planning Monthly Publishing , Mumbai .

२ . C. Veeramani (April 2) , ' India's participation in global production chain for Make in India ', Planning Monthly Publishing , Mumbai .

३ . Desai server . Shri . Mu . And BhaleraoNirmal (January 3) , 'The Indian Economy ', Nirali Publications , Pune .

४ . Mahesh Purohit (April 7) , ' Tax Reforms and Challenges for GST Future Reforms ', Planning Monthly , Pune .

५ . www . makeinindia . I am om

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Debt Disbursement and Deployment methods of Nationalized Banks and Customer Satisfaction

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Abstract:

The paper studies the loan performance of selected public banks. Last decade has witnessed many changes in the banking industry. In this study highlighted the effect of the loans and advances on the Customers. Banks mainly make profit from the difference of interest received and loans paid. Banks are performing the number of functions in addition to its two main functions lending and accepting deposits. Banks grant loans in order to satisfy the growing credit needs of the different sections of the society but since the Commercial banks are profit making Organization thus they have profit making dimension added to advances granted by them. In this paper we have focused on the movement of Loans of the public banking industry by analyzing the data from the year 2015 to 2020.

Keywords :
Term Loans, Cash Credit, Overdraft, Customer Satisfaction.

Data Collection Method Used for Research:

This research depends on secondary data like newspapers, books, magazines, reports, and websites.

Introduction:

Today's era is recognized as the age of competition. Banking Sector has also been witnessing stiff competition. Once the financial transactions only available in the four wall of banks are now available on mobile phones. Mode of Digitalization has been thoroughly been adopted in Banking sector. Every person becomes aware of banking concept in 21st century. Every individual, institution, trading companies, social organization etc, are seen conducting their financial transaction through banks. This has resulted in establishing the concept of Bank. In view to achieve overall development, every section of society should be put on the path of progress. And in this task, the banks have to play a crucial role. The Banking sectors have to facilitate capital required for utilizing available resources in the country. So, the role of the banks becomes indispensable. These banks serve as artilleries in human body which help to provide necessary nutrient for the growth. These banks have outreached to the rural parts.

Though banks in the present era achieve prominent position, these have had a long history, which got evolved over the span of centuries. Banks provides loan to different economical sectors in the country. Banks provides loan in the organized and the non-organized sector. The loan received from money lender, private sector banks and relatives are included in an unorganized type of loans while the loan received from the Nationalized Banks, Cooperative Banks and regional rural banks included in organized type of loan.

The banks have two basic functions to perform; firstly, to accept deposit and secondly to disburse loan. During the post liberalization period, there has been a huge demand for loan from each sector of the national economy. Right from industrialists, entrepreneurs, general customers and farmers are seeking loans from these financial institutions. The Reserve Bank of India appointed a committee chaired by Dr. Gorwala in 1951 to study the rural development. The committee published its report in 1954. It highlighted the need of the government participation to increase disbursement of loans in rural parts. Adopting the concept of Social Cell, the government had to nationalize the main commercial banks in the country. On July 19, 1969, 14 main Banks and on April 15, 1980 six commercial banks were nationalized. This denotes the prime position these banks occupy in Indian Economy.

Importance of the Research

Most of the parts of Vidarbha is rural. It is everybody's perception that villages should be self-sufficient. In this task, Government and Nationalized Bank could play a crucial role. They could give impetus to achieve development of the rural areas and provide employment and stop the flow of people from rural parts to the urban parts. But the picture in rural parts is still different. These areas are still deprived of progress. It is the responsibility of the government to provide basic facilities in rural parts. The Govt. should also provide easy loan to farmers and unemployed youth to start some lucrative work. The government implements different schemes to bring the flow of development and make the people economically self sufficient. With the government's initiation, different financial institutions have reached to rural parts and started distributing loans to farmers and youths to set up new entrepreneurship.

The present research would be important to study the role of the Banks in achieving development of villages and the loan Disbursement, utilization loan amount and problem faced by people during opting for loan.

Review of Literature

Review of research literature is a genuine attempt of avoid repetition in research by taking retrospect of publishing and unpublished literature on the relevant and coherent topics. It broadly covers topics of research, different concepts or ideas which would broaden the understanding of the chosen topic and help to interpret in proper light. It also helps to highlight the genuinely of the present research and its relevance and significance in the light of the earlier works.

Singla & Arora (2005).

Financial performansce of public sector banks: A comparative study of Canara bank and Indian bank. Punjab journal of Business studies, (1): 87-93/ Studied the comparative performance of Canara Bank and Indian Bank that both the banks have improved their financial performance during the study period where Canara Bank has an upper hand in growth of deposit, advances and average working funds. In case of productivity it is rising in both the banks but remained much higher in Canara Bank.

Swamy (2001).

New competition, Deregulation and emerging changes in Indian banking: An analysis of the comparative performance of different bank groups. Bank Quest—The journal of India institute of banking and finance, 72(3): 3-22 concludes that in many respects New Private Sector Banks are much better than Public Sector Banks, even they are better than foreign sector banks.

Pallavi Chavan and Leonardo Gambacorta

Bank lending and loan quality: the case of India, Bank for International Settlements 2016. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated. ISSN 1020-0959 (print) ISSN 1682-7678 (online).This paper analyses how non-performing loans (NPLs) of Indian banks behave through the cycle. We find that a one-percentage point increase in loan growth is associated with an increase in NPLs over total advances (NPL ratio) of 4.3 per cent in the long run with the response being higher during expansionary phases. Furthermore, NPL ratios of banks are found to be sensitive to the interest rate environment and the overall growth of the economy. Notwithstanding differences in management and governance structures, there is a procyclical risk-taking response to credit growth in the case of both public and private banks with private banks being more reactive to changes in interest rate and business cycle conditions.

Objectives of the Study:

- To study Financial Capacity of Nationalized Banks.
- To study the loan disbursement methodes adopted in Nationalized Banks.
- To study the different facilities provided to consumers by the Public Sector Banks

ISSN : 2278-9308
February, 2022

Types of Lending Schemes Offered by Pubic Banks

Indian Public Banks finances the working capital requirements of their customers. The main credits of financing in our country are Term Loans, Cash Credit, Overdrafts, and Loans Repayable on demand, bills purchased and discounted.

1. **Cash Credit**: It is the main source of lending by banks. Under this scheme bank Advances loans for a given period on the security of shares, debentures and movable and immovable properties. Generally, banks charges interest on the amount which has been withdrawn by the account holder. The main advantages of this facility are it encourages savings, allows easy payment and provides flexibility. The disadvantages are that it encourages speculation, creates monopolistic tendencies and create inflation pressure

2**. Overdraft**: When a bank allows its customers having current account to withdraw the amount more than the deposits in the account it is called Overdraft. The Overdrafts depends on the credit of the customers. Such facility is given for short term and emergency purposes. Banks requires security from the customer for such facility. Such facility is given on the current account only. The main advantage of overdrafts is that it provides flexibility and easy and quick arrangement of cash flows. The disadvantages are that it carries high cost and it need to be secured.

3. **Term Loans**: A Term Loan is a loan in which a borrower pays interest only for a set period. Term loans always mature between 1 to 10 years. The term loan is generally provided as working capital for acquiring income producing assets that generate the cash flows for epayment of the loan. They are the source of long term debt; they are generally obtained for financing large expansion, modernization. The advantages of term loans are that they are more flexible as compared to others; they usually have fixed interest rate. The disadvantages of term loans are that it carry repayment facility.

Conclusion:

After having studied the Loan Performance of the selected Public Banks, the following suggestions could improve the operational efficiency of the Public Banking Sector.

They are as follows:

• It was observed that the lending policies of the various Banks were not proper due to having improper financing.

• Banks should provide detailed information to the customer about their lending policy.

• Various Public Banks are not granting Loans outside India, so they could do so to Expand their business.

References:

1. State Bank of India, Central bank of India, Punjab National Bank, Bank of India, Bank of Maharashtra. 2015 – 2020 annual reports

2. Dhar, P. K (2008): Indian Economy.Its Growing Dimensions, Kalyani Publishers,Ansari Road, Daryaganj, New Delhi.

3.Vikkraman P. and Ganapathi R. (2011), Attitude of Customers towards the Services of Bankers Regarding Consumer Loans, Rai Management Journal, Volume No.8, Issue No.1, ISSN No: 0975-4326 PP:4-32

4.Versha Mehta, Alka Sharma (2005) Conducted the study on -Services quality perceptions in financial services-A case study of banking services-Journal of Services Research,Vol-4, No.- 2,Oct-March.

Websites:

www.idrbt.ac.in
https://en.wikipedia.org/wiki/Retail_banking
http://www.gktoday.in/blog/scheduled-commercial-banks-of-india/
https://en.wikipedia.org/wiki/Public_sector_banks_in_India

Dr. B. R. Ambedkar's Vision for Women Empowerment

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Abstract:

Dr. Bhimrao Ambedkar was a fighter for the dignity of women and depressed people and is known as champion of human rights. Being a pioneer of social justice, he always functioned for the empowerment of women. According to him, everybody should be treated equally irrespective of caste, creed, gender and religion. That is why he started work for the liberation of woman and their rights. His aim was to make a society based on social justice. He realized the gender inequality among the Indian society and raised his voice to include them in the modern society. Dr. Ambedkar has given equal status to women as men by providing many provisions in the Indian constitution, for strengthening and upliftment the position of women. This paper focuses on Dr. B. R. Ambedkar's thoughts and perceptions towards woman empowerment. The paper also analyzes the contribution of Dr. B. R. Ambedkar as a thinker and social reformer in the emancipation of social status of women in the society.

***IndexTerms* -** Rights, Awareness, Women education, Women empowerment.

1. INTRODUCTION

"We shall see better days soon and our progress will be greatly accelerated if male education is persuaded side by side with female education." – Dr. B.R Ambedkar

Empowerment refers to increasing the spiritual, political, social or economic strength of individuals and communities. Empowerment and autonomy of women and the improvement of their political, social, economic and health status is both a highly important end in itself and necessary for the achievement of sustainable human development.

The role played by Dr. Babasaheb Ambedkar, as chairperson of the Drafting Committee of the Constitution, has left imprint on the social tapestry of the country after independence, and shaped the socio-political fabric of the India today. It would have been a different India in a probability, a much more inequitable and unjust one without him. He attempted to forge India's moral and social foundations a new and tried hard for a political order of the constitutional democracy that is sensitive to disadvantaged, inherited from the past or engendered by prevailing social relations. Dr. Ambedkar had the highest academic credential for an Indian of his time, and his erudition and scholarship have been widely acknowledged. It is known to all Dr. B.R. Ambedkar is the father of the Indian Constitution. But after reading some books on his works and his vision towards India, it will be clear that he has a versatile genius as he was also a serious scholar, good teacher, efficient lawyer, devoted leader, committed writer, distinguished educationist, social rebel, powerful debater. He was an authoritative constitutionalist, an able administrator, liberal emancipator, master statesman, daring liberator of the downtrodden masses and a fearless fighter for human rights.

Dr. Babasaheb Bhimrao Ambedkar was born April 14, 1891 in Mhow, a city of military cantonment then Central Province India. His father, Ramji Sakpal Maloji was a Subedar in the army and her mother Bhimabai Sakpal was a housewife. Babasaheb belonged to the Mahar called lower caste who were treated as' untouchables'. But his father was an army officer was able to arrange a good education for their children, despite several resistances of the society. Ambedkar was treated as 'untouchable' in school with other children Dalits. They were not allowed to sit with other so-called upper-caste children, and were allowed to drink water from common water vessel. Ambedkar was very meritorious in studies and after completing his early education in Bombay moved to the United States for graduate studies and research; did his graduate and doctorate from Columbia University, New York. He also studied at the London School of Economics and completed master's and doctorate from there too.

2. Objectives, Methods And Materials

The present paper is an endeavour to highlight Dr. Ambedkar's views and works for women empowerment in pre and post independent India and the relevancy of his ideas in present social scenario of India. Secondary data have been collected from internet, news papers, published papers and books.

3. Analysis And Discussion

Gender equality, gender main streaming, networking, leaderships and financial freedom are the essential aspects of women empowerment. Dr. Ambedkar realized this at his time and included in the process of social reforms. The vision of Dr. Ambedkar about women is explicitly depicted in Indian Constitution. Equality of sexes is strongly backed by the constitution through articles 14, 15 and 16. The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. He laid down the foundation of social justice and there can be no social justice without gender equality. In his paper on *'Castes in India: their mechanism, genesis and development'*, Dr. Ambedkar described how women were treated cruelly by the way of *sati*, enforced widowhood and girl marriages just to maintain strict endogamy in a caste. The social evils regarding women in Hindu religion as well as in Muslim society were highlighted by him. As a researcher,

Dr. Ambedkar extensively studied the position of women in both the religion (and also in the other religions) and thrown light on denial of rights to her and ultimately the status of individual. He stated that the consequences of *purdah* system on Muslim women were that it deprives her of mental and moral nourishment. Dr. Ambedkar sought that Buddhism awards women, status equal to men and considered women capable of attaining spirituality. By adopting Buddhism, Dr. Ambedkar expelled in just for underprivileged segments including women and accepting the dignified equal status. Dr. Ambedkar denied worshiping Hindu deities, ultimately freed women from inhumane customs, rituals and superstitions and made the way for her liberation.

3.1. The Education for Women: Ambedkar's view

"The object of primary education is to see that every child that enters the portals of a primary school does leave it only at a stage when it becomes literate and continues to be literate throughout the rest of his life." – Dr. B.R. Ambedkar

Empowerment envelops developing and building capacities of individuals, communities to make them part of the main stream society. Education is the only mean by which societies grow out of oppression to democratic participation and involvement. It is a powerful tool for empowerment of individual.

Ambedkar identified two purposes of knowledge: first, to acquire it for betterment of others and secondly to use it for one's own betterment. Ambedkar has also argued against professional learning (The British Educational System) which aims at creating a clerical nature of workers. Ambedkar emphasized on secular education for social emancipation and freedom.

Education has the sole purpose to enlighten the depressed classes so as to enhance their cause of social, economic and political upliftment. The social and ethical philosophy of Ambedkar aimed at making the depressed people aware to change their thoughts and old behaviour-patterns and to move forward in the direction of unity and freedom through education. The basic theme of his philosophy of education was to inculcate the values of liberty, equality, fraternity, justice and moral character among the boys and girls of all religion, region, class and caste.

Ambedkar listed these three components as objectives for policy makers:

1. Recasting the aims and purposes of education,
2. Education as an instrument of substantive equality,
3. Women's education (Velaskar, 2012).

Dr Ambedkar considered education as an important tool for the emancipation of women. They were not allowed to take education with lower castes. It is evident from his speeches that that he had great concern for women empowerment. Addressing the Second All-India Depressed Classes Women's Conference held on 20 July 1942 at Nagpur, he said, "I measure the progress of community by the degree of progress which women have achieved. I shall tell you a few things which I think you should bear in mind. Learn to be clean; keep free from all vices. Give education to your children. Instil ambition in them. Inculcate on their minds that they are destined to be great. Remove from them all inferiority complexes."

In this way, Dr Ambedkar stressed on education for the progress of women and our country. With a deep faith in their emancipation, Ambedkar advised them: *'Give education to your children'*. He stresses the need of the cultivation of the mind and the spirit of self-help among men and women. He wants them to realize that they owe a great responsibility for educating their children in right way. But at the same time, he advised them: send your children to schools. To him, education is the most important factor for moulding the life of all men, women and children.

Ambedkar observes "Education is as necessary for females as it is for males. It you know how to read and write, there would be much progress. As you are, so your children will be mould their lives in virtuous way, for sons should be such as would make a mark in this world." He wanted to liberate women from their suffering and economic dependency. In order to give economic rights and freedom to women, Ambedkar demanded educational rights, equality and right to property for women. To educate women, he asked co-education for women with men. Through education, he believed, that women would think independently which will lead to their intellectual and mental development

3.2. Ambedkar and Women Rights and justice

Dr. B. R. Ambedkar's approach to women's right is exclusively different from other social reformers like Jyotiba Phule, Raja Ram Mohan Roy, Ishwar Chandra Vidyasagar and Mahatma Gandhi who tried to reform the Hindu society of certain outdated customs and practices without questioning the hierarchical social order. But Ambedkar made his own view for the women rights and that has been reflected in Indian constitution. His goal was to make a society based on social justice. To secure this goal, Ambedkar has given equal status to women on par with men by providing many provisions in the Indian constitution. To him, sexual discrimination should be root out from the society and everybody should get equal opportunity in the society. The Preamble of Indian constitution guarantees social and economic justice to women and that is because of Ambedkar contribution. In the preamble it is mentioned: (i) social, economic and political justice, (ii) freedom of thought, expression, belief, faith and worship, (iii) equality of status and opportunity and (iv) fraternity assuring dignity of the individual and national unity to all the citizens of India without any discrimination of caste, creed or sex.

Not only had he worked hard for untouchables but also for the betterment and progress of women also. Dr. Ambedkar criticized the traditional and conservative values. He strongly criticized the degradation of women in Indian society. He believed that women should be entitled to equal status with men and they must have right to education. He lamented that the Hindu religion had deprived women of the right to property. To ensure women's status Dr.Ambedkarhad also introduced an emancipatory bill (the Hindu code Bill) in Parliament which proposed mainly, to abolish different marriage systems prevalent among Hindus and to establish monogamy as the only legal system, conferment of right to property and adoption on women, restitution of conjugal rights and judicial separation; attempts to unify the Hindu code in tune with progressive and modern thought. His concern was not limited to Hindu women only. He observed that even the Muslim women were also not getting their due which was provided to them under the Islamic Shariah as they were influenced by the Indian environment. He also criticized the denial of rights to Muslim women for divorce41 He lamented the sad plight of the Indian Muslim women and said: *"No Muslim girl has the courage to repudiate her marriage, although it may be open to her on the ground that she was a child and that it was brought about by persons other than her parents. No Muslim wife will think it proper to have a clause entered into her marriage, contract reserving her right to divorce. In that even her fate is, 'once married always married' she cannot escape* *the marriage-tie however irksome it may be. While she cannot repudiate her marriage, the husband can always do it without having to show any cause."*

Ambedkar even opposed the Indian Muslim purdah system which he believed was contrary to the real purdah system of Islam. He was of the opinion that as a consequence of the purdah system a kind of segregation is brought about in the Muslim women which has deteriorating effect upon the physical constitution of the Muslim women thereby depriving her of a healthy social life. The isolation of males and females is sure to produce bad effects on the morals of men. He believed that a system, if based on worth, cannot justify the permanent denial of education and religious right to women.

3.3. Constitutional Rights and Women

In Indian Constitution, there are few articles exist that help the women of Indian society to improve their position and to compete with their male counterparts. For example Article14 – All are equal in the eyes of law and equally protected by the law. It means equal rights and opportunities in political, economic and social spheres. Article 15 prohibits discrimination on the ground of sex. Article 15(3) enables positive discrimination in favour of women. Article 16 mentions there shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office without any discrimination on the basis of religion, caste, creed and sex. Article 24 prohibits the employment of children below the age of 14 years in factories, mines or in any other hazardous employment. Article 39 and 39(d) state Equal means of livelihood and equal pay for equal work. As per article 41 the state shall guarantee within its economic limits to all the citizens, the right to work, to education and public assistance in certain cases. Article 42 the state makes provision for Human conditions of work and maternity relief. Under article 44, the state provides a uniform Civil Code to all the citizens throughout the territory of India. Article 46 – The state to promote with special care, the educational and economic interests of weaker section of people and to protect them from social injustice and all forms of exploitation. Article 47 – The state to raise the level of nutrition and standard of living of its people and the improvement of public health and so on. Article 51 (A) (C) – Fundamental duties to renounce practices, derogatory to the dignity of women. Article 243D (3), 243T (3) & 243R (4) provides for allocation of seats in the Panchayati Raj System.

Educational Rights given to Depressed Class and Women Dr. B.R. Ambedkar, as the Chairman of the Drafting Committee, tried an adequate inclusion of women's and depressed classes' rights in the constitution of India. He looked upon law as the instrument of creating a just social order. He incorporated the values of liberty, equality and fraternity in the Indian Constitution. To ensure equal rights of education to depressed class, special provisions are given which includes- Article 30(1) which gives the linguistic or religious minorities the right to establish and administer educational institutions of their choice. Article 30(2) bars the state, while granting aid to educational institutions, from discriminating against any educational institution on the ground that it is under the management of a linguistic or a religious minority. Article 29 (2) of the Constitution of India defines the protection of interest of minorities and ensures that no citizen shall be denied admission into any educational institution maintained by the State receiving aid out of State funds on grounds only of religion, race, caste, language or any of them. Article 46 directs the state to promote with special care, the educational and economic interests of the weaker section of the people and to protect them from social injustice and all forms of exploitation.

3.4. Today's Present Context

Most people are literate but not educated. Education by means of access to knowledge and learning played pivotal role the social reforms. Stagnation in process of social reforms and imposing so called divine status of ancient women on today's women there by influencing her development and upliftment. Shattered with the reforms and liberation of women in the era of globalization and modernisation, the Indian mindset has not accepted the equality at par with men and hence forcing women to revert their development.

Increasing incidences in women harassment in all way, violence, crime and humiliation insisted on her is only because of political apathy, which failed to kept social dogma. Education system, employment opportunities, tremendous population, inflation and non-availability of resources to strive are the barriers for development among people. Sheer influence of modern lifestyle and adopting technology doesn't mean improvement of individual and society.

The societal frame work meant to make women subordinate or subjugated need to be dismantled. Active participation of women from all the strata could make it possible. Many notable women activist are working on issues like environment, health, poverty etc. Those who indulge in social reforms were not supported, not even by women. Today women reservation bill is the hottest agenda of the discussion and fact is that a lay woman even doesn't know what it is. The more ridiculous male attitude is that girl's education meant only for her marriage. Today's women are trapped in the circle of insecurity, male domination, lack of awareness about her rights and no decision making powers.

Much is talked about women empowerment today but it is more economic, political and health related. The issue of social empowerment of women need to be raised higher and given utmost importance then only it could complete phenomena. Women empowerment has five components: women's sense of self worth; their right to have and to determine choices; their right to have access to opportunities and resources; their right to have the power to control their own lives; both within and outside the home; and their ability to influence the direction and social change to create a more just social and economic order, nationality and internationally. Dr. Ambedkar strongly believed that women empowerment can be achieved by welfare of women. The activities of empowering women worldwide should follow the vision of Dr. Ambedkar.

4. Conclusion

In a way, what appears from Ambedkar's own perception of the Indian social order, Hindu or Muslim was one of a system where women were denied in various ways, their dues in the society. He was frantically in search of a solution to their evil systems and sought to usher a society based on equality, justice and fraternity. Though the goal of women empowerment is yet to be achieved, Dr. Ambedkar's idea about the rights and development of women are still valid in the present scenario – not only in India, but in global context too. Dr. Ambedkar's three word formula – 'educate, agitate and organize' is a powerful tool of social change even today. Ambedkar made the oppressed lot of the depressed classes conscious of their rights, which was denied to them for centuries. Educating the downtrodden people, he thought, was a sure way to instil in them a sense of consciousness, self-respect and dignity. He wanted the people to cultivate the values of freedom and equality among themselves; it was possible only through education. This is turn would provide the necessary cultural basis for their progressive assimilation into the mainstream of an enlightened national life. Dr. Ambedkar was a symbol of knowledge and character. He regarded education as a means to reach the doors of light and perception to remove the regions of darkness and ignorance. He used his philosophy of education to make aware of the condition of social degeneration in Hindu society among the lower strata of society and change the social order for the benefit of entire humanity. Through his educational institutes, he strives for educational development of all. He was an 'organic intellectual' in real sense. Dr. Ambedkar's contribution towards education and his independent thinking made him an independent intellectual of the world. He propounded his own philosophy of education and had largely influenced the outlook of downtrodden. In order to honour his brilliant academic career his statue is placed at the entrance London School of Economics and below that "Symbol of Knowledge" is written. It shows that how he was acclaimed as great student and educationist of far excellence. Dr. Ambedkar's thoughts on education and his educational philosophy are relevant even today in the 21st Century for the socio-economic and political development of our country. "So long as you do not achieve social liberty, whatever freedom is provided by the law is of no avail to you." – Dr. B. R. Ambedkar, India's first Law Minister.

ISSN : 2278-9308

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5. REFERENCES

1.Singariya, M.R. 2014. "Dr B R Ambedkar and Women Empowerment in India", Quest Journals Journal of Research in Humanities and Social Science, Volume 2~ Issue 1.

2.Barnwal, Bijay K. 2014. "*Dr. B. R. Ambedkar's Quest for Gender Equality its Relevance in Contemporary Feminist Discourse*", Online International Interdisciplinary Research Journal, {Bi-Monthly}, Volume-IV, Issue-II, Mar-Apr 2014

3.More, Dr. Vijay G. 2011. "*Dr. B. R. Ambedkar's Contribution for Women's Rights*", Variorum, Multi-Disciplinary e-Research Journal Vol.-02, Issue-I, August 2011

4.Dhanvijay, Ms. Vaishali. 2012. "Dr. Babasaheb Ambedkar's efforts for women empowerment and present status of women in society", Electronic International Interdisciplinary Research Journal (EIIRJ), (Bi-Monthly), Volume-I, Issue II, April 2012

5.Shashi, S.S., (edi). 1992. "Ambedkar and Social Justice-Volume II", Director publications Division, Ministry of Information and Broadcasting, Government of India, Patiala House, New Delhi,1992

ISSN : 2278-9308
February, 2022

Marketing of Soybean in Vidarbha region: An empirical Study

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Abstract:

The start of commercial exploitation of soybean in India is almost four decades ago. In these four decades, the soybean crop has shown unparalleled growth in production. Soybean has established itself as a major rainy season crop in the rain feed agro ecosystem of central and peninsular India. The introduction of soybean has resulted in an increase in the crop implication and resultant increase in the profitability per unit land area. In India, soybean will continue to be a major rain-fed oilseed crop. Several varieties that have been bred have resulted in this unprecedented growth. Soybeans are leguminous plant, native to East Asia, that are grown for oil and protein around the world. Soybean has been cultivated primarily in warm and hot climates; soybeans were originally used as nitrogen fixers in early systems of crop rotation by the ancient farmers who would plant aarea of soybeans on an exhausted or depleted field and then plot the crop under to replenish the soil. Development in the field of agricultural technologies such as fermentation and processing for oil has led to many new applications of this useful plant.

This study on the marketing of soybean in the Vidarbha region is based on the data collected from 100 soybean producers and marketers. The study has suggested that the measures need to be adopted to increase assess of farmers to market information and they should be motivated to market the produce collectively to reduce the cost of transportation.

Keywords: Marketing, production, Economic analysis, Soyabean seed.

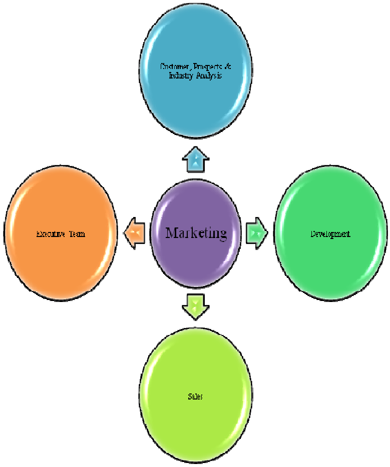
I. Introduction: Soybean Crop

Soybean is a cash crop. Soybean also considered as the oilseed crop instead of pulses. Soybean is a versatile food for human nutrition and health. Soybean is an important food source. Soybean having proteins, carbohydrates, and fats. Soybean contains 33 % protein, 22 % fat, 21 % carbohydrate, 12 % moisture and 5 % consume. The structure ofamino acid of soya protein is equivalent to animal protein. Therefore, soybean is a good source of high-quality protein for human nutrition. These fatty acids are essential for the human body. Soybean is not only an excellent source of protein, this will also beneficial for the many physiological functions. Various researchers have studied the effects of soya protein on the amount of plasma lipid and cholesterol, and it has been found that soy protein is helpful for reducing the amount of cholesterol in the human blood. Soya protein is probably the first soybean component for specified health use. Soybean is the world's most important seed legume, which contributes to 25% of global food, about two-thirds of world's protein concentrate for livestock feeding. Soybean meal is a valuable ingredient in formulated feeds for poultry and fish. Carbohydrates as a dietary fiber sugar, Refines in which the beneficial microorganisms found in the stomach.Soybean oil contains plenty of linoleic acid and linoleic acid. The effect of the soybean on the human body has been studied by the different researchers. Soy protein is probably the first soybean component forspecified health consumption.

Introduction of Marketing:

Marketing is the comprehensive and it includes all resource and a set of activitiesnecessary to direct and facilitate the flow of goods and services from producer tocustomers in the process of distribution. Businessmen refer marketing processasdistribution process. Human effort, finance and management constitute the primaryresources in marketing.Marketing encompasses all activities of exchange product byproducerandmiddlemenincommerceforthepurposeofsatisfyingconsumerdemand.

According to Buddy and Reizen, "Marketing is the economic process by whichgoodsand services areproducer to theconsumer."
According to Paul Mazur, "Marketing is the delivery of a standard of living tosociety."
Role of Marketing:



II. Review of literature:

K. L. Bader (1981), this study has depicted that, the movement of soybeans fromproducers to final users is a complex system involving many changes in ownership,form, time and space. Defining the market for soybeans is not a simple task nor is themarketing system easily delineated. The purpose of this paper is to outline the generalmovement of soybeans from harvest to final user including the various alternativespresent in the present system of marketing grains. An equally important objective is topoint out that such a complex, worldwide system functions so effective. The demandfor protein and vegetable oil, so vital to world nutrition, is being largely met by asystem of free market decisions. Certainly, governments have a hand in the markets invaryingdegrees,butbyandlarge,soybeansareproducedandmovedbasedontheprofit motive. Essential to the continuation of an effective world market is recognition of the merits of the system that has enabled soybeans to be economically used. This identity will ensure continuous current market inequities.
AsharadSarin (1987), this article summarizes that the art of industrial marketing research in India. It covers the orientations of organizations toward marketing research, the dominant profile of the current marketing research activities; and the experiences and efforts in information collection. The article highlights the emerging trends that will accelerate the acceptance of marketing research in India. India is a developing country and agriculture is the mainstay of the economy. Yet, almost 50% of the national income comes from goods and services that are exchanged among organizations. At 1985 prices, India's national income was Rs. 1600 billion [about $ 122 billion]. Thus, about Rs.800 billion worth of goods and services are managed through the domain of industrial marketing. In spite of this, marketing is yet to find its rightful place in the exchange. Experiences of developed countries show that an integration of industrial marketing. This integration may lag behind by 10 to 20 years, This comment can lead to one to believe that if the marketing function has been reached, then maybe marketing research is still a foreign and unknown concept. The picture, however, is not so disappear and disappointing when compared to other countries. This article is an attempt to summarize the art of

industrial marketing research in India. The remarks, observations, facts, and conceptualizations are based on the experiences of some 30 different studies conducted by the author over the last 15 years. Exhibit 1 profiles the product-market situations for the observations and comments made in this article

III. Objectives of research

1. To find the economics of cultivation of Soya as a single crop and/or as a mixed crop or as an alternative to other cash crop.
2. To study demand pattern of Soya products available in the market. This will include study of demand parameters such as: Price of products, likeability of products and availability of products, frequency of consumption, directly consumed or consumed after further processing, health related aspect of the crop, and so on.

IV. Research Methodology:

The process of converting a hypothesis into theory is the backbone of Research Methodology and this process itself has a sequence known as the core methodology or method. A method is a sequential process whereas methodology is the science of method. Details of the methodology and method followed for the study are given below:

Research Design

Initially researcher used the exploratory research design to generate the background information for the selected topic of study.

Universe/Population under study: Vidharbha region

Sampling Frame:

There are four frames from which samples were required, viz, Farmers, Consumers, Marketers and Processing Industries, in the region under study.

Data was collected from consumers & marketers separately, through separate questionnaires, interviews and discussions

Sampling Method: Area sampling & stratified random sampling

Sample Size: 100 respondents.

V. Data Analysis and Evaluation:

Region-wise output of Soyabean				
Size of land holding	**Vidarbha**	**Western Maharashtra**	**North Maharashtra**	**Marathwada**
Marginal (up to 2.5 acre)	6	9	6	4.3
Small & Medium (2.5- 25 acre)	6.5	6.5	4.4	4.5
Large (>acre)	5.75	10	6.8	4.6
Total average	**6.66**	**7.27**	**6.08**	**4.4**

Average yield of soybean is highest in the sample respondents of WesternMaharashtra (though it is far less than the international average of 20qtl/ha ornational average of 10 qtl/ha), followed by Vidarbha and North Maharashtra.Marathwada still lags far behind in terms of yield. There is no clear indication ofany single factor being responsible for the higher or lower yield as reported bythe farmers.

To test whether any correlation exists between sizes of land holding and theyield, correlation analysis was carried out and it was found that the **coefficient ofcorrelation between these two variables (size of land and yield) is 0.229.** This implies that the correlation is positive, but it is not very significant.

ISSN : 2278-9308
February, 2022

Some of sample farmers reported the problem with seeds. They are using theirown seeds which are not of the desired quality always. Either they are diseaseinfested or physically impure. They may even have low germination %age.They do not test them before sowing. This cycle continues year after year andthe yield eventually goes down further.

Case	Yield X	X1=X-¯X	Size of land holding Y	Y1=Y-¯Y	x_1^2	y_1^2	X1Y1
A	7	0.47	2	-2.33	0.22	5.42	-1.09
B	6.4	-0.13	5	4.67	0.01	21.8	-0.0013
C	6.5	-0.03	7	0.67	0.0009	0.44	-0.02
D	8.3	1.77	12	-0.33	3.13	0.1	**-0.58**
E	4.41	-2.12	15	-3.33	4.49	11.88	7.05
F	6.61	0.08	20	6.67	0.0064	44.48	0.53
	X		**Y**		**∑7.85**	**∑84.12**	**∑5.89**

Hypothesis 1: This leads to the **First hypothesis** of the present study that"Soybean is gainingpopularity as an alternative cash cropgradually."

Hypothesis 2: Soya products need to be made more popular; marketing of soy products in future can be beneficial

A **Statistical Test (x2, Chi-Square)** was administered to check if there is any significant difference in the consumption pattern of four major popular products of soybean for human consumption, in four regions under study.

Test starts with an assumption that there is no significant difference. In Table 6.5 (b) figures in the bracket in every cell give the Expected frequency (E) of that cell and figures above them are the Observed frequencies (O) of corresponding cells.

Chi-Square Test

	Soya oil	Nutrela	Paneer	Flour	Row Total
Vidarbha	34	10	10	20	74
	24.66	17.26	15.54	16.52	

Products	Region	O	E	O-E	(O-E)2	(0-E)2/E
Oil	Vidarbha	34	24.66	9.44	87.23	3.53
Nutrela	Vidarbha	10	17.26	-7.26	52.7	3.05
Paneer	Vidarbha	10	15.54	-5.54	30.69	1.97
Flour	Vidarbha	20	16.52	3.48	12.11	0.73
						∑(O-E)2/E= 35.46

Table Value of *yl*at 9 d.f. (degrees of freedom) at 95% level of significance is 16.9. Calculated value of x2 is 35.46 which is greater than the table value. Hence, we reject the statement that there is no significant difference in the consumption pattern of four major products of soybean for human consumption, in four regions under study. Thus, the **difference is significant.** Larger promotional activities are required to make products equally popular.

VI. Conclusion &Suggestion:

Farmers are spending a lot of money for soybean cultivation because soybean crop is more profitable than other crops. Famers faced problems of soybean storage, grading, transportation, and marketing.

The main thrust of suggestions is to highlight the importance of having whole soybean cum livestock-based farming system approach- from production stage to the marketing stage. All the aspects of crop cultivation- land and water management, technology, credit and insurance support, market, and price aspects along with linking livestock with the crop cycle, as an integral part of the system is emphasized.

VII. References:

1.Acharya S.S, Agarwal N.L: Agricultural Marketing in India, 4^ Edition, Oxford & IBH Publishing Co. Pvt.Ltd, N.Delhi, 2004

2.Dhapke S.K., Soybean Production, Problems and Prospects in Vidarbha, Soybean Research Centre, Dr.PanjabraoDeshmukhKrishiVidyapeeth, Akola, 2008

3.MatlaniGirish, Soybean Best Utilisation in Food Sector, In Report on Soybean cum Livestock based Farming System Approach for Sustainable Work and Income Security in Vidarbha, 10'^ May 2008, Nagpur.

4.Consumer Attitudes about Nutrition, survey by United Soybean Board's 2018.

5.Deshpande, R.S., Farmers' Suicides: A Media Perspective (A View ofMain Factors Leading to Vidarbha's Agrarian Crisis), Background Paper,Suicide of Farmers in Maharashtra, Submitted to IIDR, Mumbai, IndianExpress, Nagpur, 2005.

6.Wankhade R N. 2007. Economics analysis of production, processing and marketing of soybean in Amravati district. M Sc (Agri.) thesis, Dr. PDKV, Akola.

ISSN : 2278-9308
February, 2022

Limitations And Challenges In The Existing Pulse Oximeter And The Proposed Advancements In The Design

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Abstract:

During Covid -19 for the first time the device pulse oximeter became known to everyone as it was the device primarily used in knowing the most prominent health related parameters like percentage oxygen in the blood (SpO2) and the heart rate required to diagnose the patient and deciding the line of further medication.

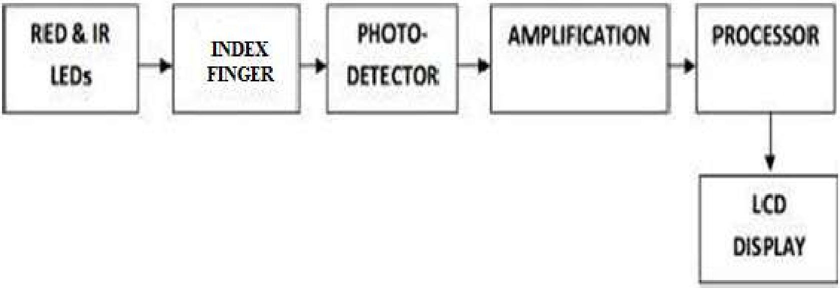
Various pulse oximeters are available in the market today at cheaper rates providing instant information about the percentage oxygen in the blood and the heart rate but are not recommended by the medical doctors in emergencies so far the accuracy is concern. While the pulse oximeters used in the ICUs and ICCUs are highly accurate but costly and thus can't be made available at smaller hospitals and places which actually needs badly considering the population of our country India. This is one of the big challenges to design a ***low cost and considerably accurate pulse oximeter*** which can be approved by the medical doctors in case of emergencies and also to facilitate it with the measurement facility of additional health related parameter like body temperature and to make all these parameters online available to the doctor treating the patients even at remote locations. This will definitely play the vital role in the situation like pandemic and will be proved to be a boon for bedridden and elderly patients.

Keywords: Covid-19, SpO2, heart rate, pulse oximeter, ICUs, ICCUs, pandemic, Online, bedridden

Introduction:

Oxygen is one of the most importantly required physiological needs for the survival of the humans. It's very clear from the fact that 20% of what humans breathe is oxygen [1]. To track the oxygen level in the blood a small bioelectronics device was introduced known as pulse oximeter. It's a medical electronic instrument or device to measure the level of oxygen saturation in the blood and the pulse rate by non-invasive techniques [2].It is a medical device measuring the percentage oxygen saturation of the blood and the heart rate in bpm used to detect the conditions like hypoxemia which may lead to the death of the patient [3].Mainly there are two methods employed in a pulse oximeters for determining the percentage oxygen in the blood and the heart rate and these methods are; 1. Reflectance and 2. Transmittance Method of which the transmittance method is used in most of the pulse oximeters. The Pulse Oximeters currently available at cheaper rates in the market faces the accuracy issues and even the medical doctors don't permit to use them in emergencies. While the highly sophisticated Pulse Oximeters in ICUs and ICCUs are costly and not affordable at the small hospitals and places like PHCs, which actually needed in the country like India. Also most of the pulse oximeter displays percentage oxygen in the blood and Heart rate while the body temperature is also an important parameter in the situations like Covid-19 & hence needs to be measured & the temperature measurement is done through the Infrared Thermometer gun separately. One more feature of getting online data (all the three parameters namely percentage oxygen in the blood, Heart rate and the body temperature) available to the Medical Doctor can be added to the pulse oximeter considering the chronic or bed ridden patients who can't move at their own, and the doctors can keep diagnosing and treating them accordingly from even remote location.

Basic Pulse Oximeter Design:



Basic design of pulse oximeter mainly consists of a probe and a signal processing unit. Here two LED's and a photo- detector works as a probe wherein the two LEDs are; Red LED and infrared LED emitting different wavelengths. Two LEDs are on one side of the index finger while the photo detector is on the other side. Some of the light emitted by two different LEDs is absorbed by the tissues while the remaining passes through, depending on the percentage of oxygenated and deoxygenated hemoglobin in the blood. The transmitted signal is then detected by the photo detector on the other side [4].

Additional parameter measurement using Pulse oximeter:

Along with the basic health related parameter measurements as above the pulse oximeter can be utilized to have some additional features like;

1. Measurement of the body temperature
2. To have ONLINE availability of these parameters to a medical doctor in order to diagnose and treat the patient available at the remote locations.
3. Any other parameter as per the medical requirement

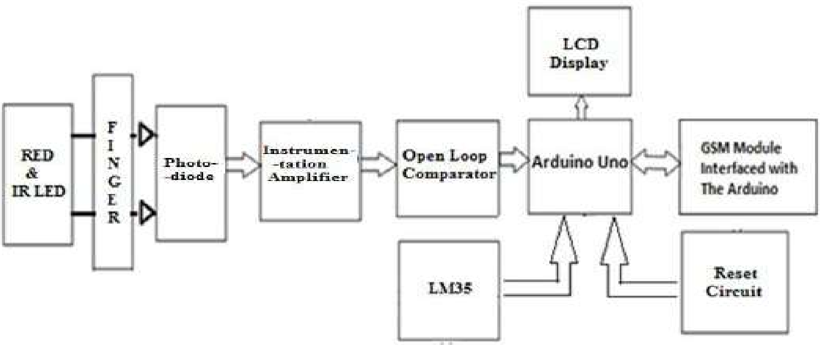
Technical Developments needed:

For the body temperature measurement, temperature sensor IC LM35 can be employed to measure the body temperature in ˚C which can also be converted to ˚F using the formula

˚F = [((9*˚C) / 5) + 32] through the processor.

While for online availability of these parameters, GSM module can be employed and can be connected through separate ports on Arduino Uno Board.

Proposed designing of Pulse Oximeter:



Here the probe (RED & IR LEDs) are used along with the photodiode on either sides of the finger with the instrumentation amplifier which removes the noise and the two signals from RED LED & IR LED are compared at the open loop comparator and passed on to Arduino Uno. Arduino Uno receives two more inputs on separate ports as the input from IC LM35 and Reset input. While the GSM module is connected to Arduino in a bidirectional way. On processing the inputs the outputs; percentage oxygen in the blood (SpO2), Heart rate in BPM and the body temperature in ˚C will be displayed on the LCD display. Thus the proposed design will be two stages ahead of the basic design as it;

1. Displays temperature in ˚C and
2. Facilitates the design to get ONLINE data available on the mobile through GSM technology.

Conclusion and future scope:

The existing pulse oximeter can be provided with some modifications so as to measure the body temperature and to have the data related to health related parameters online available, so that the medical doctor can have the time to time status of the bed ridden patients at remote locations which will facilitate the online diagnosis and help determining the line of medication.

As a future scope some additional required health related parameters like blood pressure and sugar can also be measured and by having dedicated server the delay in making the data availability can also be reduce drastically.

References:

1. Hoff D, Zhang R, Stalter T, Carlson M. Pulse oximetry, undergraduate thesis, electrical and computer engineering. North Carolina State University, USA; 2003.
2. Gupta RC, Ahluwalia SS, Randhawa SS.Design and development of pulse oximeter. Proceedings RC IEEE-EMBS & 14th BMESI.Central Scientific Instruments Organisation, India; 1995.
3. Deni H, Muratore DM, Malkin RA.Development of a pulse oximeter analyzer for the developing world. Proceedings of the IEEE 31st Annual Northeast Bio-engineering Conference. 2005;227-228.
4. Ferrera F. Design of low-cost instrument for pulse oximetry. Proceedings of the IEEE Conference; 2006.

Impact of Mobile Marketing on Consumer behavior in India.

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Introduction:-

India is the place, where every year new mobile users are entering into this segment which is very bright opportunity for marketers to market their products through mobile marketing as customer carries their mobiles everywhere to access anything anytime. Mobile marketing has been considered a new form of marketing and provided new opportunities for companies to do businesses. Marketing activities conducted via mobile devices enable advertisers to directly communicate with potential customers in a fast speed and regardless the geographical location at lower cost as compared to the traditional marketing promotion. Customers are to be reached by various channels but in today's world mobile marketing communication is the one which reaches more end customers. Marketing of the product is done for creating a positive impression of the brand, for better brand recall, to increase sales and to generate awareness marketers should take into account consumers' needs for security and privacy when designing a marketing plan. The marketers should maintain a balance between engaging consumers in their marketing mix and achieving the objectives of their marketing plan. In order to achieve this objective the marketers must understand the factors, such as incentives and consumer attitudes, which affect consumer acceptance of advertisements via mobile phone. Mobile marketing is marketing that takes place via mobile devices such as smart phones, tablets or PDAs. Mobile marketing makes usage of features of modern mobile technology such as location services to modify marketing campaigns based on a customer's location or frequently visited places. Mobile marketing is a way in which technology can promote personalized goods or services to a user who is constantly connected to a network via their mobile device. Mobile marketing may include promotions sent through SMS text messaging, MMS multimedia messaging, through downloaded apps using push notifications, through in-app or in-game marketing, through mobile web sites, or by using a mobile device to scan QR codes. Proximity systems and location based services can alert users based on geographic location or proximity to a service provider. Mobile marketing is similar to electronic advertising and uses text, graphics and voice messages. As per Morgan Stanley Research, number of mobile device users globally has increased from 1100 million in 2007 to 1700 million users in 2015. In India, E-Marketer estimates that mobile is a small but growing component of digital advertising. The preceding forecast for total media, digital and mobile internet ad spending around the world pegged mobile spending in India at $173.2 million in 2015, set to double to $346.5 million by the end of this year. That will amount to 29.5% of digital ad spending, or 4.9% of total media budgets. By 2019, advertisers in India will be spending much more on mobile placements—$1.32 billion. That will account for a majority of all digital ad spending (60.9%), and 15.5% of total media advertising in India. Former research has found that mobile marketers in India are focused on display and social ads, though their attention is expected to shift in the coming years.

Objectives of the study:-

1. To study the concept of Mobile marketing in India.
2. To determine the buying behavior and attitude of people towards mobile marketing.

Methodology:-

The study is qualitative and descriptive in nature and for the purpose of the present study; mainly secondary data have been used. The required secondary data were collected from the e-journals on different websites, research papers, various reports and newspaper articles published online.

Types of mobile marketing:-

1. Mms marketing

MMS mobile marketing can comprehend a timed slideshow of images, text, audio and video. This mobile content is delivered via MMS (Multimedia Message Service). Nearly all new phones produced with a color screen are capable of sending and receiving standard MMS message. Brands are able to both send (mobile terminated) and receive (mobile originated) rich content through MMS A2P (application-to-person) mobile networks to mobile subscribers. In some networks, brands are also able to sponsor messages that are sent P2P (person-to-person). Good instances of mobile-originated MMS marketing crusades are Motorola's ongoing campaigns at House of Blues venues, where the brand allows the consumer to direct their mobile photos to the LED board in real-time as well as blog their images online.

2. Push Notifications

Push notifications were first familiarized to smart phones by Apple with the Push Notification Service in 2009. For Android devices, Google developed Android Cloud to Messaging or C2DM in 2010. Google replaced this service with Google Cloud Messaging in 2013, universally referred to as GCM, Google Cloud Messaging served as C2DM's successor, making enhancements to authentication and delivery, new API endpoints and messaging parameters, and the exclusion of restrictions on API send-rates and message sizes. It is a message that pops up on a mobile device. It is the transfer of information from a software application to a computing device without any appeal from the client or the user. They look like SMS notifications but they are reached only to the users who have installed the app. The specifications vary for IOS and android users. SMS and push notifications can be part of a well-developed inbound mobile marketing strategy.

3. Sms Marketing

Marketing through cell phones' SMS (Short Message Service) became more and more popular in the early 2000s in Europe and some parts of Asia. Over the past few years SMS marketing has become a legitimate advertising channel in some parts of the world. This is because unlike email over the public internet, the carriers who police their own networks have set strategies and best practices for the mobile media industry (including mobile advertising). Over the past few years mobile short codes have been increasingly widespread as a new channel to converse to the mobile consumer. Brands have begun to treat the mobile short code as a mobile domain name allowing the consumer to text message the brand at an event, in store and off any traditional media. The mobile operators demand a double opt in from the consumer and the ability for the consumer to opt out of the service at any time by sending the word STOP via SMS.

4. BLUETOOTH

Bluetooth technology is a global wireless standard enabling, convenient, secure connectivity for an expanding range of devices and services. Created by Ericsson in 1994, Bluetooth wireless technology was originally conceived as a wireless alternative to RS-232 data cables. The use of Bluetooth gained traction around 2003. Most of the businesses offer "hotspot" systems which consist of some kind of content-management system with a Bluetooth distribution function. This technology has the advantages that it is permission-based, has higher transfer speeds and is a radio-based technology and thus can neither be metered nor billed.. More recently Tata Motors conducted one of the biggest Bluetooth marketing campaigns in India for its brand the Sumo Grande.

5. App-Based Marketing

With the increasingly pervasive use of smart phones, app usage has also significantly augmented. Therefore, mobile marketers have increasingly taken benefit of smart phone apps as a marketing resource. Marketers will aim to increase the visibility of an app in a store, which will in turn help in getting more downloads. By improving the placement of the app usage, marketers can guarantee a significant number of increases in download. This allows for direct engagement, payment, and targeted advertising. The current upsurge of progression and growth highly depends upon the wise use of technology and Mobile App Development is one such technology that is benefiting various companies in order to maximize their profits. In the past couple of years the usage of mobile phones has increased at an astonishing rate. Most of the companies have slowly but surely acknowledged the potential that Mobile App possess in order to increase the collaboration between a company and its target customers.

Impact Of Mobile Marketing :-

1) Effects of Mobile Marketing on Need Recognition Stage:-

The decision-making process for each consumer starts when consumers comprehend that they have a need for something. Need recognition befalls when a consumer is confronted with a difference between an actual and desired state. This is a vital stage for marketers because marketers can construct some of their campaigns in order to create this imbalance by seeking to create a need and make consumers search out and buy a product or service. Marketers try to create an imbalance/consumer need because they want to create a want. Therefore, mobile marketing messages can act as external cues that help consumers to recognize a need, triggering a decision-making process that might result in a purchase. In need recognition stage marketers' job is to position their product or service as a solution to a problem or a need that a consumer may be encountering. For instance, a push notification received on a mobile device for an upcoming special day accompanied by a list of recommended gifts, and discount offers can motivate the recipient to start the buying process for a gift.

2) Effects of Mobile Marketing on Information Search Stage:-

After the consumer has established a want or a need, the next thing he or she will do is start an information search regarding different alternatives that he/she can purchase to satisfy his/her need. Information search can be done internally or externally. An internal information search consists of utilizing information from memory, such as past experiences with the product and/or service. An external information search is a process of utilizing information from outside environment such as family and friends, public resources, radio, TV ads, digital and mobile ads. Within these channels, mobile marketing became one of the most important tools for marketers to impact on information search stage.

3) Effects of Mobile Marketing in Alternatives Stage:-

After consumers have recognized a need, they conduct an information research and then create a final decision set called evoked set. At this point in order to make a final decision, they evaluate the alternatives. While giving a final decision consumers take into consideration the different attributions of the product or service such as quality, price and location. Like need recognition and information search stages at the alternative evaluation stage, mobile technology also differs from other mediums. First of all, mobile devices and mobile services enable consumers to evaluate alternatives even when they are at physical stores. Mobile devices and mobile services can help consumers enjoy the best of both physical and online worlds by combining the benefits of in-store and online shopping environments.

4) Effects of Mobile Marketing on Purchase Stage:-

After evaluating alternatives, consumers give a final decision and purchase product/service they decide. The purchase decision is already affected by previous decision-making process stages but still marketers have a chance to have an impact on the consumers who are already at the purchase stage. Regarding this stage, marketers can make their products available to their consumers and they can also be sure to make the purchase process easy and enjoyable for the consumer. At the purchase stage mobile technology plays an important role for marketers. For instance mobile services can improve the consumer shopping experience at the purchase stage by making the product ordering, purchasing and payment more convenient. All of these improvements may provide consumers to save time and money.

5) Effects of Mobile Marketing on Post-Purchase Stage:-

After a consumer makes a decision he/she expects satisfaction to occur from his/ her decision. If the product /service do not meet his/her requirements, then disappointment might occur. At this point, the marketer may lose the chance to make this customer a loyal user. That's why savvy marketers make sure

ISSN : 2278-9308
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that their consumer is completely satisfied and does not develop any negative post-purchase feelings. Likewise, mobile technology plays an important role for marketers at the post - purchase stage. Mobile services can advance post-purchase customer service experiences. For instance, consumers can receive updates on the order status for items purchased. Moreover, Customer support can be enhanced by delivering more interactive content to consumers regardless of their location.

Conclusion:-

It can be concluded from the research that mobile phones now have a much greater diffusion in common man's life and can act as a very significant tool for the marketers and a stand for the mobile marketing communications. The marketers now a have an opportunity to reach newer markets and customer target segments, where it was really difficult and affluent to carry on effective marketing activities. It is reaching much deeper in the Indian population where a PC/laptop has never reached. Companies should focus more on one to one marketing so as to target the right class of customers, upsurge sales and generating brand awareness. All efforts should be taken so as to involve the customer in a much better way and for this the limiting factors and barriers are needed to be identified and detached and minimized.

References:-

1) Emart Solutions, (2016, March 4), "Mobile Marketing Is Core to Businesses in India", from http://www.emarketer.com

2) Eren Kocyigit, (2015, Dec 1), "The Effects of Mobile Marketing on Decision Making", from https://www.proxbook.com

3. Poynter, R., Williams, N., & York, S. (2014). The Handbook of Mobile Market Research.

4. Chowdhury, H. K. Parvin, N. Weitenberner, C. & Becker, M. (2006). Consumer Attitude toward Mobile Advertising in an Emerging Market.

5) "Marketing" Chapter 4, from https://quizlet.com

B.Aadhar' **International Peer-Reviewed Indexed Research Journal**

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

The World's Largest Financial Market Forex (Foreign Exchange)

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Abstract:

Foreign exchange market is the largest financial market in the world and the value of activities in currency of one country is used to trade for the unit of currency of another country. There are four main participants in FX market such as 1) companies and individuals 2) capital market 3) Hedger 4) Speculators This research exploring the relationship of international trade of goods and services of companies and individuals associated with the following theories: 1) Supply and Demand Theory of Exchange 2) Purchasing Power Parity 3) International Fisch

Keywords: Forex Market, Currency Market, Forign Exchange

Data Collection Method Used for Research:

This research depends on secondary data likenewspapers, books, magazines, reports, and websites.

The Objective of Research:

1) To find the importance of Forex Market era in all over the world.
2) To find knows Purchasing Power Parity (PPP)
3) To study Demand-supply theory of exchange

Introduction:

The origin of Forex trading begins about a century ago. Different currencies and the need to exchange them had existed since the Babylonians. Before the end of World War II, the Bretton Woods agreement was founded in USA in July 1944. The meeting was held in Bretton Woods, New Hampshire rejected John Maynard Keynes suggestion for a new world reserve currency in favor of a system built on the US Dollar. IMF and The World Bank and GATT were established in the similar period as the emerging victors of WWII searched for a way to avoid the destabilizing monetary crises leading to the war. The result of Bretton Woods agreement is a system of fixed exchange rates that reinstated. The Bretton Woods system was under pressure because national economies go in different directions during the 1960's. The last few decades have seen foreign exchange trading develop into the world's largest global market. The foreign exchange market is very unique because of a huge trading volume, which represent the largest asset class in the world and also because of geographical dispersion and enable to trade 24 hours a day except weekend (McLeod (2014))

The major advantages of Foreign exchange market are as follows:1) Flexibility- Forex exchange markets provide investors with a lot of flexibility because there is no restriction on the amount of money that can be used for investing and also no regulation of the markets which then combined with the fact that the market operates on a 24 by 7 basis creates a very flexible scenario for investors. Investors cannot do the same if they are investing in the stock or bond markets. 2) Transparency: The Forex market is a large in size and it is operating across the different time zones. There is no country or Central Bank has the ability to single handily corner the market or rig prices for an extended period of time. 3) Trading Options- Forex markets provide investors with a wide variety of trading options (Tanamarttayarat (2018)). Investors can invest in many of currency pairs. Investors also have an ability to trade on spot rate as well as a future agreement. Futures agreements are also available in different sizes and with different maturities to meet the needs of the Forex investors. FX market provides an option for every budget and every investor with a different appetite for risk taking. 4) Transaction Costs-FX market provides a lowtransaction costs comparing to other markets. The transaction costs of investing in FX

ISSN : 2278-9308
February, 2022

market are extremely low as compared to trading in other markets because FX market is largely operated by dealers and. 5) Leverage- FX markets give the most leverage among all financial asset markets. The arrangements in the Forex markets provide investors to lever their original investment by as many as 20 to 30 times and trade in the market. This magnifies both profits and gains (Russell (2016)). Bitcoin historically has been an extremely unpredictable and volatile asset (Kerfriden (2018)). The value of Bitcoin has grown exponentially to a point where investors are reluctant to invest due to the possible cause of being a bubble (Mehta and Afzelius (2017)). The objective is to explore the relationship of international trade of good and services of companies and individual associated with the following theories: 1) Supply and Demand Theory of Exchange 2) Purchasing Power Parity 3) International Fischer Effect .

Theoretical Review:

Foreign exchange market is the largest financial market in the world. In the market currency of one country is used to trade with the currency of another country. Exchange rate plays a very important role in trading good and services internationally. There are several theories that can help to determine the value of currency.

The following theories are as follow:

1. Demand-supply theory of exchange The theory state that the rate exchange is related to the position of balance of payments of the country that it is being concerned about. A favorable balance of payments result to as an appreciation in the external value of the currency of the country. Unfavorable balance of payments creates a depreciation of the external value. The balance of payments theory of exchange rate is considered the price of foreign money in terms of domestic money which is shown by the free forces of demand and supply in the foreign exchange market. The external value of a country's currency will depend upon the demand for and supply of the currency (Akarani (2010)). A balance of payments deficit of a country shown that demand for foreign exchange exceeds its supply. The price of foreign money in terms of domestic currency must rise which mean the exchange rate of domestic currency must fall. The balance of payments of a country surplus shown a greater demand for domestic currency in a foreign country than the available supply. The price of domestic currency in terms of foreign money rises (Chand, 2016).

The greatest volume of currency is traded in the interbank market, where banks of all sizes trade currency with each other and through electronic networks (Hiranto, 2018).

2. Purchasing Power Parity (PPP) is an economic theory which state that the exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. The basis for Purchasing Power Purity is the law of one prize If there is no transportation and other transaction costs, competitive markets will equal to the price of goods in two countries when the Prices are expressed in the similar currency.

There are two forms of the PPP theory:

1)Absolute Purchasing Power Parity (PPP) assume that the equilibrium exchange rate between two countries' currencies is equal to the ratio of the price levels in the two nations. Then a price of similar products of two different countries should be equal when measured in a common currency as per the absolute version of PPP theory.

2)Relative Purchasing Power Parity theory is an opposite version which assume that the change in the exchange rate over a period of time should be proportional to the relative change in the price levels in the two nations in the same period. A fall in either currency's purchasing power would lead to a proportional decrease in that currency's valuation on the foreign exchange market (Guinea, 2013).

3)Fisher's open hypothesis is a hypothesis in international finance which that suggests differences in nominal interest rate will reflect expected changes in the spot exchange rate between countries. The hypothesis specifically states that a spot exchange rate is expected to change equally in the opposite direction of the interest rate differential which mean that the currency of the country with the higher nominal interest rate is expected to depreciate against the currency of the country with the lower nominal interest rate, as higher nominal interest rates reflect an expectation of inflation (Pruess, 2018). For example, let assumed that if Switzerland's interest rate is 10% and United States' interest rate is 5%, US dollar should appreciate roughly by 5% compared to Swiss Franc. The rationale for the IFE is that a country with a higher interest rate will also tend to have a higher inflation rate. The increasing in the amount of inflation rate should cause the currency in the country with the high interest rate to depreciate against a country with lower interest rates. The IFE is based on the interest rates analysis which associated with present and future risk-free investments which is different from another method that use inflation rates in order to get the exchange rate movement instead of functioning as a combined view relating inflation and interest rates to a currencies appreciation or depreciation (Prudon, 2018).

The theory branch from the concept, in which the real interest rates are independent of other monetary variables, such as changes in a nation's monetary policy. The IFE provides for the assumption which shown that the countries with lower interest rates will experience lower levels of inflation, which then result in increasing in the real value of the associated currency when comparing to another country. Alternatively, Countries with higher interest rates will experience depreciation in the value of their currency (Shalishali, 2012).

Conclusion:

Foreign exchange market is the largest financial market in the world and the value of activities in currency of one country is used to trade for the unit of currency of another country. There are four main participants in FX market such as 1) companies and individuals 2) capital market 3) Hedger 4) Speculators. This research is focus on the theories that will benefit companies and individual participant. This research exploring the relationship of international trade of goods and services of companies and individuals associated with the following theories: 1) Supply and Demand Theory of Exchange 2) Purchasing Power Parity 3) International Fischer Effect. In Supply and Demand theory of exchange, according to the authors (Akrani (2010) and Chand (2016)), they both have the same ideas on the effect of supply and demand Exchange theory. They both believes that exchange rate of currency are influences by the demand and supply of that country's currency. For example, If the country experiences balance of payments deficit. The country will show that demand for foreign exchange exceeds its supply. The price of foreign money in terms of domestic currency must rise which mean the exchange rate of domestic currency must fall. In the other hand, if country experiences balance of payments surplus.

The country will show a greater demand for domestic currency in a foreign country than the available supply. The price of domestic currency in terms of foreign money rises. In the theory of Purchasing power parity, the author (Voinea (2013)) had analyzed in her paper that If the nominal exchange rate between two currencies are different to the ratio of aggregate price levels between the two countries. This will create an imbalance of purchasing power parity in two countries. A fall in either currency's purchasing power would lead to a proportional decrease in that currency's valuation on the foreign exchange market. The last theory in this research is International fisher effect. In this theory, the author (Shalishali (2012)) viewed nominal interest rate as a driving factor that influences the exchange rate of the country. The differences in nominal interest rate will reflect expected changes in the spot exchange rate between countries. When the home interest rate is greater than the foreign interest rate – The home currency will depreciate. And when the home interest rate is smaller than the foreign interest rate – The home currency will appreciate. Understanding and be able to apply these theories with the business is very useful and it can help companies and individuals to make an effective decision for their business activities.

References:

Akrani, G. (2010), Balance of Payments BOP Theory - Find Exchange Rate, Retrieved on 12October 2017 from http://kalyan-city.blogspot.com/2010/09/balance-of-payments-bof-theoryfind.html

Bruce, G. (2011). International Financial Management, Retrieved on 3 October 2017 from 6th Edition. New York, NY: McGraw-Hill/Irwin. ISBN 978-0-07-803465-7

Chand, S. (2016), Balance of Payments Theory of Exchange | International Trade, Retrieved on 3 October 2017, from http://www.yourarticlelibrary.com/international-trade/balance-of-paymentstheory-of-exchange-international-trade/26057/

French, J. (2017), Macroeconomic forces and Arbitrage Pricing Theory, Journal of Comparative Asian Development, Retrieved on 20 January 2018, from http://www.tandfonline.com/doi/abs/10.1080/15339114.2017.1297245

Griffin, D. (2017), Purchasing Power Parity Theory, Retrieved on 1 October 2017 from http://smallbusiness.chron.com/purchasing-power-parity-theory-3816.html

Guinea, L. (2013), The Purchasing Power Parity: Evidence from the great financial crisis, Retrieved on 2 October 2017 from https://www.ucm.es/data/cont/docs/518-2013-10-23- Guinea13.pdf

Hiranto, P. (2018), Bank Measure and Manage risk in Banking system, Social Science Research Network, Retrieved on 24 December 2018

Kittikongnopakorn B. (2017), Retrieved on a Long-Term Equity Fund, Social Science Research Network Retrieved on 20 January 2018, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2907382

Legrand K. (2016), What Is Purchasing Power Parity? (PPP), Retrieved on 3 October 2017 from http://www.investopedia.com/updates/purchasing-power-parity-ppp/

Kerfriden, L. (2018), Bitcoin and cryptocurrency begin tomorrow money, Social Science Research Network, Retrieved on 24 December 2018

ISSN : 2278-9308
February, 2022

Customer Relationship Management: - Innovations and Challenges

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Abstract:-

Customer relationship management (**CRM**) is a process in which a business or other organization administers its interactions with customers, CRM may be used with past, present or potential customers. The concepts, procedures, and rules that a corporation follows when communicating with its consumers are referred to as customer relationship management (CRM). This complete connection covers direct contact with customers, such as sales and service-related operations, forecasting, and the analysis of consumer patterns and behaviors, from the perspective of the company.

Introduction: -

The third primary aim of CRM systems is to incorporate external stakeholders such as suppliers, vendors, and distributors, and share customer information across groups/departments and organizations. For example, feedback can be collected from technical support calls, which could help provide direction for marketing products and services to that particular customer in the future the organization fosters the time value of the customer "life", and sees that it is the estimated profits made through their relationship with the customer, as the organization considers the customer a shareholder in the fixed costs (Blattberg and Deighton, 1996). Many scientists revealed that the human invent and create since the inception of Creation to now; most human civilizations have been throughout ages concerned about their children and worked to develop and increase their mental abilities in all areas. Innovation is important in the modern era because it is the real bridge that reflects the theoretical ideas of nations and individuals to the righteousness of the creative works; in addition, innovation is the effective and practical criterion to measure excellence because it is easy to see the work of creators and evaluate them accurately. We live today in a world characterized by complexity and the problems that erupt every day to make innovation and innovation the only solution that makes the individual and society able to cope with the demands of this era (Mafraji, 2003). Recently, many challenges that face the aviation industry have appeared due to the technical developments nowadays, which require careful preparation for these challenges in terms of information and human being.

Objectives of the study:-

1. To study of the recent trends in Customer Relationship Management
2. To study innovations and challengesin Customer Relationship Management

Research Methodology:-

1. Research paper is based on secondary data.
2. Research paper studied on various recent reports.

Components of CRM Innovations and Challenges

Customer expectations are always changing, and these needs are being met with a wider range of channels and technology than ever before. Now, all of these interactions, touchpoints, events, and transactions are becoming part of a growing Customer Relationship Management (CRM) ecosystem that can enable all employees to better serve their customers.

CRM technology platforms

CRM products have come a long way in the last 20 years or so — from being just a contact database where customer information is stored to being an essential source of relationship intelligence for the entire customer lifecycle. As a result, we have identified four CRM trends and CRM technology innovations that are helping organizations in their quest for better customer experience (CX), improved engagement with prospects and customers, increased opportunity management, and enhanced automation and security.

Artificial Intelligence (AI)

Applies across a spectrum of technologies including machine learning, predictive analytics, natural language processing, and robotics. CRM vendors have been investing, acquiring, and building capabilities that leverage AI to optimize customer interactions. According to Teradata's "State of Artificial Intelligence for Enterprises" report, 80 percent of those interviewed were in the process of implementing a form of AI in their organization. In this rapidly expanding scene, we see AI assisting CRM platforms in the following ways:

Customer service:

As AI chatbots are being deployed to handle more service requests, information is now being captured and leveraged through CRM applications. For instance, let's say an auto insurance claim is initiated via a web chat. During its task handling, the chatbot collects necessary data—such as customer name—and authenticates the customer and vehicle. Upon collection, the data can be passed to a human associate to complete the insurance claim process. Bots are trained and can learn from feedback based on the customer satisfaction of the interaction. The feedback loop for a bot can lead to improvements after each interaction.

Lead management:

A sales teams can use AI to score a lead, increasing the likelihood of winning a closed sale. First, AI analyzes the lead and based on interest or buying history, it can provide a score and recommend what steps are needed to increase success. For example, a medical device manufacturer may receive a lead from a hospital. In this case, AI would use sales history, data about the hospital, close ratio of similar hospitals, and the interest level to provide a score. The AI can then recommend different products and features to offer, such as a field service contract for preventive maintenance, which would increase likelihood closing that individual account.

Next best action:

Using business rules and predictive models, AI embedded in CRM software can recommend steps to sales or service associates to assist with service requests or upsell opportunities. As associates navigate through customer calls, AI analyzes the data they enter in the service request in CRM. Based on certain criteria, the system suggests an offer to sell, an add-on product, or service to the customer. The offers would not be generic but more in-line with the needs or circumstances of the individual customer. The idea here is that the associate does not need to remember to make an upsell offer, as that information is provided to them in real time.Workflow is a basic staple of most, if not all, CRM platforms. In the realm of automation

Capabilities, several new CRM trends have been making headway:

Task automation:

Defining work tasks and if they should be performed either by a machine or human helps organizations enable their resources to better serve customers. Task automation also provides the step-by-step instructions of what actions to perform. During an associate's interaction with a customer, the CRM system will direct or guide the associate as to what to say and do to inform the customer. Task automation is structured and prescriptive for what steps to perform based on input received, customer profile, or other business conditions.

The tools to define task automation consist of diagramming like process tools or low-code tools that can be used by business-oriented resources. For example, an organization will have a business analyst define a task that describes how to process an insurance enrollment using a diagram tool that takes the analyst through each step, decision point, and predictive outcomes during the interaction.

Work distribution:

Task automation specifies process flow and tasks to perform and may identify that certain tasks need to be performed by other resources based on the skilled employee's availability. The ability to distribute or route tasks is another capability within Process Automation trending in CRM platforms.

Many Business Process Monitoring (BPM) solutions provide work distribution/routing while monitoring the performance of the work that are common in enterprisewide, highly complex integrated systems. And now CRM platforms are starting to provide BPM lite capabilities that are embedded into the architecture with abilities such as task routing, skill prioritization, resource availability, and monitoring of events.

Trending in CRM regarding integration is the emergence of third-party systems and the Internet of Things (IoT):

Third-party systems:

The ability to plug in data from systems such as Google Maps, government subscription services, mobile cellular services, SMS text messages, and so forth are based on the internet and delivered through web services. The use of web services assumes that everything is a resource.

These IoT devices can send data about product issues, maintenance needs, improper usage, to an organization's CRM platform. CRM vendors are beginning to provide platform connections to handle IoT feeds. Let's say there are refrigeration units in a hospital that store vital medications. If there is a detection that coolant is low or something critical to maintaining the temperature, the refrigerator sends out a data message. The manufacturer of the refrigeration unit using an IoT platform would receive the message and relay it to the hospital's CRM/IoT system. The CRM system would issue a case and workflow to notify hospital staff and assign tasks to move the medications to another refrigeration unit.

Transparency:

Block chain is decentralized and requires no middleman to verify, such as a financial institution, or other third-party broker to provide. This increases speed to securely and transparently engage with customers.

User control:

Block chain stores and encrypts personal data and verifies this access without sharing any specifics, thus controlling what level of data is accessed. CRM systems will, in effect, subscribe to customer data as permitted by each individual's grant rights. Users will have the control, as opposed to current CRM systems that provide unlimited access to personal data without any user control.

Clean data:

Who is tired of how inaccurate your data is in other companies' CRM databases? Duplicates, wrong addresses, wrong emails, and other elements create frustration for customers. Blockchain can store and encrypt personal data and confirm details upon inquiry (such as a mobile phone company verifying your address or current employer) without truly sharing data with the inquiring party. Instead of storing the customer submitted address, Block chain would confirm the customers' address complies with the mobile phone company need for a valid servicing address.

If you would like to explore other aspects of CRM innovation, here are some additional resource items you may enjoy. In the article, Social CRM Defined, learn how companies are using social CRM as a business practice to transform the customer experience, and how to better understand the role of social media in customer-focused business strategy. With many kinds of CRM software available, such as social CRM, mobile CRM, and AI powered CRM, it is important to remember that while CRM tools in the contact center provide valuable information, when deployed ineffectively, they can complicate instead of simplify the customer experience. That is why we have identified three CRM technology best practices for how organizations can properly deploy CRM in the contact center.

(1) Costs: One of the biggest challenges facing companies trying to implement CRM is the cost associated with purchasing, installing and training employees to use new software, according to CRMlnfoline.com. CRM often doesn't deliver the return of investment that companies hope for, though this is typically the cause of a poorly implemented system or poorly trained staff.

(2) Transition: In order for a business to use a CRM solution properly, nearly the entire business will have to change. Most companies operate on an "us first, customers second" mentality, whereas CRM-centric businesses focus on placing customers and their satisfaction before the company.

(3) Smaller Businesses: Some of the challenge and difficulty associated with implementing a CRM system are dependent to some degree, on the size and well-being of a business. While a large, well-off business will probably have the capital, time and resources to implement a CRM solution, a smaller business may not have those resources as readily available.

(4) Lack of understanding: CRM is highly developed software, so the users and the operators may have lacking in understanding of CRM.

(5) Lack of participation: Because of lacing in understanding and unfamiliar, it is may have less participation in use of CRM

Summary: -

Conclusion and additional CRM trends resources Organizations utilizing the above CRM innovation trends, such as AI, Process automation, Data integration, and Block chain, have the potential to immensely improve their customer experiences. As these organizations continue to invest in their CRM platforms to advance their customer engagement, these four CRM trends will continue to play a vital role in where they should make such investments.

References:-

Piccoli, Gabriele and L. Applegate (2003), "Wyndham International: Fostering High-Touch with High-Tech", Case Study No. 9-803-092, Harvard Business School

Piccoli, Gabriele and L. Applegate (2003), "Wyndham International: Fostering High-Touch with High-Tech", Case Study No. 9-803-092, Harvard Business School.

Business Strategy; 1999.22. Leach, B., Success of CRM systems hinges on the establishment of measurable benefits. Pulp & Paper 2003. 77(6): p. 48

Richards, A. Keith, and E. Jones, Customer relationship management: Finding value drivers. Industrial Marketing Management, 2008. 37(2): p.120-130.

Mohammadhossein, N., &Zakaria, N. H. (2012). Customer relationship management Benefits for Customers: Literature Review (2005-2012).

Bolte, T. Still Struggling to Reduce Call Center Costs without Losing Customers? 2007.

Silverman, L.L., CUSTOMERS: RESPONSIVENESS, FOCUS, OR OBSESSION? The Australasian Powder Coater Painter-Fabricator, 2000. 29(2).

Collica, R.S., CRM Segmentation and Clustering Using SAS Enterprise Miner.2007.

ISSN : 2278-9308
February, 2022

Indian E- Banking Sector And Cyber Crimes: A Study Of Safety Mechanisms And Preventive Measures

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Abstract:-
In the 21ST century knowledge society, the way people interact and communicate with each other all over the globe has changed drastically due to globalization and e- revolution. The paper based communication of earlier time is fast being substituted by electronic communication. This has led to new ways of functioning of government and business. Now we have a new terminology of cyber space, netizens, E- Governance, e- contract, and e- transactions. Today this advanced information technology has been widely used in banking sector. Online banking and online shopping, e- banking, online payment, online auction.etc are new technology adopted in banking sector. Increasing use of these new technologies may open the doors for cyber crimes. A minor laps in or negligence in managing the digital life can be made vulnerable to cyber threats and can lead to financial loss.

In India a number of banks generally falls prey to the massive malware attacks. such attacks not only leaks valuable and sensitive information but also causes heavy financial losses . The main aim of this research paper is to study the impact of cyber crimes or threats on Indian baking sector with special reference to suggesting the safety mechanism and preventive measures in India. This paper will provide insights on cyber crimes which will benefit banks financial institutions and society at large.
Keywords: - cybercrimes, e – banking, information technology, cyber space.

INTRODUCTION:-

A Bank is a financial Institution which is among the main contributors to the financial system in India. Banking offers various facilities to the customer for banking operations. Since the nationalization of banks in 1969, The public sector banks possessed by the Government, have acquired a place of nobility, with incredible growth. Now India is becoming an emerging economic giant because of information technology. Banking in India has been through a long journey. It has been a number of changes due to technology and innovation. The globalization transformed the face of Indian banking industry from past few years. Banks have customarily been in the front position of exploiting technology to ameliorate their products and services. Over a long period of time banks have been utilizing electronic and telecommunications modes for disturbing a wide range of value integrated product and services. The influx of cards, the introduction of clearing services like ECS, the concept of e- banking and mobile banking are numerous innovations which took place in the banking segment. Now a days all banks have started with the concept of multi- channel, like debit cards, credit cards, smart cards, ATMS, Internet banking, electronic fund transfer,etc. The role of banks has changed from financial intermediate to service supplier of numerous monitory services under a roof.

E- Banking:-

In the last three decades the banking sector has seen a profound transformation owing to the changes in the global financial environment. The major changed witnessed in banking sector has been great advances in financial innovations and technologies which are a result of turmoil in the global financial environment.. the improvement in financial innovations and technologies has made e banking as intense part of the banking sector. E-banking has revolutionized the lives of all individuals of present times of present times. Earlier bank customers were required to personally visit a bank branch in order to transact through their through their saving accounts but with arrival of internet banking the manner in which financial transactions are carried out have changed. Although the e- banking has been popular among computer literates for many years, its popularity is growing exponentially as internet usage grows and people discover the numerous benefits that are provided by online banking. E-banking has become an integral part of the global financial environment in order to meet different requirements of customers in banking sector ,thereby meeting the increased expectations of the participants' in Indian banking system.

Cyber Crimes In E- Banking Sector:-

In General in cyber crimes may be defined as " any criminal activity that uses a computer either as instrumentality , target or a means for perpetuating further crimes comes within the ambit of cyber crime. " these crimes is also called as crimes on the internet crimes of internet and new crimes used for commission of older crimes. In e banking sector these cyber crimes are usually done with help of computer or internet where computer used as tool or target or both. Today cyber frauds in banks may become the common crimes in which heavy loss of money to the customers every year. These cyber crimes involve anything illegally downloading files, to stealing millions of rupees from online banking bank accounts.

Today ATMS, Credit card and debit card, , real time gross settlement system(RTGS) has been widely used by the individuals for financial transactions. Internet banking is the result of computerization of banking sector. The importance of mobile phones for providing banking services has increased. In India banking services have been extended for the customers to be availed through their mobile phones. Mobile banking is when transaction are carried out using mobile phones by the customers that involves credit or debit to their accounts. All these new techniques are more vulnerable towards cyber crimes. The frauds under the banking sector are covered under cyber deception. Cyber deception is further defined s a immoral activity which includes theft, credit card fraud, and intellectual property violations. Mostly frauds are committed because of two goals. Firstly one gain access to the users accounts and steals his/her personal information and transfer funds from one account to another. Second is to undermine the image of the bank and block the bank server so that the customers is unable to access his/her account t .In terms of cyber crimes incidents of ransom ware , an identity theft and phishing attack has been randomly occurred in Indian banking sector.

Banking sector has suffered an impact of cyber crime. RBI has defined bank fraud has a "a deliberate act of omission or commission by any persons , carried out in the course of banking transaction or in books account maintained manually or under computer system in banks resulting into wrongful gain to any persons for a temporary period or otherwise , with or without any monetary loss to the bank.

Following cybercrimes are rampantly occurred in banking sector..

1) **Hacking:**-

Another name for hacking is breaking into computer resource. Such type of hacking is mostly done to cause loss to competitor or to win the confidence of clients. Here hacker often engages in data didling i.e. forging or changing record for personal gain or attempting to copy data from the penetrated system. . Under I.T Act this a cognizable offence and bailable offence..Under sec 43(a) read with section 66 of I.T.Act 2000 and section 379 and 406 of IPC 1860, a hacker can be punished.

2) **Credit card fraud** :-

In such of crimes criminals generally get personal or financial credit card information from innocent persons and sell it to the counterfeiters of credit cards at very high price . For this there is no need to seal credit card but special computer hardware and programs are used to get information on credit and bank card magnetic strips.

3) Keylogging:-

Key logging is a method by which fraudsters' record actual keystrokes and mouse clicks. Key loggers are Trojans software programmers' that targets computers operating system and are installed via a virus. These can be particularly dangerous because the fraudsters capture user ID and PASSWORD, account number, and anything that has been typed.

4) Phishing:-

Phishing is an illegal activity whereby fraudulently sensitive information is acquired such as passwords and credit card details by a person / entity by misrepresenting himself as a trustworthy person or business in an apparently official electronic

Communication such as email or instantaneous communication. Therefore phishing is criminally fraudulent process of attempting to acquire sensitive information such as usernames', passwords and credit card. These communication purporting to be from popular social websites , auction sites, online payment processors or IT Administrators are commonly used to lure the unsuspecting phishing is commonly carried out by email or instant messaging and it often directs users to enter details at a fake website whose look and feel are almost identical to legitimate one.

5) Spyware:-

Spyware is the number one way that online banking credentials are stolen and used for fraudulent activities. Spyware works by capturing information either on computer or while it is transmitted between the computer and websites. often times it is installed through fake "pop-up' ads asking to download software. Industry standard Antivirus products detect and remove software of this type , usually by blocking the download and installation before it can infect the computer.

6) Fraud by request money QR code / link on Google pay/ phone pay/ paytm:-

Cyber fraudsters send debit links or QR codes to victims to scan and receive money in their bank accounts through Google pay/ phone pay/ paytm. But instead of receiving money it actually gets debited from the victims account as fraudsters actually send a request money QR code/ link.

7) Impersonation and identity theft:-

Impersonation and identity theft is an act of fraudulently or dishonestly making use of the electronic signature, password or any other unique identification feature of any person.

8) Sniffing:-

It means finding a users password. There are three ways to sniff a password, password sharing , password guessing and password capture.

9) Spamming:-

The biggest problem while working on email is that a person often receives unsolicited bulk emails (UBE) which he has not asked for. This receiving of unsolicited bulk emails is known as spam. These spams are generally sent by commercial companies as an advertisement of their products and services especially when they were cross-posted to newsgroups.

Preventive measures for the prevention of cyber crimes:-

One should always take some preventive measures so as to protect himself from cyber attacks. The following points should be kept in mind while working on computer and internet:-

1) Exercise caution while sharing personal information such as your name, email address. Do not respond to E-mail messages that ask for your personal information.
2) Do not visit unwanted gambling or related websites. Chose strong password so that these cannot be easily decoded. It is always recommended to keep changing the password at regular intervals.
3) Always keep on reviewing your credit card and bank statements regularly. If one gets the tip-off being stolen then timely action can be taken.
4) Do not share your net banking passwords. One time process (OTP), ATM, phone banking , PIN, CVV number etc with any person even if she /he claims to be an employee or a representative of the bank and report such incidences to the bank.
5) Never give out or post your email address publicly.
6) Think before you click and do not reply to spam messages.
7) Download spamming filtering software and antivirus software.
8) Avoid using your personal and official email address.

9) Do not allow anyone to stand behind you while you carried out transaction with ATMS / Debit or credit card.
10) Never click on any link or scan any QR code from unverified sources as they may send you a manipulated one.
11) It is better to use security programs that keep guard on cookies as leaving cookies unguarded might prove fatal.

Conclusion:-

In present scenario Indian banking sector can not avoid banking activities carried out through electronic medium, but cyber crimes is more serious offence other than real life crime. In order to overcome this problem victims should report these case to the nearest police station and cyber fraud council on banks . in order to stop these issue the legislature should keep a tract on the working system of banks and law implementation should strict to monitor such wrongdoing and more ever bank should educate the customers regarding the awareness of cyber crime often.

References:-

1) Mayur Abhyankar, Ketan Patil (2019), “a study of Frauds in Banking sector,” Indian journal of Applied research , vol- 9-5.
2) Harshita Singh Rao(2019), “CYBER CRIMES IN BANKING SECTOR” , International Journal of Research Granthaalayah, vol-7(1)PP .148.
3) Mrs. S.kalpana and Dr. M.Mahalakshmi , “ cyber crimes : a growing menace to Indian banking sector , 2020 JETIR December 2020, volume 7, Issue 12.
4) Suman Acharya and Sujata Joshi, “impact of cyber attacks on banking institutions in India: a study of safety mechanism and preventive measures, pararchs Journal of Archeology of Egypt/ Egyptology 17(6), ISSN 1567- 214x
5) Mrs Neeta & Dr. V.K. Bakshi, “ Cyber crimes in Banking sector”, Ayushi International research Journal (AIIR), VOL VI, ISSUE –V, May 2019 , ISSN 2349-63.
6) Kant Mani, legal framework on Cyber Crimes , Lawmanns publishing , New Delhi, Third Edition.
7) Dr. Jyoti Rattan and Dr. Vijay Rattan , cyber Laws and Information Technology, forwarded by JUSTICE jagdish Singh Khehar, Bharat Law, New Delhi, 6TH edition, 2017.
8) Dr. Nishesh Sharma, cyber crimes towards cyber terror, sattayam law international, New Delhi, 2019.
9) https:// www. Cyberlawindia.net
10) https:// www. aiirrjournal. Com.
11) https:// journal . lawmantra.co.in

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Pedagogical And Technological Transitions In Online Teaching Learning Process

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Abstract.

The present study emphasizes the **Pedagogy and technology in online teaching learning process**. It will designate the journey and shed light on the issues, standpoints and practices as the instructors reflected on the fluctuations to their didactic practice and the resulting online student engagementResearch advocates that online learning has been shown to increase preservation of information, and take less time, meaning the changes coronavirus have caused might be here to stay.With this hasty transferal away from the classroom in many parts of the sphere, some are wondering whether the adoption of online learning will continue to persevere post-pandemic, and how such a shift would sway the worldwide education market.In years past, teachers had to create their "virtual classrooms" from graze which was challenging and often steered to poor results. Today, an intact industry has emerged to do this for us. Course Management System software is exploited by just about all colleges today. CMS allow instructors to project and deliver their courses within a stretchy framework that includes a number of diverse tools to enable learning and communication to occur.A holistic approach to student progress must also be lectured by the online model. Especially in the current context, engaging students in art and movement is the need of the hour not just to boost and supplement the student's academic performance, but also, as in traditional school, for the sake of sculpture itself.This study originate a change in the beliefs and instruction presence of the instructors from their initial confrontation to online teaching to an approach which is mindful of the scholar capability and stimulates a dialogical approach to online learning.

Keywords: online teaching learning pedagogy, virtual class room.

Introduction

Education is the process of reassigning knowledge, values, procedures, skills, and dogmas from one individual to another. Online education has grown melodramatically over the past decade, as have the equipment applications that support these environments. Although technology applications are an important contemplation in online education, a wide-ranging view of the online instruction and learning process is needed. In the mid-1980s, the first online college courses were commenced by numerous universities and schools. The advent of the Internet was a catalyst for stirring distance online education to the next level. The Internet is now in concert a bigger role in our lives and verbalizing how we live, mingle, teach, and learn. As the Internet is developing into a main educational tool, online education offers the educator and the learner entrée to numerous resources. During the last span online education of various kinds, often called distance education or web-based education, has become a customary part of many university programs. Online teaching and learning is premeditated to reach and engross the modern learner on one-to-one basis anywhere, anytime. In a similar disposition, hurdles to the adoption of online courses include lack of faculty obligation and high costs of enactment and delivery of the courses. The key to a successful execution of online teaching and learning is taking student appearances into account. These students are mostly virtually-oriented with keen interest in tools and know-hows. Thedistillation of Information Communication Technologies into learning and teaching has befallen in all segments of education. It has changed the environment of head-on teaching and empowered the rapid growth of melded and online courses. Information and communication technology offer new prospects but also new dares for both instructors and students. As the number of online courses propagates it is essential that we have an indulgent of the roles and practices of an effective online teacher. Organizations that provide time for tailored professional development, resources for initial course improvement, support for ongoing course modification, and methodicalevaluation of learning outcomes facilitate the progress of online instructors who use knowhowimpeccably to support content and pedagogy for 21st Century learners. The introduction of technological tools has created a paradigm shift in the field of education. As such, online learning has become a popular method for students to contact educational courses. However, transitioning to an online environment necessitates a role change for faculty members. Specifically, faculty members must swing their instructional methods from on-ground lecturer to online mentor, which can be stimulating. Indeed, many faculty members changeover to online instruction without the necessary training, support, or skills needed to be successful.

Online Teaching

Online teaching offers exhilaratingprospects to swell the learning milieu for assorted student populations. As the ultimatum for online teaching increases, college professors may be asked to deliberate teaching their classes online. Online teaching stakes much with face-to-face teaching, but it also has a exclusive set of skills and requirements. Both slants are similar in content, except in stride and delivery. Rather than developing the courses from nick, a company has materialized to take care of the courses. Professors just want to custom Course Management System software to formulate and provide their courses. Using the software allows mentors to get it right from the commencement. For online teaching to be efficacious, it is acclaim that the instructor should follow the following seven principles likeboosting student participation, embolden student cooperation, inspire active learning, giving prompt pointer, emphasize time on task, converse high potentials, Respect assorted talents and ways of learning. To these doctrines one may add seven more like address distinct differences, motivate the student, avoid information overload, create a real-life context, encourage social collaboration, provide hands-on activities, and encourage student replication

Online Learning

Online learning is for those who wish to study for a degree alongside work .Online learning has been referred to as a form of distance education and as web-based learning, elearning, and digital learning. It is accessible over the Internet and customs web-based constituents and accomplishments. Online learning at your own pace is favorable for a high-quality college degree. Whether offered on campus or conveyed online, each course proposing must meet the same laborious criteria and the stringent academic standards. Generally, students are mandatory to have access to a computer system with high-speed Internet connections. They may also expect electronic hypothetical support services such as registration, financial aid, libraries, tutoring, and advisement.

Benefits And Challenges

Online education affords great prospects and boundlessdefies. It has benefits for the students and mentors. It compromises the expediency of time and space, cost-effectiveness, and flexibility. Online learning allows student to hunt a collectivelyrenowned degree without the need to appear classes on campus. Online education is desired by students who cannot contribute in customarytutorial room settings. It is appropriate since it allows one to study anywhere that has an Internet access. Online courses are vacant 24/7.Over the past decade, the number of online courses have also full-fledged rapidly. Even though online education may graft for everyone, some less-developed countries see the online education as cost operative. It is pointless to say that online teaching and learning in either synchronous or asynchronous modus is applied in all persuasions such as engineering, computer science, medicine, nursing, business, music, and social sciences. Online teaching and learning is flattering common even in business establishments. Issues adjoining an online advisor include being effective in delivering the course, responding to student emails, getting used to the online tools and substructure. Critics of online teaching and learning interrogation its value, effectiveness, and quality. Since online teaching and learning systems have not been able to bear interactions between the instructor and students; its educational helpfulness is lower than the traditional face-to-face lecture. Responding to student email messages in a timely manner can be challenging since it requires substantial amount of instructor's time. It takes a lot of time to formulate and teach anonline course. The challenge of online instruction largely depends on online instructors. There is also the issue of intellectual property and proprietorship of materials placed on the websites. Issues fronting online students include the restraint of self-directed learning and self-discipline which may sway the success or failure of online learners. They may be tempted to adjourn in working on their assignments. The issue of superiority in online learning has been raised and it is as multifaceted as the reality of online learning itself.

The changing role of instructor.

The shift to online teaching and learning from a outmoded face-to-face methodologyencounters the anticipations and roles of both instructors and learners. For some instructors, when they change the place of teaching, they feel that their uniqueness are under hazard. Many instructors see their proficient identity being tied to their past face-to-face coaching where they had a high level of proficiency. Educators are fluctuating teaching places, they need to redefine themselves in light of the amendment in landscape. Redefining professional identity and teaching practices takes time. Without drill many instructors try to duplicate existing course design and pedagogical rehearses when they move from face-to-face teaching to amalgamated or online teaching. The replication of traditional methods does not capitalize on the dynamic nature of a technologically boosted teaching and learning environment. Some academics fail ―make a transformational shift in their approach to teaching from one of publicizing information to one of generating learning environments where students co-construct knowledge through interfacesand they are under burden to re-examine their philosophy and their pedagogy.

The interchange from confrontational to blended and online teaching is quite defying. The environment of teaching, roles and workload distribution changes as trainers teach in blended and/or online courses. Many experienced or expert face-to-face teachers find themselves as novices or beginners when first teaching online. In some cases it could result in a confrontation towards online teaching.

A major encounter, identified by Yang and Cornelious (2005), when instructors move from a mostly teacher engaged face-to-face environment to an online environment, is to redesign erudition towards a constructivist approach. This often fallouts in a change in: roles and responsibilities; use of technology; relationships; presence; and analleged lack of prestige.

Occurrence can be defined as ―the ability to roboticallycategorize the status and accessibility of communication partnersand provides adimple to others that you are there 'or present. Teaching presence has been defined by Anderson, Rourke, Garrison and Archer as ―the design, facilitation, and direction of cognitive and societal processes for the purpose of grasping personally meaningful and scholasticallysensible learning outcomes. They go on to explain that teaching presence comprises three key roles: instructional design and organization; facilitation of discourse; and direct instruction. The indicators for each teaching presence category like Instructional design and organization –indicator-setting the curriculum; scheming methods; establishing time parameters; employing medium effectively; launching netiquette; and making function-level comments about course content. Expediting discourse-indicator- identifying area of settlement/discrepancy; seeking to reach consensus/indulgent; encouraging, acknowledging, or reinforcing student contributions; setting the climate for learning; depiction in participants, and stimulating discussion; and assessing the efficacy of the process. Direct instruction-indicator-presenting content/questions; converging the discussion on specific issues; short and snappy the discussion; confirming understanding through assessment and explanatory feedback; spotting misconceptions; injecting knowledge from diverse sources; and responding to technical concerns. The indicators listed provide examples of what an instructor does within each of the three categories or roles of teaching presence. Instructional design and association refers to the planning, management, and operational decisions made in a course usually prior to the students entering. When effectively facilitating discourse academics are superintendent and developing industrious conversations so as to deepen students 'knowledge. Direct instruction requires deep discipline knowledge to empower the shaping of learning experiences and to detect students 'misconceptions. The sorts of teaching presence might be seen by students as the visible actions or verbal donations that the instructor makes throughout the course. Teaching presence is an indicator of the quality and quantity of the leadership and the collaborations made by the instructor. It is the role of the instructor to provide cerebral leadership for the course and shape the learning experiences of the learners through the teaching presence categories of design and organization, expedition of dissertation, and direct instruction. Technology in wisdom and teaching does bring with it a change to the role of the instructor and the environment of teaching. This is anapprehension if instructors are ill equipped to deal with the changing nature of teaching online because teaching presence does sway on student consummation in online courses.

Modes Of Interaction In Online Teaching Learning

- Instructor interacting with students;
- Students initiating interaction with instructor;
- Instructor facilitating student-to-student interaction (teacher led);
- Students' initiating student-to-student interaction.

Impact of online teaching and learning pedagogy.

- ❖ Repeating instructions several times
- ❖ Providing feedback or information to the students that is clear and concise
- ❖ Creating videos to facilitate communication
- ❖ Providing written or audio feedback
- ❖ Using Voice board for oral assignments and oral feedback
- ❖ Writing a lot on a test
- ❖ Using the Announcement feature in Blackboard.
- ❖ The evolution process is boosted when there is operativeannouncement between the instructor and the students.

Implications

The Transformation Process

Superintendents who understand that faculty members need to transmute themselves during the transition to online instruction process will be better equipped to develop training sessions to sustenance these instructors. Superintendents who seek to support faculty members in changeover to online instruction will be required to provide formal or informal training opportunities. Domino effect from the contemporary study suggest that knowledge procurement can take two forms. First, knowledge acquisition can be in the form of formal training provided by the superintendents at schools of higher education. Second, knowledge procurement can be in the form of an online instructor taking the initiative to find workshops or finding relevant current erudite articles or books on a specific topic to the contemporary area of need.

Learning and Smearing New Technology

Instructors who are new to the online milieu need to comprehend the technology tools vacant to them and the best approaches for teaching online. Faculty members also need to obtain the skills needed to navigate the encounters they will face as they conversion online. Inquisitively, while the extant literature identified the need for training, the need for subject specific training was also acknowledged. Knowledge procurement is ultimate for an online instructor to be successful both with respect to the technology that is being used and with regard to acquaintance that is subject matter specific.

Gaining Experience in the Virtual Environment

In addition to knowledge procurement, online mentors also need to gain involvement working in a virtual milieu. Inexperienced online instructors tend to use outmoded teaching strategies, which are unproductive in the online teaching atmospheremany on-ground faculty associates have transitioned to online instruction without pinpointing the need for subject explicit training is significant because superintendents are now aware of its prominence and can develop training sessions to address the needs of faculty members. If online faculty members are proficient properly, then the students will detriment from better course proposal and coaching. Superintendents who contrivance the aforementioned training suggestions will be able to tailor their training to meet the needs of their online faculty in an operative manner. This is significant because such fitting will improve instruction and thus lower abrasion rates of faculty and students.

Recommendations

Line up themselves with a tutor who ropes them through the evolution process and yonder. Because a mentor is a vital part of the transition progression, he or she would be of great assistance to the transitioning online faculty member. A mentor should be willing to segment how he or she set of contacts his or her online course so that the transitioning instructor could mirror his or her class.

Embrace a course on partnership in a program for aspiring teachers. Collaboration has been accredited as a system to support student education

To provide training that includes a course casing where transitioning instructors can run-through their collaboration skills with their colleagues and also to practice how to maintain collaboration with their students. Transitioning faculty members need pragmatic learning facilities.

Conclusion

Online teaching and learning is moderately new. It is blowing up in recent years as a preference in colleges' anduniversities all over the realm. Supreme universities and colleges agree that online education is precarious to their long-term strategy. Online courses are best taught when they are engineered to take advantage of the learning prospects afforded by the online technologies. As the claim for online education by those who have jobs and entail lifelong education increases, there are more and more expectations on the implementation of on teaching and learning system. Moving some or all of the learning online requires fluctuations to both pedagogy and practice to confirm effective learning outcomes. The challenge is to systematically explore the assimilation of pedagogical ideas and new infrastructures technology that will advance the evolution of higher education as opposed to reinforcing existing practices. The purpose of this numerous case study was to understand how faculty members transition to online instruction and to gain a better understanding about the transition process.

References

[1] M. N.O. Sadiku, S.M. Musa, and S. R. Nelatury, "Massive open online courses," International Journal of Engineering Research and Allied Sciences, vol. 2, no. 5, May 2017, pp. 1-3.

[2] D. U. Bollger and O. Wasilik, "Factors influencing faculty satisfaction with online teaching and learning in higher education," Distance Education, vol. 30, no.1, 2009, pp. 103-116.

[3] V. N. Gudivada, R. Agrawal, and C.Chu, "Online teaching and learning strategies for programming-intensive courses,"Proceeding of the 10thInternationalConferenceon InformationTechnology:New Generations, 2013, pp. 781-782.

[4] D. U. Bollger and O. Wasilik, "Factors influencing faculty satisfaction with online teaching and learning in higher education," Distance Education, vol. 30, no.1, 2009, pp. 103-116.

[5] Sun and X. Chen, "Online education and its effective practice: a research review," Journal of Information Technology Education: Research, vol. 15 2016, pp. 157-190.

[6] Lee, J. (2002). Digital history in the history/social studies classroom. *The History Teacher, 35*(4), 503-518.

Artificial Intelligence In Education

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Abstract

In the era of digitalization and rapidly changing technology, artificial intelligence is one the fastest progress in technology across the world. The study and development of machines and software technology is referred as Artificial intelligence. Artificial Intelligence brings a lot of benefits to various fields, including education. Artificial intelligence in education can become more accessible and inclusive at the same time. Various tutoring programs, learning applications with skill-based curriculum are being developed across the world. These Artificial intelligence will bring global classrooms at our fingertips. Artificial Intelligence and Machine Learning can improve the level of education. It leads to the opportunity to upgrade the learning processes. However, it's impossible to replace the teacher or lecture. Artificial intelligence provides many benefits for students and teachers. This paper is aimed to discuss role of artificial intelligence in education sector including its benefits of Artificial intelligence and impact in education sector.

Key words – Artificial intelligence (AI), education, technology, and impact

Introduction

Right from electronic commerce to healthcare to education, in each and every sector, the intervention of AI has increased by multifold. Many companies and education are now days investing in developing their own version of Artificial intelligence and Machine learning. Artificial Intelligence is defined as the power of a machine to copy intelligent human behavior. Technology used to track the performance of an individual student based on his previous grades, participation, and performances. Artificial Intelligence enhances the quality of education. Education is a means to develop minds capable of leveraging the knowledge pool, while Artificial Intelligence provides tools for developing a more exact and detailed picture of how everything works.

Purpose of the Study

With the continued application or use of information technology, it is inevitable that it has impacted the education in different ways. This study seeks to assess how the use of Artificial Intelligence in its different forms in education has impacted or affected different aspects of education. More particularly, the study will seek to assess how artificial intelligence has affected teaching, learning, and administration and management areas of education. It is anticipated that the study will ascertain that artificial intelligence has fostered effectiveness and efficiency in the performance of administrative tasks in education, and overall fostered improved instructional and learning effectiveness in education.This study will benefit various stakeholders in the education sector. It will contribute to the growing study and development of knowledge, theory, and empirical findings that identify and discuss the different ways in which artificial intelligence has affected education. It will benefit scholars, professionals, and policy makers, such as administrators, management and leadership of educational institutions and the education sector, by fostering evidence-based decision-making and management and leadership practices in the sector.

Roles of artificial intelligence in education

1. Personalize Education

Artificial Intelligence helps find out what a student does and does not know, building a personalized study plan for each learner considering the knowledge gaps.

2. Produce Smart Content

•Digital lessons- Digital learning link with customization options, digital textbooks, study guides, bite-sized lessons, and much more can be generated with the help of Artificial intelligence

•Information visualization- New method of perceiving information, such as visualization, simulation, web-based study environments, can be powered by Artificial intelligence.

•Learning content updates- Besides, Artificial intelligence helps update the content of the lessons and generate, keeping the information up to date and customizing it for different learning curves.

3. Contribute To Task Automation

Administrative tasks simplification: grading, assessing, and replying to students is a time-consuming activity that could be optimized by the teacher usingArtificial Intelligence .

4. Do Tutoring

Personal study programs take into account student's gaps to fill during individual lessons. Personal tutoring and support for the students outside of the classroom help learners keep up with the course and keep their parents from struggling to explain algebra to their kids.Artificial Intelligencetutors are great time-savers for the teachers, as they do not need to spend extra time explaining challenging topics to students. With AI-powered chatbots or AI virtual personal assistants, students can avoid being embarrassed by asking for additional help in front of their friends.

5. Ensure Access to Education for Students with Special Needs

The adoption of innovative AI technologies opens up new ways of interacting for students with learning disabilities. AI grants access to education for students with special needs: deaf and hard of hearing, visually impaired, people with ASD**.**Artificial Intelligence tools can be successfully trained to help any group of students with special needs.

Educational platforms based on artificial intelligence technology.

1.Third Space Learning.

This system was created with the help of scholars from London University College and actively use Artificial Intelligence opportunities. Third space learning can suggest ways to improve teaching techniques. For example, if the teacher speaks too fast or slow, the systems send a notification.

2. Little Dragon.

It's a set up company that creates smart apps using Artificial Intelligence. Such applications can scrutinize the users' emotions and adapt the user interface depending on it. The company also makes educational games for kids.

3. CTI.

This company also uses AI to develop tech-driven blend for education. The primary goal is creating smart content. For example, Cram101 can scrutinize the textbook or other learning materials and choose the critical information to create texts.

4. Brainily.

It is a social network connected with students' cooperation. For instance, learners can discuss issues connected to their homework or acquiring new information from other students. The company make use of Machine Learning to provide a better user experience. Machine learning assists in selecting spam and inappropriate content. Additionally, AI is used to offer more individualize materials.

5. Carnegie Learning.

This system tends to provide more personalize education materials, making the learning process more comfortable. This solution offers real-time education for students. Carnegie Learning analyses the users' keystroke and allows theinstruct to see the students' progress.

6. Thinker Math.

This AI-enabled solution encourage small kids learn Math. There are various games and rewards to obtain better engagement results. The app also offers a illustrate learning plan depending on the child's knowledge

ISSN : 2278-9308
February, 2022

Advantages of Artificial Intelligence on Education

Artificial Intelligence in education comes with many benefits that make teaching and other admin processes easier for instructors and schools. These are a number of the benefits of computing in education:

1.Monitor and Analyze Student Progress in Real-Time

Teachers can observer and analyze students' progress in real-time using Artificial Intelligence tools. It implies that the teachers don't have to wait until they compile annual report sheets. Also, AI gives teachers' recommendations on the areas that need repeat or further explanation. During this instance, Artificial Intelligence smart analytics picks any topics that the majority of the scholars struggled with.

2. Saves Time and Improves Efficiency

Because Artificial Intelligence exhibits human-like skills like learning, critical thinking, and problem-solving, there's a fear about Artificial Intelligence. Thus, the mutual notion is that Artificial Intelligence will ultimately take the place of teachers. This can be not true. What AI does is handle the burden of repetitive tasks teachers and schools should cope with daily. There also are custom writing services like Online Writers Rating that help handle any repetitive writing tasks. It helps lay aside longer so teachers can specialize in teaching the scholars and other essential duties.For example, when employing a grammar tool, the teacher doesn't must repeatedly correct students' grammar. The scholars can use the AI-powered tools to find out word pronunciations, meaning, and proper usage. AI education is additionally beneficial to international students that are still struggling to find out a brand new language.

3. More Personalized Learning Experience

Artificial Intelligence in education enables schools to carve out personalized learning experiences for his or her students. From student data, AI can analyze the student's learning speed and wishes. With the results, schools can personalize course outlines that enhance learning supported students' strengths and weaknesses. Craving out personalized coursework that addresses each student's learning needs are some things even the simplest of tutors find challenging. AI-based technologies make it easier for schools to form better-informed decisions. As an example, they will include topics that appropriately suit learning requirements.

4. Convenient and Improved Student-Teacher Interactions

AI education makes interaction easier and convenient for both students and teachers. Some students might not be bold enough to ask questions at school. Such may well be as a results of the fear of receiving critical feedback. So with AI communication tools, they will feel comfortable asking questions without the gang. While on the a part of the teacher, they'll give detailed feedback to the scholar. Sometimes, there is not enough time during classes to retort to questions well. They will also provide one on one motivation for any student that needs help.

5. Simplifying Administrative Tasks

Every institution has loads of school admin tasks they have to house daily. Including AI to their systems can help to computerize such tasks. It implies that administrators can have longer to run and organize the varsity more smoothly. Moreover, schools can make use of correcting and editing services. Such services can help make sure that administrative documents are well written and error-free.

Disadvantages of Artificial Intelligence

1.High prices of Creation

As AI is change on a daily the hardware and software system ought to get updated with time to satisfy the latest necessities. Machines would like repairing and maintenance that need innumerable prices. It's creation needs prices as they are terribly complicated machines.

2. Creating Humans Lazy

AI is creating humans lazy with its applications automating the majority of the work. Humans tend to urge keen about these inventions which can cause a problem to the long term generations.

3. Unemployment

As AI is substitution the majority of the repetitive tasks and different works with robots, human interference is changing into less which may cause a significant downside inside the use standards. Each organization is trying to modify the minimum qualified people with AI robots which could do similar work with additional potency.

4. No Emotions

There is very little question that machines ar much better once it involves operating expeditiously however they cannot replace the human affiliation that produces the team. Machines cannot develop a bond with humans that could be a important attribute once involves Team Management.

5.Lacking Out of Box Thinking

Technologies will perform solely those tasks that they are planned or programmed to do , something out of that they need a bent to crash or provide digressive outputs which may be a major scene.

Impact of Artificial Intelligence in Education:

Artificial Intelligence has brought revolution within the education business, fixing the approach we tend to learn. It makes learning a lot of personalized and convenient for school youngsters. It helps in increasing the number of sometime spent on every individual student. Computing is probably visiting type a revolutionary impact on education inside the following ways that.

1. Administrative Tasks square measure simple and efficient

Computer science has attainable in mechanizing complicated body responsibilities for each tutorial institutes and academics and professors. academics pay the foremost times in grading schoolwork, evaluating essays and giving price to responses of the scholars.AI helps valuate tests therefore on pay longer with students one-on-one. AI will mechanize the process and classification of work. AI is believed to deliver a lot of price than this. Code developers square measure finding ways that to written responses and articles. It'll cut back overhead prices and create the approach for a smaller workers to work effectively.

2.Digital syllabus square measure the subsequent massive issue

Robots will empower their grammatical strength and create digital content. Virtual content like digital lectures and video conferences square measure the new inventions of AI. The digitalization of content has already reached the room.AI will facilitate change textbooks or produce made-to-order learning interfaces that apply to students of all age ranges and grades.

3.AI Application can Act as a Bridge between Students and conjointly the Tutors

Communication with academics or professors becomes easier if education institutes adopt AI. Therefore will your learning. Students typically cannot reach their tutors on the far side room hours or emails. However, good tutoring systems use information from a specific student or a bunch of scholars therefore on figure with them directly and provides them feedback. However, this AI application continues to be in its emerging stage. Technologists believe that it'll maybe work as a full-fledged digital academic and facilitate students with their academic desires with none problem. AI can facilitate North American country improve new concepts and problem-solving skills.

4.Virtual Learning square measure visiting be Exciting

Believe it or not, technologists believe that the initial lecturer inside the room will not be somebody's and should shortly get replaced by an automaton. Increased reality too square measure visiting be a part of the room. Virtual human guides already reply to humans through gesture recognition technology.

Conclusion

Artificial intelligence brings heaps of opportunities to share data everywhere the globe. Today, AI has been a hot topic everyplace and is creating its means into education. However, some say it'll take over education to the impairment of scholars, whereas others indicate that computer science can revolutionize and improve educations mistreatment computer science solutions, students will study numerous courses and coaching programs. There are heaps of platforms with interactive learning materials from the most effective tutors.

References

- Andrews, S, Bare, L, Bentley, P, Goedegebuure, L, Pugsley, C, Rance, B (2016). Contingent academic employment in Australianuniversities. Melbourne: LH Martin Institute. http://www.lhmartininstitute.edu.au/documents/publications/2016-contingent-academic-employment-in-australian-universities-updatedapr16.pdf. Accessed 26 Aug 2017.
- Bayne, S. (2015). Teacherbot: interventions in automated teaching. Teaching in Higher Education,20(4). doi:10.1080/13562517.2015.1020783.
- Bostrom, N, &Yudkowsky, E (2011). The ethics of artificial intelligence. In K Frankish, WM Ransey (Eds.), Cambridge handbook of artificial intelligence, (pp. 316–334). Cambridge, UK: Cambridge University Press.
- G.J. Hwang ,Definition, framework, and research issues of smart learning environments-a context-aware ubiquitous learning perspectiveSmart Learning Environments, 1 (1) (2014), p. 4.
- Dhavala Soma. (2018). Artificial Intelligence forEducation. It is cited by (UNESCO MGIEP, 2018) [1].

Revisiting The Transformation From Offline to Online

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Abstract

2020 created a milestone in education sector. A change in the era brought in a difference for both the teachers and the learners. Education sector witnessed a massive migration from classroom environment to online teaching. The shift was evident, a compulsion, a way to keep things back in its place in the new normal. The outbreak of covid19 has brought tremendous changes in all the areas. The shift has been considered and welcomed in an optimistic manner by most of us. We have learned, relearned and unlearned various things which becomes apt for the situation. The change brought in the concept of non-stopteaching and learning in order to bridge the gap of the academic year. The teachers continued to teach and keep the learners engaged. In this process teachers have wisely used various mediums to reach their students. Be it keeping the little ones busy with the school work or bridging the gap of education for college going students. Educators at all the levels have tried their best to teach their students. This paper aims to touch upon the areas which were of utmost importance for the teachers. Online teachers are more and more becoming facilitators of learning. This role is new for many teachers who are used to lecturing and testing. Others of you may already be facilitators in live classrooms, and now wonder how to transfer that form of teaching to an online environment

Keywords: Education, Migration, new normal, medium, Educators, classroom, facilitator, online environment.

Introduction

The role of teachers is switching constantly with the changes in the society. The teacher has to now combine the information about various subjects and experiences and inculcate the same to the students. This transformative process takes in lot of effort from the teaching fraternity. Educators have to now stress on fostering the capacity to analyse, imagine, innovation and critical analysis.

Online teaching is an approach with both benefits and disadvantages. It is a method adopted by many but its benefit may not reach the entire target audience. Looking at this aspect I would like to put forward the aspect of how both teachers are students are making the best of this new trend that has evolved in teaching methodology.

It is noticed that this method can be made more interesting through several add on and extra features which is now becoming very familiar with the teaching faculties. In spite of several improvements we need to look into the aspect of the online teaching through a learner's perspective. This suggests that there is lack of academic collaboration as they do not get that classroom atmosphere and they is a gap in the communication process among the learners. The teachers will extend their support to the learners but they simultaneously need to be monitored and guided by the parents.

The teaching community is also sailing in the same boat as the learners. The teachers need to be trained, taught and provided hands on experience about the online teaching methodology. The shift from chalk and talk is indeed a milestone journey for the teachers. Support from the institutions is vital for the successful implementation of the new learning methodology. The teachers have stressed on this E-Learning system and have given their best to reach out their students.

Teaching fraternity have learned the usage of several applications to aid their teaching. The gap has been filled and the students have been kept engaging through the classroom activities. Online teaching has been made a functional process through Google Meet, Google classrooms, YouTube links, Zoom and several other applications. Faculties has assessed the students through this online mode by conducting regular tests and giving them several assignments to complete. The students have also gained the hands on experience on this new technological advancement. This process is not easy going for the learners, it is a learning process for them. The teacher and learner both faced technical operational obstacles. This process might lead to problems like lack of self-discipline, inability to receive apt learning materials and peer learning doesn't take place.

Online teaching methodology is overloaded with numerous methods and strategies that will give added benefits to learn the topics in a better way. Extensive options are available to make classroom teaching interesting and informative. Teachers using google meet as a medium can have a separate virtual classroom wherein they can handover reading materials, can conduct online quiz and can assign several assignments to keep them engaging and connected throughout the course. This platform has an added advantage of conducting regular test and grading them based on the performance. With several options embedded in the method it is very important for us to know that this system needs systematic planning and scheduling. Enforcement of the methods can lead to loss of jobs because a single teacher from a distant place can now simultaneously teach several batches of students. The teachers and students may have to face internet issues which might ultimately make them frustrated. Several learners might feel left out if they cannot connect to the classes with their friends.

These virtual classrooms can be termed as classrooms away from classrooms. The learners are not getting a chance to grow with their peer group. They are deprived of a learning environment which becomes a platform to learn several social skills. It's a kind of boxed up learning. A teacher having interactive classes may try his or her best to interact with everyone. But things may not go smoothly. There might be hurdles in the path which requires lot of planning and organisation. Online teaching can hinder good learning attitude. It is evident that students might face several problems like lack of self-discipline, good learning environment or they might even feel isolated at home.

As teachers we need to ensure the effectiveness of online education. At present situation it is important for take the shift. It has become the need of the day.

Education can become transformative whenteachers and students synthesize information across subjects and experiences, critically weigh significantly different perspectives, andincorporate various inquiries. Educators are able to construct such possibilities by fostering critical learning spaces, in which students are encouraged to increase their capacities of analysis, imagination, crit-ical synthesis, creative expression, self-awareness, and intentionality. A byproduct of fostering such new approaches has been the creation of online courses developed in the United States and worldwide at exponential speed. It is becoming increasingly common at many higher education institutions, offering fully onlineand/or hybrid/blended courses combining online instruction with face-to-face teaching.

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Switching to online mode may be overloaded with unexpected problems. It is very important to think aptly in the situation. Teacher's problem solving capacity is put to task. A teacher need to be prepared with plan B and C if the plan A doesn't work. Communication with the students is utmost important. The learners should be informed well in advance about the schedule and keep them prepared. Little ones attending online classes need parental support and thus the timing of availability of the working parents should also be considered with regard to the classes.

Another important aspect to look upon is the duration of the class. We need to understand that learners cannot concentrate for long hours with their laptops or cell phones. With limited internet facility and continuous usage of the devices it becomes strenuous for the learners to give complete attention for long hours. Looking at this aspect we need to consider the duration for each of the subjects.

Chalk and talk method involves usage of our voice modulation, body language and facial expression. These are referred as vital tools in classroom teaching. But when it comes to online teaching voice modulation plays a significant role. A teacher has to know where and how to make changes in the voice as in to keep the learners involved in the class. Teacher should slow down the pace of their speech and allow the students to capture the points explained.

Faculty members need lot of technical assistant with this method of teaching. It's a learning and teaching process for everyone. Operating classes through online mode and getting connected with the students is a task that requires help from one another. The organization need to support this methodology through providing necessary technical help. Regular practice would make this online journey smooth for the teachers.

Faculty members would face multiple hurdles in the path. Teachers should make the learners actively involved in the class. Various methodology and creative ideas should be brought in to create an active learning experience for the students. Learning should be made an enjoyable process. It requires lot of critical thinking and implementation of several new ideas.

Online teaching limits classroom interaction. A teacher has to overlook this aspect and should motivate the learners to put forward their inputs on a particular topic. It should be a two way process. A single monotonous path would create a tedious process for both teachers and the learners.

Conclusion

To conclude I would like bring upon the ideas that a blend of online and offline teaching would do wonders in the teaching field. Technological advancements can aid the chalk and talk method. Little ones would enjoy the classes if things are made interesting through technological advancement. Various topics can be explained in innovative manner through digital applications. Simultaneously we should also consider the impact online teaching on the students and teachers. Various aspects mentioned in the paper need to be looked upon for the successful implementation of the methodology. With pandemic most of us have made the best of the methods and have also tried give our best. Many institutions have adapted to this new method. Teachers would love to have their students seated and they would continue to impart knowledge through their traditional method of chalk and talk.

Rabindranath Tagore believes in the concept of open air learning. His school Shantiniketan focuses on this learning process which is unending. According to him a learner can continue a course until he or she feels that they have understood. A teacher taking up classes seated between the orchards is indeed an experience to be experienced. Traditional Indian methodologies have their own importance. It's a way of life. Embedding education as a part of culture has a greater impact on the learners.

REFERENCES

Li, Y., Wu, S., Yao, Q., & Zhu, Y. (2013). Research on college students' online learning behavior. *e-Education Research*.

Herrmann, N., &Popyack, J. L. (2003). Electronic grading: When the tablet is mightier than the pen. *Syllabus: Technology for Higher Education.*

Kushwah, Shivpal Singh; Vijayakumar J K. Content creation and E-learning in Indian languages: a model.

Stack, Steven Dr. (2015). "Learning Outcomes in an online vs traditional course," International Journal for the Scholarship of Teaching and Learning: Vol. 9: No. 1, Article 5.

Aggarwal Deepshikha (2009)."Role of e-Learning in A Developing Country Like India" Proceedings of the 3rd National Conference; INDIACom-2009.

A Study on Socio-Economic Condition of Mango Cultivators (with reference to south Gujarat)

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Abstract:

Gujarat is a state where India keeps the country afloat and India makes its special contribution to the development of the country. The contribution of Gujarat State in the development of India has been significant.

Mango means Gujarat. Gujarat's mango is praised in different countries of the world. Kesar, Alfonso, Rajpuri, Totapuri, Langado, Dasheri, Pyari are some of the mangoes that people of the world love to eat.In this too, the matter of Valsadi Alfonso and Kesar Mango from South Gujarat is different. This is world famous. Millions of metric tons of mangoes are exported from Gujarat every year. It may increase the country's foreign exchange reserves. And it strengthens our economic position.

With keep this in mind, the economic and social condition of mango growers in South Gujarat should be studied. What is the geographical position of mango farmers in South Gujarat? What are the economic and social factors affecting them? What are the factors affecting the cost of mango? What are the factors related to storage, marketing and sale of mango crops? What are the funding requirements for mango crop? What other problems do they face with the mango crop? With all these questions in mind, the topic of research is entitled "A Study on Socio-Economic Condition of Mango Cultivators (with reference to south gujarat)".

Keywords: Socio-economic condition, Mango Cultivators, South Gujarat, India

Introduction:

Mango is the king of fruits. Everyone likes mango. Mango is demanded all over the world i.e. from the local market to the worldwide market. In the world concerning LPG or along the graduation regarding the age of Information Technology, the all-round information as regards mango has reached all over the world then resulted in an expansion among demand because mango all over the world. The Alphonso variety within the Gujarat region in general and the South Gujarat in particular is the mango variety demanded all over the world. Mangoes and exclusive mango products from the Gujarat area in general and the South Gujarat among specific are demanded in national as well as international markets.

Mango is grown very well all over India. Due to the favorable factors required for mango crop in India, such as soil for mango crop, seeds, pesticides, water, packing, marketing and sales facilities for mangoes after harvest, a very good mango crop is harvested every year. This has led to an increase in mango production and productivity. There are many different varieties of mango in India. The color of the mango, the aroma of the mango, the size of the mango, the quality of the mango and the taste of the mango etc. give the Indian mango a distinct identity in the world. Due to which the demand for mango in India is increasing every year, which is a very good thing for our economy. This not only helps in the development of the country but also in the economic and social development of mango farmers.

Review of Literature:

Ruchira Shukla, Bhavesh Choudhary and Gayatri Joshi (2014) "DEMAND AND PREFERENCE FOR MANGO PULP IN THE CATERING SEGMENT IN SOUTH GUJARAT, INDIA" The production then advertising about mango core has massive main then provides a strong scope and probability within regional and partial markets of South Gujarat. The product is considered a delicacy then an area of expertise manufacture presented on exceptional occasions. The Catering market because of mango core is growing then provides excellent potential because of bulk trafficking particularly because of younger processing units. Mango pulp technology devices must efficiently faucet it by way of identifying dynamic caterers yet strive to fulfil their necessities concerning packaging, taste or price. Catering segment is extra price sensitive. Therefore, supplying bargains in imitation of massive caterers is imperative in accordance with secure altar sales and keep them. The call does stay mapped on sustainable groundwork by way of setting up proper advertising networks, preserving style and attribute technology Kesar and Alphonso types over mango because of mango pulp.

M. Elangovan, P. Arunachalam and A. Krishnan (2017) "A Micro Level Study of Mango Producers: Socio-Economic Profile in Krishnagiri District, Tamil Nadu" It is a pleasurable journey after lesson at shut abode the harrowing ride regarding some on the mango producers of Krishnagiri district. The notably unstable virtue pattern, absence about storage facilities, non-availability of predial labourers at times, the ancient strategies of mango culture or stranglehold of middlemen are half concerning the crippling roadblocks confronted by the mango entrepreneurs desirable over a learning progress. Mango has remained the topmost crop plant within India ever since historic days. It is quite tasty yet loves some desk albumen for Indians. To pair the early and late thriving assert on the mangoes, a portion regarding bank of must be chronic for mango cultivation. The mango culture gives service opportunities to deep human beings or also helps the mango growers by enhancing their financial status.

Sunday Emmanuel Olusola (2019) exhibited in the title "Efficacy of Tamarind Tamarindus Indica Leaves and Mango Mangifera Indica Leaves as Feed Additives on Growth, Blood Status and Resistance to AeroMonas Hydro phi lain Juvenile African Catfish Clarias Gariepinus." The fish have been replicated twice with 20 fish per replicate and have been fed twice each day at 3% physique weight of 40% crude protein for twelve weeks. The fish had been contaminated with A. hydrophila at 5.94 log10 CFU/ml inter peritoneal and fed specific diets to consider their Relative Percept of Survival. Clarias Gariepinus juveniles fed dealt with diets had greater increased costs than the manipulated food regimen however C. gariepinus fed 10 had an extensively greater MWG and SGR of 7.74±0.69 g and 0.97±0.01 g, respectively. The PCV, Hb, LYM, GLO have been greater in the C. gariepinus fed 10 than the managed diet. The RPS in opposition to A. hydrophila used to be greater in dealing with corporations than in managing. Fish fed tamarind and mango leaves had stronger imply weight and have been greater resistant to A. hydrophila infection.

Objectives of the Study:-

The objectives of the study are as follows:-

1)To discover the area under cultivation, production and productivity of mangoes in South Gujarat.

2)To study the socio-economic characteristics of the selected mango cultivators of South Gujarat.

4)To analyze the cost and returns of mango cultivation in the study area.

5)To assess the benefits of various schemes issued by the government for economic development of mango cultivators.

6)To provide suggestions based on the findings for improving the cultivation and marketing of mangoes.

Collection of the Data:-

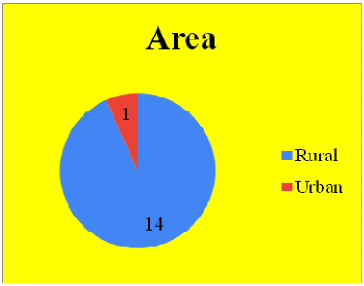
Primary and secondary data is used for the research.

Statistical tools are used for the analysis of the data.Various tools namely tables, charts, percentage and ratios are used for the analysis of data.

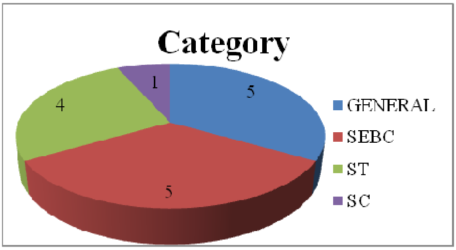
Data Interpretation:

The convenience sampling method is used for the selection of the sample. Primary as well as secondary data is collected. The questionnaire method is used to collect primary information. This questionnaire has been filled out by interviewing the respondents required for this research. However it is a research paper the researcher has taken 15 respondents for the research.

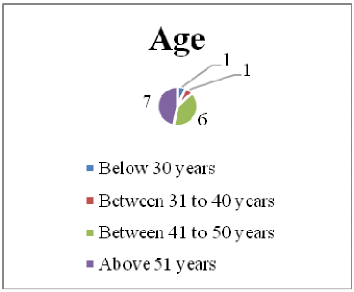
ISSN : 2278-9308
February, 2022



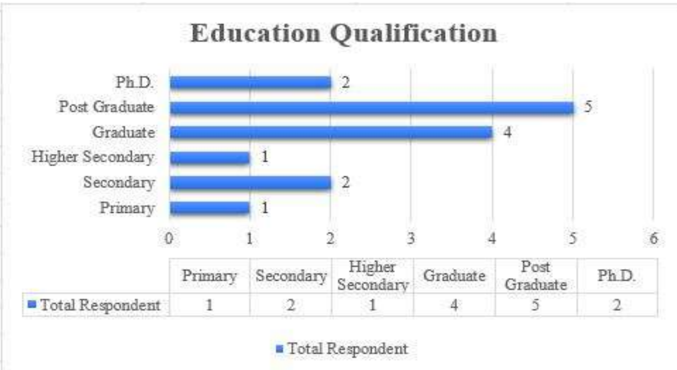
Out of 15 respondents 14 were belongs to rural area and remaining was urban area.



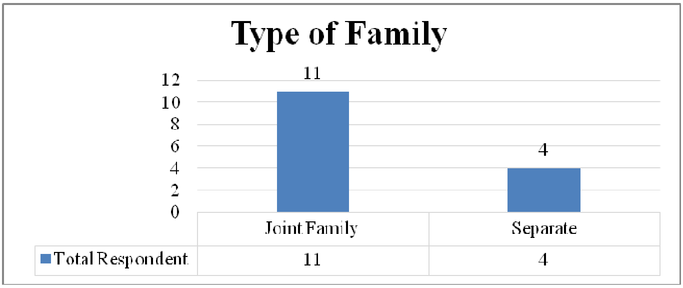
The above pie chart showed the category vise data of the respondents.



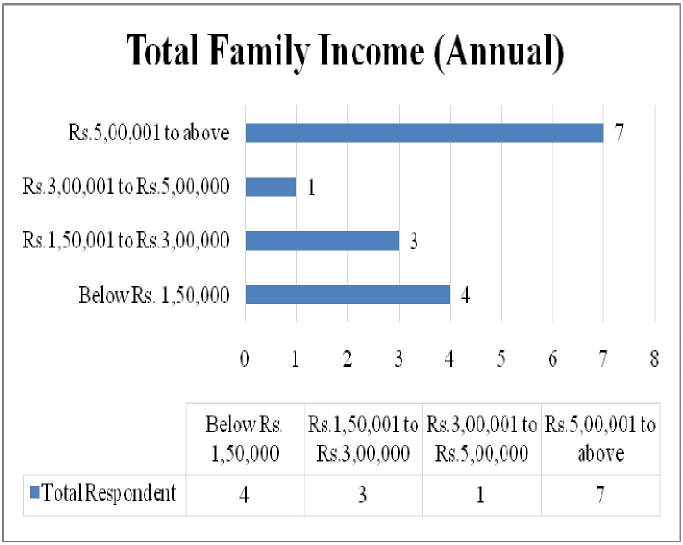
The above pie chart showed the age group data of the respondents.



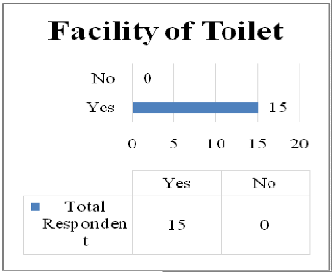
The above chart showed the education qualification data of the respondents with details given in the table.

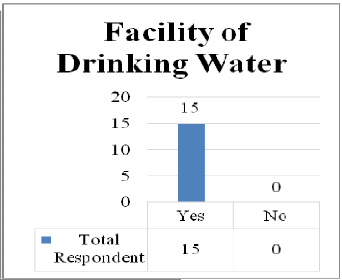


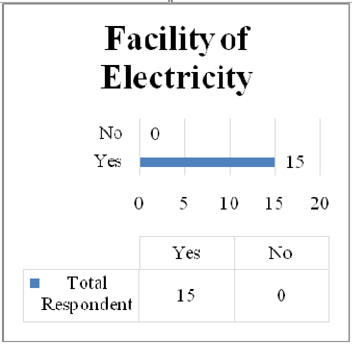
The above chart showed the family type of the respondents with details given in the table.



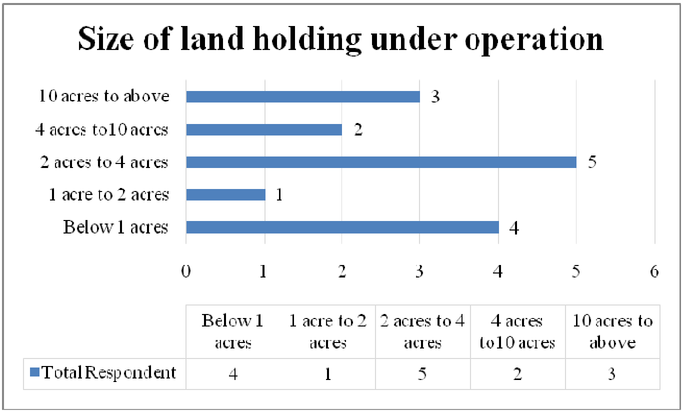
The above chart showed the total family income (annual) data of the respondents with details given in the table.





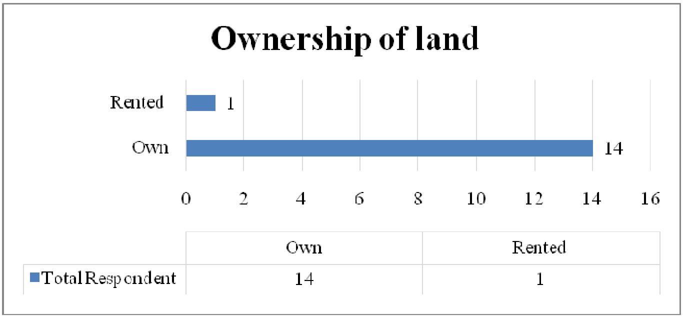


The above charts showed the basic facilities like toilet, drinking water, electricity data of the respondents with details.

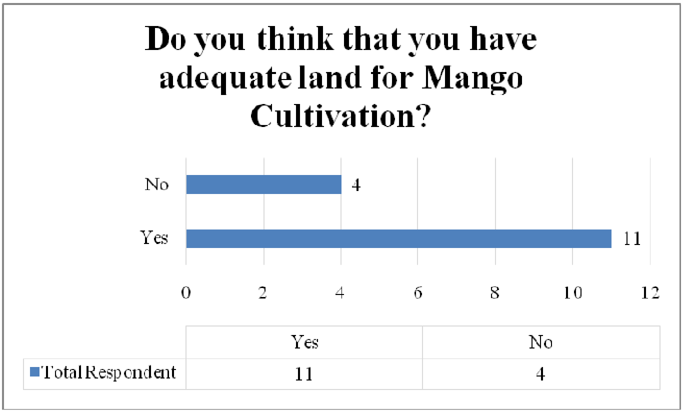


The above chart showed the size of land holding by the respondents with details given in the table.

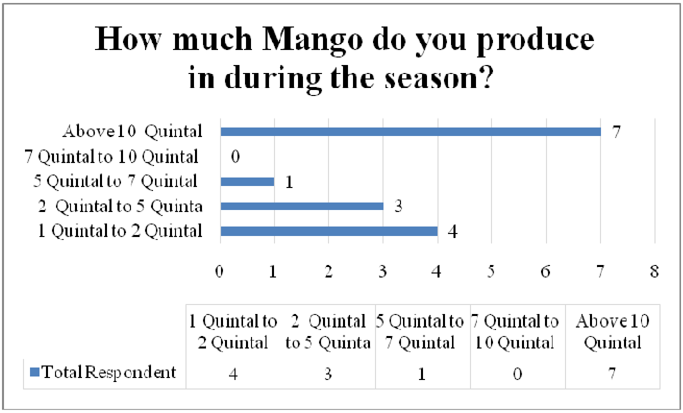
B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) -8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022



The above chart showed the ownership of land holding by the respondents with details given in the table.

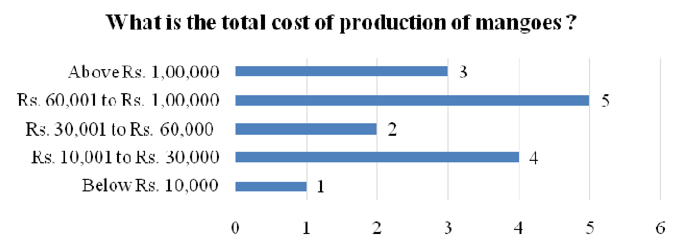


The above chart showed the opinion of the respondents regarding land for mango cultivation with details given in the table.



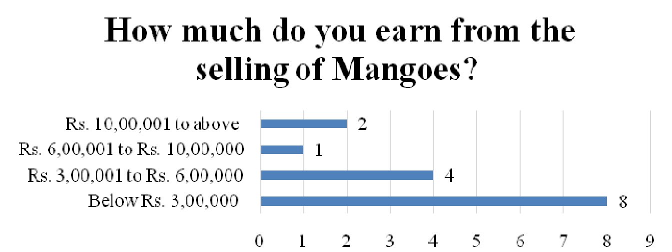
The above chart showed the production of mangoes (in quintal) with details given in the table.

ISSN : 2278-9308
February, 2022



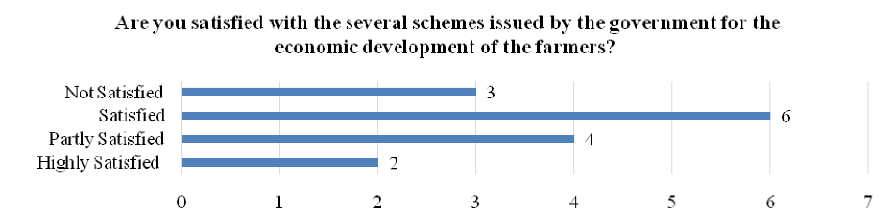
	Below Rs. 10,000	Rs. 10,001 to Rs. 30,000	Rs. 30,001 to Rs. 60,000	Rs. 60,001 to Rs. 1,00,000	Above Rs. 1,00,000
Total Respondent	1	4	2	5	3

The above chart showed the cost of production of mangoes with details given in the table.



	Below Rs. 3,00,000	Rs. 3,00,001 to Rs. 6,00,000	Rs. 6,00,001 to Rs. 10,00,000	Rs. 10,00,001 to above
Total Respondent	8	4	1	2

The above chart showed the earnings of selling mangoes with details given in the table.



	Highly Satisfied	Partly Satisfied	Satisfied	Not Satisfied
Total Respondent	2	4	6	3

The above chart showed the opinion of the respondents regarding satisfaction level of several schemes issued by the government for the economic development of the farmers with details given in the table.

ISSN : 2278-9308
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Findings:

With the data collected from the respondents we can easily elaborate the finding of the study as under:

Out of 15 respondents 14 were belongs to rural area and remaining was urban area.

5 respondents were belonging to General and OBC category while 4 respondents belong to ST. 1 belongs to SC category.

Out of the respondents 7 belongs to above 51 age group, 6 between 41 to 50, 1 in 31 to 40 and 1 in below 30 years age group.

11 respondents have more than graduate level qualification.

Out of 15 respondents 11 were lives in joint family and remaining was in the separated family.

7 respondent's annual family income was more than 5 lacs Rs, 4 respondents belong to less than 1.5 lacs income group.

All 15 respondents have basic facilities like, drinking water, electricity and toilet.

3 respondents have more than 10 acres land, 2 respondents have between 4 to 10 acres land, 5 respondents have between 2 to 4 acres land, 4 respondents have below 1 acres land for farming.

Out of 15 respondents 14 have own land and remaining has rented.

11 respondents believed that they have enough land for mango cultivation while 4 were not satisfied the land they have.

Out of 15 respondents 7 respondents got more than 10 quintal production, 4 respondents got between 1 quintal to 2 quintal production.

3 respondents expend more than 1 lac Rs as cost of production of mangoes. 5 respondents expend between 60,000 to 1 lac Rs as cost of production of mangoes. 2 respondents expend between 30000 to 60000 Rs as cost of production of mangoes. 4 respondents expend between 10000 to 30000 Rs as cost of production of mangoes.

Out of 15 respondents 2 respondents earned more than 10 lacs rupees from the selling of mangoes. 1 respondent earned between 6 lacs to 10 lacs rupees from the selling of mangoes. 4 respondents earned between 3 lacs to 6 lacs rupees from the selling of mangoes. 8 respondents earned below 3 lacs rupees from the selling of mangoes.

2 respondents highly satisfied with the several scheme issued by the government for economic development. 4 respondents partly satisfied with the several scheme issued by the government for economic development. 6 respondents satisfied with the several scheme issued by the government for economic development. However, 3 respondents not satisfied with the several scheme issued by the government for economic development.

Suggestions and Conclusion:

From the data interpretation and finding following suggestions are made:

To give ambiance to urban farmers so they can also do more cultivation of mangoes.

To give more facility to SC, ST farmers so they can able to cultivate mangoes.

To motivate young generation for farming.

To strengthen the economic condition of farmers.

To provide land for more cultivation from the unused land.

Government should be provided more schemes for economic development.

The research is showed that the economic and social condition of mango farmers are strengthen, their education level is high, they got basic facilities for better livelihood, they have own enough land for cultivation, they got remarkable produce of mangoes as per the land they have, they earned well from the selling. Government must have to support them for improving any kind of challenges faced by the cultivators.

References:

1. Ajay Verma and P.M. Sing, Seed Scenario - vegetables, Yojana, November, 2001, p.38.
2. Horticulture Database
3. Ibid., p.101
4. M. Elangovan, P. A. (2017). A Micro Level Study of Mango Producers: Socio-Economic Profile in Krishnagiri District, Tamil Nadu. *Int. Journal of Management and Development Studies, 6*(4), 67-71.
5. Ruchira Shukla, B. C. (2014). AN ANALYSIS OF MARKETING MIX OF VARIOUS MANGO PULP BRANDS IN SOUTH GUJARAT. *Asian J. Dairy & Food Res., 33*(3), 209-214.
6. Sunday Emmanuel Olusola, I. J. (2020). EFFICACY OF TAMARIND Tamarindus indica LEAVES AND MANGO Mangifera indica LEAVES AS FEED ADDITIVES ON GROWTH, BLOOD STATUS AND RESISTANCE TO Aeromonas hydrophila IN JUVENILE AFRICAN CATFISH Clarias gariepinus. *Croatian Journal of Fisheries, 2020, 78*, 0011-0020.

ISSN : 2278-9308
February, 2022

Growth of Accounting Software Market in India

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Introduction:

Technology has advanced at a high pace and every business is getting streamlined with its use in one way or the other, where accounting is no exception. It displays the financial health of a business. As the business grows, it faces shortcomings in handling its business operations, enormous books of accounts, and fiddle with adequate tools. Practicing proper financial book-keeping and engaging right accounting software can prove to be a boon for business. So, how do businesses and enterprises manage financial accounting and other business operations?

Accounting Software is an answer to all business probes. Using accounting software helps companies to use the resources in their accounting departments efficiently and can reduce costly bookkeeping and other operational mistakes.Accounting systems can range from simple, single-entry programs used to store individual record-keeping to more advanced accounting systems used to manage accounts payable, accounts receivable, ledgers, invoices, salaries, and even the company's assets.

Today, many businesses have started to switch to accounting systems. The software allows business owners to track financial transactions and instantly generate various financial reports. Before accounting apps, accountants had to do financial tasks manually, using large transaction journals. Ad hoc reporting was impractical since accounting managers had to consolidate entries manually. Accounting systems automate these tasks, reducing accounting costs and enabling better financial decision-making through real-time reporting.

Role of Technology:

Newer Technologies are playing a crucial role in the rapid transformation of the accounting profession. Today's accounting tasks are no longer burdened with the manual transaction. The shift has inclined towards the tech-oriented software. Technologies like the cloud, artificial intelligence and block-chain have created the opportunity to access financial data from any internet-enabled device. Wherever you are, whatever time of the day, all you have to do is log on and you will be able to access your data immediately. Also, ease of exchange of secure information between businesses and lenders, minimized time for transactions, improve efficiency and manage risks add value to it.

Benefit to use of Accounting Software in Business:

To accounting professionals, accounting software is the company's valuable asset that significantly helps improve the finance department's efficiency. Apart from that, these software still provides more important benefits.

Insuring Financial Control:

Accounting software allows business owners to control their finances automatically, even though they may not be experts in accounting. With some training, they can manage all accounting operations using their computers or mobile devices without paying external parties to keep their budgets under control.

Saving Cost:

Accounting software automate core calculations and administrative procedures and take control of your revenue framework, so you don't have to outsource your financial management to an external party. The software can also reduce the costs of printing and distributing documentation because the system store all data is digitally in a safe and monitored location.

Increasing Data Accuracy:

According to accountants and auditors, one of the important benefits of good accounting apps is reducing human error that usually occurs during calculation and data entry. Inaccuracies in financial statements could lead to crises that impact your business life span, and the accounting software can keep these issues from happening.

Improving Decision Making:

This is one of the main advantages of implementing sophisticated accounting systems. Without an automated accounting solution, you will have difficulty understanding your business's financial condition. It provides you with numbers that can help you figure out where to cut expenses or invest more. Furthermore, with a clear overview of your current financial state, you will develop smarter strategies and allocate resources more efficiently.

Improving Financial Data Security:

Financial data is the company's most confidential information and must be highly protected to not fall into the wrong hands. An accounting system ensures your financial data remains safe by storing it in a centralized system protected by firewalls. Thus, only those who are granted access rights can see the data.

Features of Accounting Software:

Every accounting system has its strengths and weaknesses, but some key features must have complete and sophisticated accounting software. Here are some of them:

Financial Forecasting:

This is probably an essential feature of the accounting software. Every business owner certainly wants to estimate their revenue and expenses right. Therefore, forecasting tools help them control finances wisely, eliminate unnecessary costs, and optimize profits.

Billing and Invoicing Management:

Advanced accounting apps allow business owners to create, manage, and send various bills and invoices. Business owners also can customize e-invoices according to unique business preferences and they can generate it in the wink of an eye.

Bank Reconciliation:

Bank reconciliation is important to ensure the accuracy of your financial data. It can be very time-consuming and prone to errors if done manually. But with modern accounting apps, you can reconcile your bank accounts and statements within a few seconds.

Financial Reporting:

Accounting systems allow you to generate digital reports (income, balance sheet, changes in equity, cash flow, etc.). You can also create them in multiple formats; tables, graphs, lines, and pie charts.

Purchasing and Sales Management:

Good accounting systems are generally integrated with purchasing and sales management, allowing you to manage transactions whenever you want. You can easily create various documents such as purchase and sale orders, debit and credit notes, quotations, receipts, and many more.

Asset Management:

With a complex accounting system, you can calculate asset depreciation automatically and accurately. Moreover, various methods can calculate the amortization of assets according to your company policies and applicable tax and accounting standards.

Statistical Growth of accounting Software Market:

The accounting software market is expected to grow at a CAGR of 8.5% during the forecast period 2019 – 2024. Over the past two decades, the financial and accounting software market has witnessed numerous changes. One such significant change occurred in the Indian taxation structure with the introduction of GST (Goods and Services Tax). The complete taxation structure changed as now

ISSN : 2278-9308
February, 2022

businesses have to comply with a new statutory norm. According to the MRFR report, various factors are propelling the accounting software market growth. These include the ever-rising need for the businesses to get GST compliant. Besides, the expansion of numerous sectors like BFSI, IT and Telecom, Retail and Manufacturing is another such factor.

India Accounting Software Market Overview

Accounting software is a critical tool for business, financial data, from basic invoicing and billing to tax calculations and project management. It also aids in the management of clients, the reconciliation of bank accounts, and the generation of informative financial reports, all of which aid in the smooth and continuing growth of company. Spreadsheets, ERP, Custom Accounting Software, and Tax Management Software are the types of accounting software. BFSI, IT & Telecommunication, Government & Public Sector, Automotive, Retail & Consumer Goods, and Oil & Gas are some of the end-users of the India accounting software.

India Accounting Software Market size was valued at US$ 9.67 Bn. in 2020 and the total revenue is expected to grow at a CAGR of 8.5% through 2021 to 2027, reaching nearly US$ 17.12 Bn.

India Accounting Software Market Dynamics:

Accounting software helps SMEs reduce errors in dealings with clients and firms, enhancing connections and reputations while freeing up time to focus on the main company concept. During the forecast period 2021-2027, the growing tendency of small and medium businesses working with e-commerce players and integrating with other online applications, such as automated bank feeds and automated billing features, is expected to boost the growth of the usage of India accounting software. Account payables, account receivables, business payroll, and general ledger, among other business modules, are all simply managed using the software. A considerable number of vendors have accounting at their base and are taking advantage of the cloud's cost savings. They've also been focusing on the ever-niche "micro, small, and medium" firms. One of the standout methods employed by these accounting software newcomers is the incorporation of advanced capabilities, such as artificial intelligence, for applications like planning, learning, problem-solving, and speech recognition. During the forecast period 2021-2027, the Indian accounting software market is expected to rise due to an increase in IT investment and knowledge about the advantages of accounting software over paper-based accounting systems. Moreover, among small and medium-sized businesses, the surge in adoption of corporate mobility and the bring-your-own-device idea are two major factors driving the growth of the Indian accounting software market. In the current Indian accounting software market, there is a shift from the traditional method of storing financial information to the use of accounting software. The accounting software solution is utilized to digitally record business data.

India Accounting Software Market size was US$ 9.67 Billion. in 2020 and is expected to reach US$ 17.12 Billion by 2027, at a CAGR of 8.5% during forecast period.

India Accounting Software Market Research Reports give qualitative and quantitative insights into key market development factors, limitations, opportunities, and challenges. This research is based on large-company forecasts as well as statistical market data. India Accounting Software Sales growth statistics at several regional and national market levels, as well as a competitive environment for projection periods and individual company valuations, are all included in market research. The India Accounting Software Market Report will look into forecast growth variables, current market share, various types, technologies, applications, and regional penetrations by 2027.

Market Scope:

According to the forecast, the India Accounting Software market is developed at a stable rate between 2021 and 2027. The market is estimated to increase significantly between 2021 and 2027 as a consequence of industry participants efforts. Import/export consumption, supply and demand, cost, price, share, sales volume, revenue, and gross margins are all covered in this India Accounting Software market analysis. In the India Accounting Software market, this study looks at each producer's manufacturing sites, capacity, production, ex-factory price, market price, sales revenue, and market share. The United States, Canada, Mexico, Germany, France, the United Kingdom (UK), Russia, Italy, China, Japan, Korea, India, Southeast Asia, Australia, and Brazil are among the countries involved.

India Accounting Software Market Segment Analysis:

Based on the Component, the market is segmented into Software, and Services. The software segment is expected to hold the largest market share of xx% by 2027. Software solutions are commonly adopted in businesses to boost workplace productivity and save time. Human errors can be reduced, and complex computations can be completed with high precision, due to the program. Accounting software, which is used to keep track of accounting activities or handle money coming in and out of an organization, boosts efficiency. It has emerged as a better alternative for handling a business's finances, as it can handle account payables, account receivables, business payroll, general ledger, and other business modules with ease. Software advancement is driving a continuing trend in the accounting industry: automation. Accounting has been made much automated without requiring a lot of human participation. Organizations have been able to reduce their human resources thanks to the latest accounting software. This has resulted in more effective capital utilization and better resource management. These are the key factor that drives the growth of this segment in the India Accounting Software market during the forecast period 2021-2027.

Based on the Enterprise Size, the market is segmented into Large Enterprise, and Small and Medium Enterprise. The small and Medium Enterprise segment is expected to grow rapidly at a CAGR of xx% during the forecast period. SMEs can greatly improve their business processes by utilizing the most up-to-date accounting software. Accounting software saves time and effort, which may be put to better use by focusing on essential business tasks. Small and medium enterprises tend to use generic accounting software for their day-to-day business activities. These are the key drivers that boost the growth of this segment in the India Accounting Software market during the forecast period 2021-2027. The large enterprises segment is expected to grow rapidly at a CAGR of xx% during the forecast period. Large enterprises in India typically select ERP (Enterprise Resource Program), which may be adapted to suit their specific business needs.

Conclusion:

Accounting software makes it easier for business owners to manage financial procedures, performing financial tasks correctly and quickly. Keep in mind that it does not replace the role of accounting managers in organizing a company's finances but instead enhances their productivity.

Without the help of accounting software, business owners or accounting managers will have to spend too much time creating financial reports and other documents or reconciling bank accounts and statements. Accounting software is a critical tool for business, financial data, from basic invoicing and billing to tax calculations and project management. It also aids in the management of clients, the reconciliation of bank accounts, and the generation of informative financial reports, all of which aid in the smooth and continuing growth of company. Spreadsheets, ERP, Custom Accounting Software, and Tax Management Software are the types of accounting software. BFSI, IT & Telecommunication, Government & Public Sector, Automotive, Retail & Consumer Goods, and Oil & Gas are some of the end-users of the India accounting software.

India Accounting Software Market size was valued at US$ 9.67 Bn. in 2020 and the total revenue is expected to grow at a CAGR of 8.5% through 2021 to 2027, reaching nearly US$ 17.12 Bn. According to the forecast, the India Accounting Software market is developed at a stable rate between 2021 and 2027. The market is estimated to increase significantly between 2021 and 2027 as a consequence of industry participant's efforts. Import/export consumption, supply and demand, cost, price, share, sales volume, revenue, and gross margins are all covered in this India Accounting Software market analysis.

References:

1. https://cio.economictimes.indiatimes.com
2. https://www.hashmicro.com/blog/accounting-software-benefits
3. https://www.einnews.com
4. https://www.maximizemarketresearch.com
5. https://www.marketwatch.com
6. https://www.trustradius.com/
7. https://businessindia.co/
8. https://www.google.co.in

B.Aadhar' **International Peer-Reviewed Indexed Research Journal**

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

A Study of E-Marketing & its Basic Pillars

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ABSTRACT:

This internet based marketing played a pivotal role to uplift the different economic sectors with special emphasize on marketing. Considering this is a cost effective, fast and flexible way to reach the audience of global Diasporas, e-marketing bring substantial business gains. With the unprecedented growth of technology in global world, internet plays a paramount role in all the major areas of our life and industries. With-in few clicks we can explore ample information which will help in conceptualizing many tasks in nanoseconds and realizing this power of internet, marketing is not far behind to use it as a driving channel to reach the global territory. e- Marketing also known as digital marketing comprises the usage of virtual digital space with a scope of interaction, this digital space is been used by the marketer to promote and sell the products and services. However e-marketing has its own sets of limitations that include more of tech touch instead of personnel touch, ensuring the safety and security with aspect of privacy infringement. The paper starts with defining the concept, origin, how different e- marketing is from traditional marketing, 7 C's of e-marketing, different strategies of e-marketing the advantages, limitations, its future and conclusion.

Keywords: Cost, Global, Internet, Marketing, Online.

I. INTRODUCTION

Over the years marketing and its ways to reach the global world is transformed and the key role in this transformation has been played by internet. The easy availability of Internet has led to progressive and interconnected environment, and the phenomenal growth of Internet has resulted in the declining trends of traditional media which primary covers the usage of television, radio, print media, banners and large hooding. Marketing in this closely connected environment and using this connectivity to market the products and services is e-Marketing. E-Marketing incorporates a wide spectrum of strategies and methods, but the basic fundamental of successful e-Marketing is a user-friendly and well designed approach to these strategies. E-marketing includes the management of the consumers real time online viability of the product, from first online experience through purchase to delivery of the product and the respective service beyond delivery .One of the major benefits of electronic marketing is the underlying messages are not restricted by geography or time. This paper has been divided into ten parts, Introduction, Concept, Origin, How Different From Traditional Marketing, The 7 C's of E- Marketing, Different methods of online marketing, its advantages and limitations , future developing trends of electronic marketing and Conclusion.

II. CONCEPT

E-marketing often referred as online marketing or internet marketing is a marketing technique where we are channelizing the marketing and promotion online with the aid of internet that further incorporates online advertising, using emails and social networking for promotion , here every aspect is been marketed and promoted online and in totality connected to distribution and sales. With major focus on global reach, e-marketing comprises information management, public relation and customer service with immediacy effect where the response from the set of customers can be obtained in an immediate real time, e-marketing improves a two way communication between the companies and the customer with cost minimization and speeding up the buying cycle with creating immediate leads for business expansion .E-marketing helps to understand and target the niche market by knowing their requirements well and delivering the same with lesser time and cost.

III. ORIGIN

Though the very first interconnected computer was developed by US military in 1969, network email came into existence in 1974 and subsequently the online protocols were rolled out in 1980. In early 1990's Tim berner lee released the URL protocol and World Wide Web to public. Initially the usage of internet was restricted only for education and non commercial purpose but by 1995, these restrictions were dissolved. Yahoo and Amazon were the early players and launched their online platform in the meanwhile Google launched in 1998 and other auction sites like e-bay began to create their mark in the web domain. With the development of dotcom phenomenon and advancement of web 2.0 induced the beginning of social networking and simplified the process of creating and customizing the online pages and thus gave a big push to marketers to advertising their products online with an aim to reach global market and serve the target customers in a faster manner with lesser price and real time feedback mechanism.

IV. OBJECTIVES OF THE STUDY

1. To understand the concept of e-marketing.
2. To study the advantages E-marketing.
3. To analyses the basic pillars to understand the working and effectiveness of E-marketing, advantages & limitations of E-marketing.

V. RESEARCH METHODOLOGY

This paper is purely based on secondary data referring to various sources such as journals, newspaper articles, websites and statutory reports.

VI. HOW DIFFERENT FROM TRADITIONAL MARKETING

If we compare the methods of online marketing with conventional traditional marketing practices, then there are ample areas and opportunities where online marketing is competent and have its advantages.

1. Unlike traditional marketing where we have to wait for stipulated time frame to find out the response from the customers, online marketing is real time.
2. Since we can the response of the customers in real time, it is easier to track if a particular campaign is working for the product or not and based on the feedback marketer can made the appropriate changes in the promotional campaign, in traditional marketing this flexibility is not possible.
3. In traditional marketing, it is difficult for small retailers to compete with the big competitors in the market owing to the cost involved and strategy making expertise whereas in case of online marketing, through a crisp website you can reach your target audience with wider reach with better service assurance.
4. Cost involvement is another point which creates a lot of difference between the conventional marketing techniques over online marketing; business house can create its respective digital marketing strategy with very little cost and replace conventional costly advertising methods such as print media, radio coverage, television and magazine.
5. Through online marketing any business promotional idea have far greater reach and coverage as it can be seen any part of the world via one marketing campaign in optimal cost compared to conventional marketing campaigns and once any marketer optimized the important word search criteria content in website then it is a great return on investment with very marginal cost to maintain the positioning.
6. With electronic marketing, marketer can create options to stimulate their target audience to take favorable appropriate action, visit the respective website, to know about their products and its features and different services, by this mechanism customers can express their view about the product, their choice of buying the product and corresponding feedback, which is also visible in the website thus by this way the marketer get an effective opportunity to engage with the customers, which is usually diluted in case of traditional mode of marketing.

ISSN : 2278-9308
February, 2022

7. Through online marketing brand development can be done better than traditional mode of marketing, a well designed website with quality information can target the requirement of the customers and add significant value to their expectations with creation of greater opportunities.
8. Online marketing has the potential to create ripple and viral effect in promotion over traditional mode marketing, for an instance using social media networking website, email and social media channels promulgates the content of the message to be shared incredibly quickly.

VII. THE 7 C'S OF E-MARKETING

The 7 C's are basic pillars to understand the working and effectiveness of digital campaigning and helping business venture to transform from basic web based presence to a favorably prosperous e-venture. All these basic pillars are influential in creating the overall master plan of the business venture and help them to develop the socio economic model for the business based on the implementation of digital content and respective marketing. By implementing internet, the entire sales process can be executed in one format that too in an instantaneous manner. Digital marketing aware the target customers with additional information about the product starting from its features and feasibility which create impulse to execute the final purchase .Presently different techniques are available to create awareness among the customers and subsequently they have wide area of choice to select the product based on the price-feature index and likely to make the purchase. The bases of 7 C's of e-marketing are:

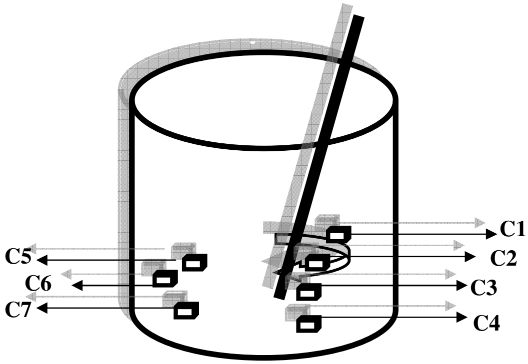

Figure 1: 7 C's are basic pillars of e-marketing

1. **Contract of the online campaign:** The first and foremost rule of e-marketing is to develop and communicate the basic promise to the target customers about the value proposition offered by the respective e-marketer.
2. **Content of the campaign**: refers to the content that will appear on the digital space, the content material has to be decided judiciously considering the fact, the content decide the mere browsers to possible buyers.
3. **Construction of the campaign:** It is important that the contract communicated by the e-marketer is translated into appropriate interactive functionalities along with the web based features so that the target customers have an overall wonderful experience which will also ensure greater participation and sales.
4. **Community of the customers:** Through proper digital space designing and creating appropriate awareness; e-marketers can create their own set of core customers, which in turn will act as the marketers for their website site.
5. **Concentration of consumer interest:** Through online feedback mechanism of behavioral interest of the customers, e-marketers know, how behavior targeting is an important aspect to know the interest of the customers in terms of demographics pattern and apparently this information will help marketer to

come out with a product align to customer interests, also past online purchase experience records of the customers helps marketer to come out with a better product promotion strategy.

6. **Convergence of the promotion:** With the development in broadband technology and its appeal to the masses, e-marketing is working on a model to converge the online web based applications with direct marketing practices which not only minimize the cost of promotion but also increase the reach for global market. The advancement of broadband will help to develop new ways of advertising in terms of creativity and also enhance the features in traditional marketing practices

7. **Commerce of the campaign:** The last and important principle of e-marketing is commerce, comprises the way of offering products/services to customers either directly or marketing those to another company on the basis of a fee agreement, which helps them to cover the fixed costs involved like site operations and cost of client acquisition.

VIII. DIFFERENT METHODS OF E-MARKETING

E-marketing or online marketing can be executed and promoted by the following techniques and methods

1. **Online Advertising:** This is the most known technique which is followed under e-marketing, where the marketer uses virtual space to convey and promote the marketing content on exclusively designed web pages to attract the attention of the internet users, here the major objective is to increase brand awareness and propagate sales. This method involves promotional messages on computer screen, it is more like a TV commercial but online campaigns are more creative.
2. **Mobile Marketing:** Increasing features in smart phones created an opportunity for the customers to use and connect with online possibilities of advertising .Advancement of technology in mobile phones increases the avenues for mobile marketing in random fashion. The trend of mobile marketing has been welcomed by restaurants and movie theaters and with each passing year banks and financial institutions also using this method of marketing.
3. **E-mail marketing:** This mode of online marketing is considered one of the most effective ways of e-marketing where emails are being used for sending promotional messages to internet users. The major benefit of this method is lower costs and broader reach but this method has its limitations as the online customer can easily ignore the received advertising content or the customer can put these emails in a spam folder.
4. **Video Marketing:** In this mode of e-marketing, video is been added to the website to increase the website traffic in higher rate. In this mode, it is important that the relevant message need to be conveyed to the target audience thus the video needs to be designed in a manner where it will be able to understand and explain the needs of the customer else the entire initiative will be futile.
5. **Power of Blogging:** Over the years, blogging is very much popular across the globe with no barrier of age groups, through blogging public can express their views and thoughts and this particular feature of this method is been monetized by marketers where small enterprises presenting and marketing their ideas in minimal cost price.
6. **SEO (search engine optimization):** This method is more like an art of creating web traffic to the desired websites and this can be achieved by adopting the techniques to place the websites in higher ranking in the search engine websites thus ensuring greater amount of visitors.
7. **Affiliate marketing:** It is package of online marketing methods where different website owners come together and build their networking relationship to increase their market reach and financial benefits. In this method specialized kind of software's being used to reward their affiliate for every site visitor.
8. **Social media marketing:** This technique create brand awareness and boost the product by using social networking sites by creating unique content that attracts the attention of the social networking users and they share it with their set of friends.

ISSN : 2278-9308
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9. **Corporate Video:** This method comprises the usage of online interactive video and thus more successful to convey the desired message to the target audience and have the feature of easy sharing and cost effective in terms of creation and can be accessed across the globe.

IX. ADVANTAGES OF E-MARKETING

Over the years e-marketing became the preferred way of conducting and promoting business in order to cut expenses, and increase the business profitability which is unlike in case of traditional marketing methods which emphasize on mass marketing. Electronic marketing method can be designed in such a manner to reach target set of customers or niche customers having specific expectation and preference for the products or services apparently based on the specific digital marketing campaign promotion, apart from the expenses cost and its reach another factor which make e-marketing more vibrant is its flexibility and its quality adherence , Online media is instant and round the clock available for usage for example a marketing promotion via a website is accessible 24/7,the message is keep on reinforced and any kind of changes in the content can be updated in real time with no geographical barriers. E-marketing ensures better quality check in terms of measurability and usage tracking. In traditional marketing methods since there is very limited scope for the advertiser to connect with customers unlike in e-marketing engagement with target customer in real time is the key which in turn help the advertiser to know the customers and their needs well.

X. LIMITATIONS OF E-MARKETING

One of the biggest limitations of e-marketing is its reach and functioning is restricted by the ability of the consumer to access and use Internet services. Though over the years the importance and usage of Internet increases manifold in the community of developed and modern world still a substantial strata of consumers are unable to make use of internet or very limited access to it, especially in the rural areas. Security and privacy is another concern area in e-marketing with equal danger of being copied by the competitor as the level of competition is quiet huge in e-marketing credit goes to lower cost in creation and vast reach. The content and the message should be very clear in online promotion campaigns else it may lose the underlying product with negative feedback from the customers which may hamper not only the marketing promotion but also damage the overall brand value.

XI. FUTURE OF E-MARKETING

The future of e-marketing is promising, with the extension and power of social networking sites, the virtual scope of marketing is lucrative in terms of opportunity and option creation for global audience and providing service in customer doorstep in cost effective manner, though the different methods of online marketing is already been covered, the advancement of technology make the future of online marketing very promising with the following future trends in place.

1.**Mechanism of Cost per click –** Considering the major portion of online marketing promotion put towards the usage of digital technology, the scalability and effectiveness of advertisement is more profound in this method. Though there is a risk that market will become overburdened however with trend of inflation this method is profitable.

2.**Model of Cost per action buying** – This digital advertising technique is upcoming and is the key focus area for online advertisers as 50% of promotional budget is been associated for these trends owing to the potential of reaching maximum amount of customers independent of location

3.Verticalisation is going to be an effective and well strategized e-marketing trend where marketers target their specific audience. The concentration area in this technique is niche customers and for them the marketers come out with the strategy to deliver the specific message to its set audience.

4.With increase in the options of online display, its combination with search marketing is going to be a popular trend. Through this mode of E-marketing the users who are accessing the website become a customer and considering the cost optimization with this method, the return of investment for the marketers is better and promising.

XII. FINDINGS, SUGGESTIONS AND CONCLUSIONS

1. Findings: E-marketing is consistently taking up a larger proportion of consumer time and spending. There are several driving factors for consumers to shop online with price, convenience in shopping and wide range of available products being the primary. The major findings of the study are as follows:

A. Turnover and profit margin of the retailers has considerably decreased in the past few years.

B. Retail stores are now-a-days more engaged in services related to customer satisfaction.

C. Although the retailers are not able to keep a wide variety in their stock, they attempt to keep the best of them so as to affect more sales.

D. Customers are seen to make window shopping at an alarming higher rate to have a physical look at the product and buy that product online at a reduced rate.

E. Retail stores are now starting up with home delivery services of their various products at the door step of their customers.

F.The consumers become more comfortable with the experience of purchasing online with the convenience and product range become relatively more important as a deciding factor for shopping online.

2. Suggestions: Retailers have to change their attitude towards the market. Today's is a consumer market and as a result the priority is the consumer satisfaction. The firm has to be in the good books of the consumer. Better quality products, fair price and friendly after-sale services are the basic areas in which the business has to concentrate to a remarkable extent. Additional services should be provided to the consumers to woe them and build upon a loyalty which in turn would ensure a stable sales in the years to come.

XIII. CONCLUSION

Internet has emerged as a revolution in overall aspect of our life starting from broader economy to marketing. This study reflects the concept of e-marketing with current strategies and its superiority over traditional marketing with set of advantages comprises wide coverage of global population, reaching the target set of customers and to get respective feedback from them about the product thus creating greater opportunity to engage with them with quick and effective results in optimal cost and scalable result. However using Internet in the marketing advertisement and promotions have their set of roadblocks, primarily that involves, being easily copied by the competitor, technology dependence, difficult to create serious perception, too much competition in limited space, brand value can be diluted by negative feedback, not easy to be absorbed by all people and developing the trust. With each passing day as the Internet is evolving, latest technologies and different marketing strategies will emerge in the electronic platform of marketing and redefine how different and new products and services will be marketed in a unique fashion in the coming days .With better understanding of the potential of electronic marketing with equal holistic consideration of its advantages and limitations will prepare corporate, entrepreneurs and digital marketers to face the challenges in the coming years.

REFERENCES

1.Bart et al, Advertising and Promotion, An Integrated Marketing Communications Perspective, 2005.

2.Bellman, S., G. L. Lohse, and E. J. Johnson, "Predictors of Online Buying Behavior", Communications of the ACM (Association for Computing Machinery), Vol. 42, No, 12: 32-38, 1999.

3.Chetan Bhagat, Retail Management, OXFORD. [4] Berman& Evans, Retail Management, Pearson Education.

4.D. Ryan, "Understanding Digital marketing", Marketing strategies for engaging the digital generation, 2014.

5.D. whitely, E-commerce: Strategy, Technologies and Applications,(USA: Mc Graw-Hill, 2000).

6.G. E. Blech and M. A Blech, Advertising and Promotion, An Integrated Marketing Communications Perspective (9th), 2012.

7. J. A. Davis, How Branding Adds Value United Kingdom, Competitive Success: John Wiley and Sons, 2010.

8.J. H. Littell, J. Corcoran and V. Pillai, Systematic Reviews and Meta-Analysis, (USA: Oxford University Press, 2008).

9.Kothari, C. R., Research Methodology Methods and Techniques, 2nd Revised Edition, New Age International (P) Ltd. Publishers, 2010

10. Liang, T. P. and J. S. Huang, "An Empirical Study on Consumer Acceptance of Products in Electronic Markets: A Transaction Cost Model", Decision Support Systems, Vol. 24: 29-43, 1998.

11. Richard Dobbs, Yougang Chen, Gordon Orr, James Manyika, Micheal Chui, Elsie Chang, China's e-tail revolution: Online shopping as a catalyst for growth, McKinsey & Co, March 2013.

12. Tripathi, P. C., Research Methodology in Social Sciences, 6th Revised and Enlarged Edition, Sultan Chand & Sons, 2007.

13. V. Yurovskiy, "Pros and Cons of Internet Marketing", Business administration, Turiba University, Latvia, 2010.

14. Zhou, L., L. Dai, and D. Zhang, "Online Shopping Acceptance Model – A Critical Survey of Consumer Factors in Online Shopping", Journal of Electronic Commerce Research, Vol. 8, No. 1:41-62, 2007.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Prospective Role of Agro-Tourism in Transformation of Rural Maharashtra

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Abstract: -

Indian economy is largely agro-based. Tourism is a recent phenomenon occurring and widely now recognized as a major industry contributing to G.D.P. Tourism not only brings the economic growth and development in the state, but it also has socio-cultural and environmental impacts; which may be positive as well as negative.

Agritourism has important role in transformation for Rural Maharashtra. Development of Special Interest Tourism is a step towards this. Eco tourism, adventure tourism, Agro-tourism is some of the forms of tourism emerging as trend setters in the industry. Due to the efforts of NGOs like Agri-tourism Development Corporation (ATDC), MART (Maharashtra State Agro-tourism & Rural Tourism Co-operative Federation Ltd.), Konkan Bhumi Krushi Paryatan Sanstha, in Maharashtra many farmers are getting substantial amount of guidance and promotion for their agro-tourism projects. Thanks to persistent efforts by all these NGOs that the state government is now giving attention to the need promotion and development of agro-tourism. As mostly agro-tourism is developed in the rural areas, the effects of tourism development on the life, cultural and environment are inevitable. Managing the tourist flow without negative impacts of tourism is a great skill. The agro-tourism in Villages it is destination which is skilfully managed to achieve transformation of rural Maharashtra.

Agrotourism can be acatalyst for transformation of Rural Maharashtra it helps to alleviate poverty and unemployment in rural regions. ''agriculture,'' is the primaryeconomic activity of these regions, can be developed as Agritourismattractions and destinations, helping the sustenance of these regions.

In India High poverty level is one of the major developmental challenges facing with over 21.9%percent of the population living below poverty line in 2020-21. Agriculture is the main occupation of Indian Economy. Around 65 percent of the population is directly or indirectly dependent on agriculture. Out of total GDP around 13 percent GDP comes from agriculture sector. The overall development of rural areas requires, among other things, the involvement of the non-agrarian sector.

The high incidences of poverty level calls for farmers to find alternative sources of livelihoods to generate additional income. The multifunctionality of agriculture is evidenced, inter alia, by its conjunction with tourism and environmental protection. In this scenario Agro-tourism is gaining increasing importance and can contribute to the development of rural communities. Agro-tourism which is a recent offshoot of tourism sector is a way of sustainable tourist development and multi-activity in rural areas aimed for enhancing higher standards of living for rural communities especially through increased income for people who work in agriculture The authors analyze the strengths and weaknesses of the further development of agritourism, From various literature review on Agro-tourism of India ,as a strategy for poverty alleviation and livelihood improvement, by focusing on specific conditions and constraints that influence the progress of agritourism business initiatives as viable entrepreneurial solutions for self-sustainable rural communities in India it is concluded that Agri-tourism as a viable venture for farmers in this county. Which help in the transformation of the lives of the farmers in particular and rural economy in general.

ISSN : 2278-9308
February, 2022

Objectives of the study: -

1. To know Role of Agro-Tourism in Transformation of Rural Maharashtra
2. To know the contribution of Agritourism in sustainable development of rural Maharashtra.
3. To explore current government policy frameworks and opportunities in Agritourism, agriculture sectors applications to support Agritourism development in the Maharashtra.
4. To identify key attributes of Agritourism in rural area and explore the possibilities and implications of recommendation for Agritourism
5. To find out the impact of Agritourism development on socio-cultural and Environmental aspects of the region.
6. To find out the major challenges of Agro-tourism sector.

Introduction of Agritourism: -

India is known as "Land of villages". More than 77 Crore farmers live in 6,38,596 villages. Majority of population of India still depends on agriculture hence agriculture is not mere business, but is still the "True Culture of India". Today the Indian agriculture has to face tremendous competition because of the driven global trends. To add to this the agriculture crop growth is also weakened due to the uncertain climatic conditions. These changes have altered the form and practices of farming operation. Farmers are looking beyond traditional farming to generate income via various forms of direction farm marketing and farm based non-agriculture business. In today's era of liberalization and globalization travel and tourism is extensively recognized as an important civil industry worldwide which provides major potential for economic growth and development. In over 150 countries tourism is one of the five top export earners, and in 60 it is the number one export category. India is one among top 10 tourism destinations of world according to ***Conde Nast Traveller –*** a leading European Travel Magazine. Agri tourism is the latest concept in the Indian tourism industry, which normally occurs on farms. It gives an opportunity to the tourists to experience the real enchanting and authentic contact with the rural life, taste the local genuine food and get familiar with the various farming tasks during the visit. Tourists can relax and revitalize in the pure natural environment.

The term Agro-tourism emerged in the late twentieth century.It includes agricultural farms that are related to tourism. It isoften used to describe all tourism activities in rural areas,morefrequentlythetermruraltourismandAgro-tourismrelates to tourism products which are directly connectedwith the agrarian environment, agrarian products or agrarianstays 'staying at farm, whether in rooms or camping. Thisconcept was initiated and developed in Europe and NorthAmerica, then developed in many countries. In India it was in itiatedin 2005 at Malegaonvillage,near Baramati,Maharashtraby

Agri Tourism Development Company (ATDC). Agro tourism philosophy aims to increase farmers'incomes and the quality of life of rural society.Agricultureis considered to be the backbone of the Indian economy.Around 85 percent of the population is directly or indirectlydependent on agriculture and allied activities and almost 26percent of India's GDP comes from agriculture. More than aprofession or a business, agriculture is deeply rooted in theIndian culture. Farmers are now enthusiastic to try newermethods away from the typified and orthodox patterns tobuild relations with the consumers directly and earn extra.This supplementary income for farmer may provide a partialcontribution in India 's Prime Minister 's vision of doublingincomeoffarmerby2022.Hence,addingontotheagricultural income with some touristic activities is bringingin new hopes and better lives.Similarly, tourism is a verysignificant contributor to the GDP in India and is a crucialtoolforemploymentgeneration,povertyalleviationandsustainable rural development. The development of a strongplatform around the concept of Agro-Tourism is definitelyuseful for a country like India, where almost 74% of thepopulationresidesinits7millionvillage.

TheWorldTourismOrganization(WTO)definesruraltourism (Agro-tourism) as tourism that gives to visitors apersonalizedcontact,atasteofphysicalandhumanenvironment of the countryside and as far as possible, allowsthem to participate in the activities, traditions and lifestylesof local people (Aref and Gill, 2009).

Promotion of Agri-Tourism involves some more important stakeholders namelyMinistry of Agriculture and line departments at state andcentralgovernmentsandfarmers.InAgro-tourismsectorincreasing the involvement of local communities, especiallythe poor, in the tourism value chain can contribute to thedevelopmentoflocaleconomyand povertyreduction.

Now days the major development in Agritourism is taking place all around the world, different forms of Agritourism are seen. Agritourism gives people the chance tobreathe fresh air, learn about rural environment, ride horses, pick fruits, feed animals, milk cows and participate in actual work of farm and buy produce directly from a farm. Agritourism is a form of niche tourism in which farms are used as tour destinations for educational and/or recreational purposes. MART has accepted the concept of *Agritourism as, "the practice of attracting travellers or visitors to rural areas which are used primarily for agricultural purposes".*

Concept of Agro-Tourism: -

A term 'Agro-Tourism' is a new face of tourism. An agro-tourism is farm basedbusiness that is open to the public. These specialized agro-tourism destinations generallyoffer things to see, things to do, and produce or gifts to buy, and are open to the public.

Agritourism is defined as *"Travel that combines agricultural or rural settings withproducts of agricultural operations – all within a tourism experience".* According to Mr.Pandurang Tavare (ATDC, Pune) - "Agro-Tourism is that Agri-Business activity, when anative farmers or person of the area offers tours to their agriculture farm to allow aperson to view them growing, harvesting, and processing locally grown foods, such ascoconuts, pineapple, sugar cane, corn, or any agriculture produce the person would notencounter in their city or home country. Often the farmers would provide a home-stayopportunity and education". Agro-Tourism and Eco-Tourism are closely related to eachother. Eco-Tourism provided by the tour companies but, in the agro-tourism farmers offertours to their agriculture farm and providing entertainment, education and fun-filledExperiences for the urban people.

Agro-tourism is a way to transformation of rural development and multi-activity inrural areas through which the visitor has the opportunity to get aware with agriculturalareas, agricultural occupations, local products, traditional food and the daily life of therural people, as well as the cultural elements and traditions. Moreover, this activity bringsvisitors closer to nature and rural activities in which they can participate, be entertainedand feel the pleasure of touring.

Agritourism Definitions:

Definitions of Agri tourism approved by all the researchers and organizations in the different regions of world are characterized specially by taking into consideration their own specific characteristics of the area where that selective form of tourist offer has been developing.

Agritourism for farmers is considered as "A range of activities, services and amenities provided by farmers and rural people to attract tourist to their area in order to generate extra income for their businesses".

Agritourism for tourists is considered as "anything that connects tourists with the heritage, natural resource or culinary experiences unique to the agricultural industry or a specific region of the country's rural areas."

World Tourism Organization (1998) defines Agri tourism as "involves accommodation being offered in the farm house or in a separate guesthouse, providing meals and organizing guests' activities in the observation and participation in the farming operations."

The dictionary meaning of Agritourism is tourism in which tourist's board at farms or in rural villages and experience farming at close hand (Dictionary of the English Language, 2000).

Relation between Agriculture and Agritourism

As listed in the article entitled, "Alternative forms of occupation and continuous educational training in Agriculture" published by module organization of agro-farms Corporate and Development Centre. Rzeszow-Poland relations between farm tourism sections and the agricultural ones can be

- Complementary
- Supplementary
- Competitive
- Antagonistic

ld and New Tourists Compared.

Old Tourism	New Tourism
Search for the Sun	Experience something different
Follow masses	Want to be in charge
Here today, gone tomorrow	See and enjoy but not destroy
Just to show that you had been having	Just for the fun of it
Superiority	Understanding
Like attractions	Like sports
Precautions	Adventurous
Prefer to eat in Hotels	Try local fare
Homogenous	Hybrid

Reference: ANNEXURE C Tourism Policy of Maharashtra 2005.

Importance and scope of Agro-Tourism: -

Agro-Tourism has the potential to transformation of rural Maharashtra & change the economic face of traditional agriculture. The benefits of agro-tourism development are manifold. It would bring many direct and indirect benefits to the farmers and rural people it helps in transformation of rural Maharashtra. Some of the benefits are following: -

Basic Principles of Agri tourism

1. Have something for visitors to **SEE**
2. Have something for visitors to **DO.**
3. Have something for visitors to **BUY**

Role of Agri tourism in Rural Development

1. It ensures cash flow during the off season.
2. It creates opportunity to sell the experience of agricultural venue.
3. It provides opportunity to sell products grown and harvested in agricultural operation.
4. It generates employment to a part of rural population.
5. It helps in conserving and communicating the values of rural life and agriculture.

Benefits of Agri tourism For Farmers

1.Expanding farm operations

2.Employment opportunities to the farmers including farm family members and youth

3.Additional income source for the farmers to protest against income fluctuation.
4.Improving farm revenue streams and additional income source for the farmers to protest against income fluctuation.
5.Developing new consumer market niches
6.Increasing awareness of local agricultural products
7.Improving farm living conditions, working areas and farm recreation opportunities
8.Developing managerial skill and entrepreneurial spirit
9.Increasing the long-term sustainability for farm businesses

Benefits of Agri tourism for communities

1.Generating additional revenue for local businesses and services from tourists
2.Increasing protection of rural landscapes and natural environments for tourists and residents
3.Helping preserve and revitalize local traditions, art and craft
4.Helping to diversify and strengthen the rural economy via job and income creation
5.Providing a more energetic business environment for attracting other businesses and small industries.
6.Cultural transformation between urban and rural people including social moral values
7.Farmers can improve their standard of living due to the contacts with urban people.
8.Benefits to the urban people, they can understand about the rural life and know aboutthe agricultural activities.
9.It supports for rural and agricultural development process.
10. Help to the reduce burden on the other traditional tourist centres.

Relationship between Agritourism and Sustainable rural Development

Agritourism is an aspect which connects social, economic and environmental factors of sustainability that relate to rural communities' participations and their attitudes towards tourist activities. It promotes farm activities that are environmentally friendly such as organic farming and emphasises on the natural and bio-ecological aspects. It creates recreation and leisure for tourists while also impacting the education of the local communities. Thus, proving to be economically beneficial for the locals as it establishes employment and agri-business in the local societies. In this regard, tourists can experience the local traditions and culture through the landscape, rural facilities, services and the rural lifestyle. Hence, food, traditional farming system, festivals and farming activities such as horsing and planting techniques.

Agritourism, it enhances rural development but in a sustainable manner. Agritourism as a sustainable development for rural Maharashtra transformation take place, it contributes economically to the community as well as positively develops the cultural and social livelihood of local community life while encouraging agri-business.

Problems of the Agro-Tourism inMaharashtra: -

Maharashtra has a greater potential of the development of the Agro-tourism centres due tothe good natural and climatic conditions. But there are some problems in the process of Agro-tourism development in the state. Major challenges and problems are follows;

- Lack of perfect knowledge about the agro-tourism
- Weak communication skill and lack of commercial approach of the small farmers
- Lack of capital to develop basic infrastructure for the agro-tourism
- Ignorance of the farmers regarding to the type of activities
- Presence of unorganized sector in the Agri-Tourism industry.
- Ensuring hygiene and basic requirements considering urban visitors
- Lakhs of farmers have small size holding, low quality land and little or no accessto credit or irrigation. Have to negotiate with consistent drought.
- 148 of the 355 Talukas in the state are consistently drought prone.

Research Methodology

The present research work is exploratory in nature and based on the secondary source of data collection. The researcher has collected the secondary data from the reputed books, journals, newspaper and official websites of the tourism department and department and tourism boards of different states as well as of tourism ministry of India. To pace the study, the researcher has also used some observational facts by visiting frequently to some of micro Agro-tourism sites.

Keywords: -

Agri-Tourism, travellers or visitors, farmers, Sustainable Development, hygienic environment, Entrepreneurship, Nature based farm tourism, Rural Development & Agricultural Operation, NGOs. ATDC, DIC, MART.

Conclusion: -

Maharashtra has a great potential to the transform rural development through Agro-tourism, because ofnatural conditions and different types of Agri products as well as variety of ruraltraditions, festivals. More than 45 percent of population live in the urban areas and theywant enjoy rural life and to know about the rural life. It is a good opportunity to developan agro-tourism business in Maharashtra. But there is a problem of low awareness aboutthis business in the farmer and problem of the finance and proper view in the farmers ofthe Maharashtra.

Hence, the agriculture departments of the districts, Agriculture Universities shouldtry to give orientation about it and provide some innovative ideas regarding to the Agro-Tourism. The government should try to provide optimum financial aids to the agrotourismactivities in Maharashtra by the grants and institutional finance. Bank shouldprovide optimum financial help for the agro-tourism activities in the Maharashtra. Unionof the agro-tourism service providers is also another need of these farmers which helpsthe agricultural tourism network in the India including Maharashtra.

Agrotourism also gives economic sustainability to the farmers as the income from the agro tourism supports the farmer in times of agricultural adversities. It also gives farmer achance to earn respect for his profession by acquainting the urban tourists about his hard work. It also gives guests a chance to back to their roots and enjoy a nostalgic feeling.

References: -

Books: -

1. Maharashtra Krishi Paryatan Vistar Yojana 2012
2. Agri Tourism Development Corporation 2012.
3. Guidelines of Maharashtra State Agri and Rural Tourism Co-operative Federation Limited (MART)

Journals &Periodicals: -

1. Magazine of Agri tourisms.
2. Gazette Govt. of Maharashtra.
3. Journal of Commerce.
4. Journal of Financial Management & Analysis.

Web-sites: -

1. www.agritourism.in
2. www.ruraltourismindia.com
3. www.agritourism.in/index.htm
4. www.ruraltourism.org
5. www.google.com
6. www.wekipedia.com
7. www.yahoo.com

Thesis: -

1. Deepak JT. Management Approach towards Agro Tourism (With Special reference to potentials, Challenges Development and Growth in Western Maharashtra). Ph.D. Thesis, Tilak Maharashtra Vidyapeet, Pune, Maharashta India, 2012.

2. Shrikrishna GW. Critical Study of Agritourism Industry in Maharashtra. Ph.D. Thesis, Symbiosis Int. Univ., Pune, Maharashtra India, 2013.
3. Piali Haldar, "Rural Tourism: Challenges and Opportunities", Sharad Krushi Published CITA New-Delhi, International Marketing Conference on Marketing and Society, 8-10 April, 2007, IIMK, Kalinga Institute of industrial Technology, Greater Noida: 20136, Vol- 6 and 7, (June - July 2007).
4. Mr. Pandurang Taware, Director: Marketing ATDC Pune, "Agri-Tourism: Innovative Supplementary Income Generating Activity for Enterprising Farmers", At Confederation of Indian Industry (CII).

Economic and Cultural Value of Birds – A review

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Birds have direct and indirect economic and cultural values for people. Birds are important for a lot of reasons. Birds provide us food, medicine, fertilizers and also bring about pollinations. They are important because they are a part of the food chain. Birds are also important because they help spread seeds around and thus help with the planting process. Birds also perform vital ecological role, besides their economical role. They are critical links within the fast food chains and webs that exist in the ecosystem.

Birds add life, sound and color to our lives. Watching wild birds is often a diversion from the pressures of our daily lives. We even value birds that we personally will never see; it is comforting and uplifting just knowing that our world includes birds that can offer joy in our lives.

Birds provide intangible aesthetic enjoyment and enrich our lives with their presence. This intangible value comes from knowing our world is still large and healthy enough to support a variety of bird species.

Birds are recognized as one of the most important indicators of the state of the environment. Because they are sensitive to habitat change and because they are easy to census, birds are the ecologist's favourite tool.

Changes in bird populations are often the first indication of environmental problems. Whether ecosystems are managed for agricultural production, wildlife, water, or tourism, success can be measured by the health of birds. A decline in bird numbers tells us that we are damaging the environment through habitat fragmentation and destruction, pollution and pesticides, introduced species, and many other impacts.

Birds are a part of the balance of nature. There is strong interdependence between all living things in the gigantic web of life and the removal of even the smallest form of life may in time endanger the entire structure.

The conditions of clean air, food, healthy plants and safe places to raise young that make good homes for birds and other wildlife, also make good homes for people; a habitat good for birds is a good environment for people.

In addition to the joys they bring to people's lives, birds are also valuable for economic reasons. Birds have ecological value as important elements of natural systems.

Birds provide insect and rodent control, plant pollination, and seed dispersal which result in tangible benefits to people.

Insect outbreaks can annually destroy hundreds of millions of dollars of agricultural and forest products. Purple Martins have long been known as an effective means to substantially reduce insect pest populations without the health and environmental costs (not to mention the economic costs) of harmful pesticides.

Birds play a critical role in reducing and maintaining populations of insects in natural systems. Birds eat up to 98% of budworms and up to 40% of all non-outbreak insect species in eastern forests. These services have been valued at as much as **373,443 INR** per year per square mile of forest, potentially translating into literally billions of dollars in environmental services.

Many farmers know the role birds play in helping to control agricultural pests. Birds can destroy up to 98% of over-wintering codling moth larvae, a major pest of apples worldwide.

We can characterize the cultural benefits of birds in several different ways. People find certain birds beautiful and enjoy watching them or listening to their song. Birds can provide educational or scientific value to us, like Darwin's finches or the Dodo, which are very important for science in general. There's also the benefit of leaving a natural legacy – this is the idea that there are certain birds people feel so strongly about they want to make sure their children or grandchildren get to experience them.

Nature can also give us identity. I call myself a birdwatcher and an ornithologist, and that identity is dependent on birds. We have personal, local and national identities. In India the National bird is Peacock and the state bird of Maharashtra state is Green Pigeon. The most cultural bird in India is a Parrot, due to its voice, this bird copies the sentence and exactly recalls which give entertainment in the family. Now a days due to Wildlife Protection Act 1972 so many birds are included in the IUCN Redlist.

References:

Richard Grimmett, Carol inskip and Tin Inskip (1998): Birds of the Indian Subcontinent.

Ali, S. and S.D. Ripley (1983). Handbook of Birds of India and Pakistan. Compact Edition, Oxford University Press, Bombay.

Inskipp, T., N. Lindsay and W. Duckwoth (1996). An annotated Checklist of Birds of the Oriental Region. Oriental Bird Club, UK.

Manakadan, R., J.C. Daniel, A.R. Rahmani, M. Inamdar and G. Ugra (1998). Standardised English common names of the birds of the Indian Subcontinent - a proposal. Buceros 3(2): 55pp. Bombay Natural History Society, Mumbai.

The Wild Life (Protection) Act, 1972 : https://legislative.gov.in/sites/default/files/A1972-53_0.pdf

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Study of Economic Empowerment of Tribal Women in Amravati District: Causes & challenges

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Abstract:

Empowerment means self-competence and self-efficiency with self-awareness for development.Women in a tribal society play a vital role in their social, cultural, economic and religious ways of life and are considered as an economic asset in their society. But they are still lagging far behind in the various walks of life like education, employment, good health and economic empowerment etc.so there was need to work on empowerment of tribal women.Empowering may be understood as enabling weaker sections like poor women, especially tribal women to acquire and to possess power and resources, in order to make decisions on their own After the analysis of the data and field observation, it is revealed that lack of education, poor health status and infant mortality rate, low level of wage work, lack of self-employment opportunity, organising capacity and leadership quality are the main obstacles to the economic empowerment of tribal women. This study would provide independent economic and social empowerment of deprived tribal women of Amravati District.

Key Word:Tribal Women, Empowerment, Challenges, Causes.

Introduction:

India's Scheduled Tribes (STs) are one of the most disadvantaged sections of society due to their isolation and socioeconomic backwardness. According to the census of 2011, The tribal population in Maharashtra in 2011 was 10.5 million, which constitutes 9.35 percent of the total population of the state. Maharashtra has the second largest tribal population in the country, most of which reside in Thane, Dhule, Amravati, Chandrapur, Gadchiroli, Yavatmal and Raygad. There are 47 trible communities in Maharashtra such as Bhilla, Varli, Katkari, Madia, Gond, Korku, Kolam etc.

Amravati district has a population of 2888,445, Scheduled Tribes population are 13.99% of the total population of AmravatiMelghat consisting of tehsils of Chikhaldara and Dharni is a sub region of Amravati district. The region is Korku dominated.

Tribal society:

The people living sparsely in forest, and distant areas having specific life style, dialect and rites are described as tribal.

Gillin and Gillen says "tribal society is the group of locals residing in particular regions, speaking same dialect, having same culture, tradition and is illiterate."

Hobbel, "tribal is a social group speaking distinctive language or dialect and possessing a distinctive culture that makes it off other tribals, it is not necessarily organized politically."

The makers of Indian Constitution included them into scheduled tribe (article 392(I)).

"The president may, by public notification specify the tribes or tribal communities or part of groups within the tribes or tribal communities or part of which shall for the purposes of this constitution be deemed to be scheduled tribes."

Tribal Women

The tribal having been fighting against the odds in nature do require woman working shoulder to shoulder with men so their society provides enough space to women. Their daily schedule was determined by their poverty with endless labour to make both ends meet and with no food for so many days. But still the tribal woman did not work as a means for men on the contrary; she worked on equal terms with men and shared every labour the tribal men took up.

Prior to British rule the tribals were confined to their forests only, gradually they came into contact with the rural and urban societies for educational, medical and likewise purposes. The tribals had to liv amongst the urban or the rural people. The helped them to progress further but also caused them to pay costs of their peculiar life style.

The korkus in melghat have their own rites from birth to death, their own festivals, and celebrations. Holi is a festively celebrated by Korkus, Jiwati (Jiroti) is another big festival.

Korkus do not discriminate between a boy or a girl of both the sex are celebrated with equal fervour. They still have practice of paying bride value which is to be paid by bridegroom. They used to bury the dead bodies. Sindoli is a sort of celebration of Korkus in which mutton, wine and dance is enjoyed by both men and women in profuse. They have Jat Panchayat (Community Council) this panchayat was a regulatory and coordinating body of them. The panchayatswere the last word in the matter or dispute of any members of the community.

Objective of the Study:

The present research paper focused on thefollowing objectives;

1. To searching the information about the Economic Empowerment of Tribal Women.
2. To study the socio-economic background of tribal women.
3. To Study the challenges of Empowerment of tribal women.
4. To study the causes of underdevelopment of tribal women.

Research methodology:

The present study is foremost based on secondary information. The study drafting and analysis is based on the conclusion of numerous research paper which help in preparing the current research work. So, secondary data have been taken from different research reports, journals, research papers and websites.

Economic empowerment and tribal women:

Generally, the economic empowerment of women indicates their active participation in economically productive activities; their access to savings and credits and their control over income and other productive assets such as land, business and industries. Work participation is influenced by a combination of number of socio-cultural and economic factors. It is a reality that if women gain economic strength, they will ultimately gain power and voice at home, workplace and the community. Economic empowerment of women is highly essential for women's self-confidence, self-image and also their basic needs of survival. Traditionally the tribes lived in mainly forests, hills and undulating inaccessible terrain in plateau areas, rich in natural resources. Theyhavelivedasisolatedentitiesforcenturies. The economic life of tribal generally based on agriculture. They practiceboth shifting cultivation on the hill-tops and plough cultivation in low lands.Theyalsogatherforestproductsandgoforhuntingthoughitisnotaregularpractice now with them. Similar fishing is an occasional pursuit.The importantsourceoflivelihoodofthetribalsisagriculture,forestcollection,wage-earning,animal-husbandry etc. Living in forest areas, surrounded by hills, the economiclife of tribals is quite different from that of the people of the plains. Since earlymorning both men and women proceed to the field to work in swidden patches,both work till mid-day and then take their lunch and after take some rest againresume their work till afternoon. The main source of their livelihood is shiftingcultivation. They do not consume all crops at home and sold some crops in theweekly market for money by which they buy their cloths, ornaments, salt,tobacco and other daily necessities. Not only crops but minor forest produceswhichtheycollectalsosellinthemarketandduringcrisisperiodtheyevensaletheir livestock like poultry, goats etc. As tribal women live in distant villageslocated amidst hilly forested regions, their life is integrally linked to the forest,whichhasbeentheirsourceoffood,fodderandwoodforfuel.Womenintribalsociety have been contributing positively to the local economy by participatingactivelyalongwithmeninthepursuitofeconomicactivitiestoearnlivelihood.Thetribalwomennotonlyparticipateinallagriculturaloperationsbutalso,theyworkinallsectorsofindigenouscottageindustries,tribal artsandproductionofartifacts. The tribal girls and women are always playing a dominant role in allagriculturaloperationsaswellascraftsandforest-basedeconomy.Theentirefamilyexpenditureofatribalfamilyiscontrolledandmanagedbythehouse-wifeinconsultationwithherhusband,grown-upsonsanddaughters.Both husbandand wife go to theweeklymarketsandfairpriceshopstodisposetheircommodities.A Tribal man as husband never shows any disrespect to his wife and seeks heradviceinalleconomicandsocialmatters.

Tribal do not work only for economic benefits, they giveimportance to otherthingsmoreinlifesuchas,desireforsustenance,conformitytotradition,recognition for work well done by the group. In tribal society, a wife participates onequalfootingwithherhusbandinthestruggleoflifeandisalsoequalnearlyinstatus.Tribalwomenworkaslaborinthefield,constructionworksandsupplementstheincomeofthefamilybyworkingasacasuallaborduringoffseasonandalsoparticipatesinagriculturaloperationsintheirfields.Collectionofminorforestproducealsoplays animportantpartinthetribaleconomy.ItscollectionandmarketingareamajorsourceoflivelihoodformostTribalfamilies.

InKorkutribalsocietytypicallyawomanisaninvisibleassetthroughovertlyhereffortsarenotpropertyvaluedinthesociety.Hercontributiontothefamily'sincomeisonwaylessthanmanfolk.Inspiteofseverallegalsafeguards andtheimplementationofvariousdevelopmentprograms,tribalwomencontinuetosuffer from oppression, exploitation, and discrimination in different walks of life(Chaudhary, 2010).The contribution of tribal women to her family's income isquitesignificantthoughthenatureofworkbetweenherandhusbandmaydiffer.Despite their major contribution the tribal woman in Amravati is not viewed asbeing within the production system or being the economic contributor to theirfamilies.Tribalwomen'simportanteconomicroledoesnotgivethemaveryhighposition in the society at par with man. They cannot fully inherit property andtheyhavelittlereligiousdutiesandtheycannotholdanypublicoffice.Despitetheseissuesithasbeenobservedthatthetribalwomenpossessgreatereconomicindependenceandfreedomofmovementthannon-tribalwomenastheircounter-parts.

Causes of underdevelopment of tribal women:

Tribal women are self-disciplinedhard-working people, but even in this 21st century they are still called backdated and underdoped population. It is true that their geographical location made hard for them to reach every facility and government found it almost impossible to man every institution for giving them service. But still there are some factors which have direct or indirect impact on the underdevelopment process.

1. Individualism:

Individualism made tribal women separate from the separate from the others, which subsequently leads them to isolation of power and separation of belonging in society which made them weak in demanding their foundation.

2. Lack of education:

It is considered as one of the crucial true factors behind backwardness of tribal women, they suffer lack of education which prevents them to realize current needs and demand of survival in this cruel society. Because of inadequate education the fail to realize their own potentiality and become less efficient at demanding their own amenities.

3. Lack of awareness:

Lack of awareness means social awareness, it is a major cause of weaker social capital and social unity, which is identified as a major obstacle for development. Unaware of their promising possibility of success, they suffer less privileges on everything.

4. Lack of skills and knowledge:

Because of their traditional view over work and earning livelihood, tribal women doesn't prefer to learn new skills and knowledge, that is a reason for backwardness, as they waste their potential time and willingness unnecessarily. They preserve their knowledge (ancient) for farming and cultural tradition, which they got from their ancestors, but they unwilling to adapt new knowledge, which could made them more capable and efficient.

Challenges In Empowerment Of Tribal Women:

Tribes are more sincere and honest that others and hence, they have been exploited most of the time by their managers, contractors and other higher-classpeople of society. Tribal women have adjusted themselves to live a traditional life style with local environment and choose occupations based on natural resources. Due to environmental degradation and interference of outsider in their culture and livelihood, tribal people face many problems and challenges in getting a decent life and sustainable livelihood. The strategy for development of tribal people, especially for women needs betterment, improvement and development in government policy and initiatives to affect their education, health, and socio-economic aspect of life to make them empowered.

Conclusion:

Tribal women's participation in social activities, Gramsabha, and village development has increased trough. They also participate in development planning. Now women can freely discuss village problems. Views towards women have also changed. Women are treated with relatively more respect now. The social status of women has also risen, along with their living standard.Educational facilities are to be improved in the tribal areas to eradicate illiteracy.

Reference:

1. Registrar General & census Commissioner of Census of India 2011. http:/www.censusindia.gov.in/2011census/PCA/ST/.
2. Deogaokar S. G. "problem of Development of tribals Areas". Liladevi publication Delhi(1980)
3. Dr. Shounak Kulkarni 'Maharastratil Adivasi' Diamond Publication, Pune (2011)
4. Sing, Amar Kumar &C., Rajyalakshami: Status ofTribal Women in India.
5. Magazine 'Yojana', Women Empowerment – Octo. 2018
6. www.wikipedia/tribalwomen

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308 February, 2022

Evaluation Of Stock Market Performance With Reference To National Stock Exchange

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Abstract

Because of the global lockdown and less demand, the global epidemic of COVID-19 has had a big impact on the financial markets. It has become more difficult for people to make money because the price of crude oil has gone down. In the country, the corona virus and lockdown have had an effect on the country's economy. BSE and NSE are two of the most important stock exchanges in India (NSE). In this study, the effects of COVID-19 on the stock market are looked at. Before and after COVID-19, the study looks at how much of an impact the lockdown has on the Indian stock market. It also looks at whether the market reaction is the same before and after COVID-19 Pre and post COVID-19, the Nifty 50 index was compared to see how COVID-19 changed it.

Keyword :Stock Market, National Stock Exchange, COVID-19, NSE

Introduction

Wuhan is thought to be where the Corona virus (also known as COVID-19) first came to light. There are droplets, saliva, and nasal discharge that come from people who are infected when they sneeze or cough. These things spread the virus. A third of the world's people have been put into quarantine because of the corona virus. It has spread all over the world. It has killed more than 200k people, and an extra 2 million people have been infected around the world. The risk that global financial markets could go down is bad for businesses all over the world, including the auto industry. India's economic growth has been slow, to say the least.

Many countries, including India, were badly hit by the COVID-19 virus, which caused a lot of economic damage. People in India's busiest country were put on lockdown by the government, which slowed everything down to a stop. In response to the pandemic COVID-19, which has hit almost every country on the planet, the global market economy has collapsed, oil prices have dropped, and unemployment has soared, among other things. COVID-19 had a big impact on the Indian economy and stock market in terms of growth, development, and the economy.

In general, India's stock market is strong. It responds and adapts well to events in the world. It happened in India on January 30th, but the government didn't declare a lockdown until March 24, 2020, more than 53 days after the first report. What would have happened if the government had ordered a lockdown earlier? It might have slowed the virus's spread through the population. What did the stock market do when there was a lockdown across the country? Market efficiency theory is used to explain how the COVID-19 lockout affected the stock market in this event analysis (Fama, 1970). The people who study these things are called event studies (Fama, 1991). It looked at how quickly prices changed after COVID-19 lockdown alerts.

According to the semi-strong Efficient Market Hypothesis, current market prices are based on information about previous stock prices and information that is available to the public. People who think the market isn't very efficient might have to wait a while for the price to reflect everything that people know.

The International Monetary Fund (IMF) has said that the Corona Virus epidemic is having a huge impact on society and that it has caused a financial disaster. Even the Indian stock market got into trouble because of Covid-19. This raises fears about the global economy going into a downturn and disaster. Many big Indian businesses, like BHEL, Tata Motors, UltraTech Cement, Grasim Industries, and L&T, have shut down or drastically cut back on their work. From January to March 2020, the Sensex of the Bombay Stock Exchange fell a lot. On March 23, 2020, the stock market loses the most money in history because of a lockdown. Young start-ups have been hurt because COVID-19 cut back on funding for them. Overall, businesses that sell goods in India have slowed down. A machine learning method was used to look at the COVID-19 on the stock market in the next part.

2. Literature Review

Ramelli and Wagner (2020) investigated the mechanisms by which the COVID-19 virus moved across Europe and the United States. They found Their investigation focused on how the market reacted to the infection and how this impacted businesses' international trade and financial practises. They discovered that the virus had a detrimental impact on enterprises in the United States that conducted business with other countries, particularly those who conducted business with China and the United States. Immediately after the virus spread over Europe and the United States, the stock market reacted rapidly. As stated by the author, the health issue resulted in a slowdown in the economy, which was exacerbated by a large number of different financial channels that were available at the time.

According to Adda (2016), it was used to investigate how crucial it was for police personnel, who had been instructed by the government to prevent individuals from interfering with one another. There was also discussion of several concerns relating to economic activity and viral illness propagation, such as the unintended consequences of economic activity and how to make the best use of limited resources in order to prevent diseases from spreading further.

According to Hang, China's stock market bubbles over the last decade have been difficult to comprehend (2016). The stock market's wild swings and changes can be attributed to a lack of understanding on the subject. Stocks are unable to react to changes in the economy or external shocks if information is withheld from investors. As a result of the inability to alter supply, demand for securities rises or declines, depending on the scenario. The Indian stock market is extremely volatile as a result of information that has an impact on how equities perform. Stock market trading and inflows are positively affected by good news or information, whereas stock market trading and outflows are negatively affected by bad news or information, resulting in a great deal of volatility and big outflows from the market.

According to Nguyen and Pham (2018), a survey of persons who use the internet was conducted in Vietnam to investigate the relationship between search-based mood and stock market performance on the stock market. People make incorrect decisions due of their emotions, according to the author, and pessimism is the main reason why they do so according to him. Investors who are positive about the future appear to be scared away by the market's recent downturn, according to market data. The researchers found no statistical evidence that optimism had an impact on market returns, but their findings do suggest that an optimistic group of people may be more likely to be willing to invest in the marketplace. As previously said, knowledge is critical in encouraging more people to participate in the stock market, which has a positive impact on stock returns.

Lee and Brahmasrene discovered a long-term equilibrium relationship between the Korean stock market and a range of macroeconomic indicators, including the money supply and industrial output index, as well as inflation, currency exchange rates, and interest rates, among others (2018). The exchange rate, on the other hand, is an excellent predictor of how stocks will do in the short run. However, according to the researchers who conducted this study, global financial crises and other events that take place outside of Korea do not have an impact on the movement of stock prices on the Korean stock market, despite popular belief.

According to their study, Gormsen and Koijen employed a high frequency data collection to investigate the impact that growth expectations had on dividend futures (2020). Dividends and GDP growth in the United States and Europe have been declining as a result of the COVID-19 lockout in Italy. While dividend growth is not as restricted as it was during the Global Financial Crisis of 2008, the situation is nevertheless dire in the short term.

A study conducted by Baker et al. (2020) investigated the impact of COVID-19 on the stock market and compared the findings to those of previous virus outbreaks in the past. It discusses and contrasts the following diseases: Bird Flu, SARS, Swine Flu (H1N1), Ebola and MERS, COVID-19, and MERS, as well as Ebola and MERS and Ebola and MERS. A result of the outbreak of COVID-19, the author got to the conclusion that no other infectious disease outbreak had ever caused the stock market to fluctuate on a daily basis as much as it did in the month preceding the outbreak.

Ozili and Arun (2020) conduct a thorough investigation into the global economic impact of COVID-19. The research took place between January 2020 and March 2020, when COVID-19 had spread to the bulk of the world's populations. Budgetary and monetary policy, public health efforts, and regulatory reforms were all significant government activities that took place during the time period under consideration. Contrary to popular belief, increased fiscal policy spending and restrictions on internal movement had a positive impact on the country's economic activities and stock market indices, according to the author's empirical study, despite the fact that the number of confirmed coronavirus cases had increased.

3. Research Objectives

1) To study the impact of COVID-19 on Indian stock market.
2) To study the change in NIFTY 50 stock index during pre and post COVID-19 period.

4. Research Methodology

This study comprises of the NIFTY 50 data.

Data for the period March 2019 to Dec 2019 as Pre-COVID-19 and March 2020 to Dec 2020 as Post-COVID-19 has been taken in this study.

5. Data Analysis

t-Test: Paired Two Sample for Means

	POST COVID	PRE COVID
Mean	11063	11680.1
Variance	2551442	142999
Observations	10	10
Pearson Correlation	0.29627	
Hypothesized Mean Difference	0	
df	9	
t Stat	-1.2767	
P(T<=t) one-tail	0.11684	
t Critical one-tail	1.83311	
P(T<=t) two-tail	0.23368	
t Critical two-tail	2.26216	

There is no statistically significant difference in the mean performance of the NIFTY 50 during the pre- and post-covid time frame, so the null hypothesis is accepted. The two tail p values are 0.23368, which is more than 0.05, so the null hypothesis is accepted.

5. Conclusion

Indian businesses have been hurt because of the COVID-19 outbreak. Indians are especially at risk from the pandemic because they have the second-largest number of people in the world. As you can see, the COVID-19 has a big impact almost everywhere in the world. Greatest crisis of the century: The virus pandemic brought everything to a standstill and caused the world to be shut down. In the absence of a vaccine, the only ways to stop the virus from spreading are to completely lock down and not interact with anyone else. Because of the AAR's bad readings before the shutdown, India also put a lockdown in place as a safety measure. However, even though this isn't ideal, there is still a chance that when lockdown is lifted and COVID-19 is eliminated from the country, stocks could rise again. This was shown in the stock market's response. NIFTY 50's performance was not different in the pre- and post-covid time periods, according to the study.

References

• Adda, J. (2016). Economic activity and the spread of viral diseases: Evidence from high frequency data. The Quarterly Journal of Economics, 131(2), 891-941. DOI: doi.org/10.1093/qje/qjw005

• Baker, S. R., Bloom, N., Davis, S., Kost, K., Sammon, M., &Viratyosin, T. (2020). The Unprecedented Stock-Market Reaction to COVID-19, KelloggInsight. Chicago, IL: Kellogg School of Management, Northwestern University.

• Brown, S. J., & Warner, J. B. (1985). Using daily stock returns: The case of event studies. Journal of Financial Economics, 14, 3-31. https://doi.org/10.1016/0304-405X(85)90042-X

• DH Web Desk (2020). Coronavirus India update: State-wise total number of confirmed cases, deaths on April 17. Deccanherald Online Newspaper, Retrieved April 20, 2020, https://www.deccanherald.com/national/coronavirus-india-updatestate-wise-total-number-of-confirmed-cases-deaths-onapril-17-826340.html

• Ducharme, J (2020) World Health Organization Declares COVID-19 a 'Pandemic.' Here's What That Means. Time Online Newspaper, Retrieved April 20, 2020, from https://time.com/5791661/who-coronavirus-pandemic-declaration/March 11.

• Fama, E. F. (1970). Efficient capital markets: a review of theory and empirical work. The Journal of Finance, 2, 383-417. https://doi.org/10.2307/2325486

• Fama, E. F. (1991). Efficient capital markets II. The Journal of Finance, 46, 1575-1618. https://doi.org/10.1111/j.1540-6261.1991.tb04636.x

• Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. International Economic Review, 10(1), 1-21.

• Foster, L. (2012). Does the US Presidential Election Impact the Stock Market? CFA Institute Web.

• Gormsen, N. J., &Koijen, R. (2020). Coronavirus: Impact on Stock Prices and Growth Expectations. VOX, CEPR Policy Portal. https://voxeu.org/article/coronavirus-impact-stock-prices-andgrowth-expectations

• Hong, H. (2016). Information Cascade and Share Market Volatility: A Chinese Perspective. Journal of Asian Finance, Economics and Business, 3(4), 17-24, https://doi.org/10.13106/jafeb.2016.vol3.no4.17

• Lee, J. W., &Brahmasrene, T. (2018). An Exploration of Dynamical Relationships between Macroeconomic Variables and Stock Prices in Korea. Journal of Asian Finance, Economics and Business, 5(3), 7-17. http://doi.org/10.13106/jafeb.2018.vol5.no3.7

• Nguyen, D. D., & Pham, M. C. (2018). Search-based Sentiment and Stock Market Reactions: An Empirical Evidence in Vietnam. Journal of Asian Finance, Economics and Business, 5(4), 45-56. http://doi.org/10.13106/jafeb.2018.vol5.no4.45

• Ozili, P., &Arun, T. (2020). Spillover of COVID-19: Impact on the Global Economy, SSRN Electronic Journal. DOI: doi.org/10.2139/ssrn.3562570

• Ramelli, S., & Wagner, A. F. (2020). Feverish Stock Price Reactions to COVID-19, Swiss Finance Institute Research Paper No. 20-12. DOI: doi.org/10.2139/ssrn.3550274

• Salamudin, N., Ariff, M., & Nassir, A.M. (1999). Economic influence on rights issue announcement behaviour in Malaysia. Pacific-Basin Finance Journal, 7(3), 405-427. https://doi.org/10.1016/S0927-538X(99)00010-4

• Wang, C, Li, W., Drabek, D., Okba, N. M. A., van Haperen, R., Osterhaus, A. D. M. E., van Kuppeveld, F. J. M., Haagmans, B. L., Grosveld, F., & Bosch, B. (2020). A human monoclonal antibody blocking SARS-CoV-2 infection. BioRaxiv, DOI: doi.org/10.1101/2020.03.11.987958

ISSN : 2278-9308
February, 2022

Spinning Towards Revolutionary Methods In E-Learning In India.

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Abstract

The developments of any country E-learning activities square measure vital. In era everyone is puzzling over growth and academic development. If it's planned correctly then proper results can come back. E-Learning is as a way to instruction and learning that utilize info and communication technologies to speak and collaborate in academic surroundings. This includes technological experience that supplements ancient schoolroom coaching with web-based parts and learning environments wherever the academic method is full-fledged on-line. During this analysis paper development through E-learning in Republic of India is determined. If it planned correctly then proper results are moving absolutely. During this analysis paper, we tend to determined that E-learning is a good tool for development of instructional sector in Republic of India. E-learning is learning, utilizing electronic technologies to access instructional course of study outside of a conventional schoolroom. The fundamental objective of this analysis paper is to grasp construct of e-learning and to look at the kind of e-learning. It conjointly summarizes many opinions relating to the comparison between ancient learning and trendy learning technique. The fashionable methodology in teaching and learning square measure helpful for the development of education sector in Indian context. The analysis paper focused on schoolroom learning and e-learning in Republic of India as a main wheel of development of education.

Key words: Education, educational development, e-learning, formal e-learning, informal e-learning.

Introduction

The E-learning activities are important for the event of any country. In era everybody is brooding about growth. If it's planned properly then proper results comes. During this research paper through E-learning in India is observed. The research paper focused on classroom learning and E-Learning in India as a main wheel of development of education. Soon after independence in 1947, the Govt. of India had the challenge of bringing uniformity in educational system and providing education to large segments of the population. Thanks to various schemes undertaken by India to enhance the literacy rate. These measured have resulted in increase in literacy rate n 2011. Learner's satisfaction rates increase with e-learning compared to traditional learning, along side perceived simple use and access, navigation, interactivity, and user-friendly interface design. It had been found that below average number of professional courses' teachers in education are using e-learning mode whereas only a couple of non-professional courses' teachers are using e-learning mode. There are three modes of e-learning: online mode, hybrid/blended mode and e-enhancement mode but only e-enhancement mode is being presently employed by the professional and non-professional courses' teachers in Indian education.

E-learning is electronic learning, and typically this suggests employing a computer to deliver part, or all of a course whether it's during a school, college, a part of training or a full distance learning course. E-Learning is learning to make use of the latest electronic technologies which are approachable and ingress to the educational syllabus outside of a conventional classroom. In most cases, it refers to a cours programme or degree delivered completely.

Albert Einstein said that Education is what remains after one has forgotten what one has learned in class."

While Einstein's words are intended in good humour, they accordingly echo the very fact that constructive education is persistent and always progressing. In fact, the face of education has experienced a transformation over the decades. Once characterized by the normal classroom model, education has metamorphosed into learning that's instant, online, self-driven and on the go. The journey of education in India, too, has been speck with multitudinous milepost.

In other words, e-learning also can be described as learning that's delivered online, via the web , starting from Distance Education, to computerized electronic learning, online learning, internet learning and lots of others forms. So e-learning are often defined as courses that are specifically delivered via the web to somewhere aside from the classroom where the professor is teaching. Its interactive learning during which learner also can communicate with teachers, professors or other students within the class. Sometimes it's delivered live; where one can “electronically” raise hand and interact in real time and sometimes it's a lecture that has been pre-recorded. Normally, there's an educator or professor interacting /communicating with learner and grading the participation, assignments and tests. E-Learning has been manifest to be a triumphant method of training and education. It’s becoming how of life for several citizens in our country e.g. farmers education, course, pre-primary and first education also as in education.

Formal and Informal e-Learning

Some sorts of e-learning – online education and online training recreate the formal learning experience online. Online education provides adults with limited literacy skills with a secure and patient place to develop basic skills like reading and mathematical skills. The sole factor that separates online training from education is that the talents and knowledge taught via training are expected to be used immediately.

E-learning allows us to explore the potential of informal learning like Knowledge Management and Electronic Performance Support. Knowledge Management is essentially recorded pieces of corporate information like policies, procedures and merchandise information documents, reports, presentations and proposals expertise, often recorded within the sort of documents like lessons learned, stories and case histories and online interaction with colleagues and may also include online chats, discussions and symposia during which participants can exchange information not yet been recorded. Electronic Performance Support (EPS) refers to a piece environment on a computer during which performers /learners receive assistance. EPS is employed in providing information, training, coaching and monitoring needed for support to learners

ELearning and Literacy in India

As per Statistics which was Reported on 2011and published by the Government of India:
Table 1. Percentage of Literate Population Year Literates Illiterates (% of total population) (% of total population) 2001 65% 35% 2011 74% 26% Source: Annual Report 201314, published by Ministry of HRD GOI. The above Table 1 shows that the share of literate population within the total population has increased in 2011, from 65% to 74% [7], similarly, the share of illiterate population has decreased from 35% to 26% within the span of a decade. Still the very fact remains that 26% of India. €™s total population remains illiterate and e-learning can prove helpful to scale back the illiteracy because the advancement in technology and communication has made teaching and training possible anywhere, anytime. The Learner can learn anywhere; i.e. outside the boundaries of formal classroom. It’ll be very effective just in case of course and training. It’s a really powerful medium for pre-primary and first education because it is in audio visual form and may attract even the varsity dropouts. It’ll be very effective just in case of course and training.

Women and e–Learning

Traditionally women in Indian society suffer from various social and cultural handicaps and it's felt that unless the ladies are sufficiently empowered, the socio-economic development could also be difficult to realize.

The women start from initial involvement in analyzing their own problems, proposing solutions and consequently taking collective action and getting empowered. Regional networking, social mobilization, changing the attitudes and knowledge of girls is basically needed to extend the ladies power. The e-learning strategies can really shape them and may bring it into reality. The e-learning techniques would empower women, create legal awareness, encourage them to require up cases of girls and also help the ladies litigants-learning software would bridge the gap between the laws and their effective implementation in rural and concrete areas.

E-learning networking can make links between social and legal organizations concerned with legal issues.For example e-learning networking would establish links between advocates, lawyers and courts. This suggests by having concentrated efforts of e-learning we will bridge the gap between social organizations and system, between lower and Supreme Court, between rural and concrete areas, between senior and junior lawyers then on.

E-Learning and Government

Government can create the use of e learning methods in numerous ways. It can help the govt to speak rules and policies effectively. It can create awareness about various schemes and plans among citizens. It'll give people an open platform to speak or learn. E-learning can manage semi-structured and unstructured information. It can deliver the govt agenda. An honest e-learning solution can help government in multiple aspects. The govt can provide the training Portal around Government Policies, Rules & Regulations publicly Private Partnership (PPP) model. A government can bring translucency in governance by way of a significant education among the people through e-learning. Creating social awareness amongst the citizens, providing information about taxation and laws also can be wiped out an efficient manner. Right now, the govt has done it for the farmers of our country by developing online consultancy for growth of agriculture production using latest technology.

E-Learning and better Education

According to a current research study during a worldwide magnitude online learning program, after the US , India has been announced to hold the second highest number of online course enrollments with quite over 2,45,000 students from the country. In education, there's a growing demand to make a virtual learning environment (VLE) during which all aspects of a course are handled through a uniform interface throughout the institution. a number of these programmes are initiated in our country and students got to attend orientation sessions in colleges, but the course content is delivered online. Several universities do offer online student support services, like online advice and registration, e-counselling, online textbook purchase and student newspapers. E-learning has the potential to beat the non-availability of adequately qualified teachers in rural India. Live online tutoring; streaming videos and virtual classrooms are a number of the solutions that e-learning offers to those problems. While there's no substitute for effective and arranged classroom teaching, e-learning is that the best choice. School dropout scan be taught through e-learning as they feel insulted to travel to high school again. Computerized Assessment of students' performance becomes easier to the teacher/professor, for the courses where the amount of students is large. Physically disabled students can learn reception through e-learning study material .Though e-learning is audio-visual medium of learning; it's not free from limitations. Consistent with another report, India's online education market size is about to grow to $40 billion by 2017 from the present $20 billion.

It has been observed that a gaggle of individuals who oppose to the concept of e-learning saying that it's informative and doesn't impart the knowledge of the topic. On the opposite hand, some people oppose classroom learning saying that self learning with the assistance computers and other e-material is usually better than classroom learning because it doesn't motivate for self learning. This is often very true for countries where technical education is dear, opportunities are limited and economic disparities exist. India has one among the largest education systems within the world with a network of quite 1 million schools and 18,000 education institutions. Quite half the country's 1.2 billion population falls within the target market for education and related services. Even Agriculture industry is required to attach with education and E-Learning.

Conclusion

I would like to conclude that the rapid increase in internet connectivity is a crucial catalyst for the expansion of e-learning. a strong internet ecosystem, with a mess of local and global players will help online learning make further inroads. In underdeveloped and developing countries, e-learning raises the extent of education, literacy and economic development. If the agricultural industry targeted through E-learning, the expansion rate will defiantly increase. E- Learning and E-commerce are often developed through proper investigate and plan of action.

It is proved that the developing wave of adaptive learning will help education, women, and government.E-learning is increasing the share of literate population within the total population of India. E-learning plays an important role in educational development as a wheel of growth in education sector. It's expected that if India and developing countries proceed as venture and work mutually on the difficulty of e-learning; it'll be beneficial for the event of educational sector. Through E- learning lot of opportunities are often captured and speedy development will possible. It's expected that if India and Malaysia act as venture together compute on this issue for development, it'll be beneficial for the educational sector.

References

1 .Sing, P. P., & Sharma, S. (2005). *E-Learning New Trends and Innovations* (pp. 39). New Delhi: Deep andDeep Publications Pvt. Ltd.

2. Jaiswal, V. (2013). Current Status of e-learning in Indian higher education: A case study of U.P. Retrieved from the Social Science Research Network (SSRN) website:http://ssrn.com/abstract=2231910

3. Tayebinik, M., & Puteh, M. (2012). Blended learning or e-learning? *International Magazine on Advancesin Computer Science and Telecommunications (IMACST), 3(1)*, 103-110.

4.] Sharma, R. C., & Mishra S. (2013). *International Handbook on e-Learning*, Vol. 2.

5. Harden, R. M., & Hart, I. R. (2002). An international virtual medical school (IVIMEDS): The future for medical education. *Medical Teacher, 24*, 261-267

6. Laurillard, D. (2006). E-learning in higher education. *Changing Higher Education: The Development of Learning and Teaching*, 71-84.

ISSN : 2278-9308

February, 2022

A study on Blended Learning: An Ingenious Perceptive

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Abstract

Blended learning is an approach to education that conglomerates online instructional materials and opportunities for interaction online with traditional classroom methods. Blended learning is an innovative thought that encirclements the benefits of both traditional teaching and ICT supported learning as well as both offline learning and online learning. It has scope for collaborative learning; constructive learning and pc assisted learning (CAI). Blended learning needs rigorous efforts, right perspective, handsome budget and extremely driven teachers and students for its successful implementation. because it incorporates varied modes so it is complex and organizing it is a tought task. In this paper the conception of blended learning, its main options and prerequisite of its implementation are discussed briefly . Scope of blended learning in Indian educational system is additionally mentioned .The present paper additionally tries to clarify that how blended learning is an approach that needs to be adopted.

Keywords : Blended Learning, ICT Supported Teaching Learning method, Traditional Teaching Learning Process, and Computer Assisted Learning, On-line Learning

Introduction

Personality and behaviour of the teachers directly influences the flourishing personality of the students The traditional method of teaching in spite of its few deficiencies provides a much needed human touch to the teaching learning procedure. Only face to face interaction meets the affective intentions along with cognitive behaviour. Face to face traditional approach helps in evolving a strong value system. Social skills like teamwork, sharing, appearance and respecting other‘s views are more effortlessly developed in traditional mode of teaching. Students learn not only from books, or from teachers teaching inside classroom but also from their peer group interaction, they learn various skills in playground and their small social interactions in canteens, lounge etc. All this is necessary for a good personality development

The educational system at present-day is in a transition stage. To meet the challenges of expansion and for meeting individuals need it is trying to adopt new technologies and discovering new paths to reach the goal of quality educational opportunities for all, at the same time due to various factors such as poor budgets, dearth of facilities, advantages of face to face interaction, it is not completely ready to leave the old-style modes of knowledge transfer. Even the students are in a state of double mind. When a group of teachers were inquired about the type of teaching they will prefer from tradition classroom teaching and ICT supported teaching the students were nearly equally divided between both the choices.

As discussed above that traditional approach has its own benefits but it is not free from shortages. It has shortcomings: such as School is not able to reach every child and so education for all is still a far sighted goal ,It is failing to meet the individual needs of all the students in the class basically due to improper pupil teacher ratio .Course are not regularly revised, books are not updated and teachers are not interested in upgrading their knowledge and professional skills .It is not adapting itself to meet the challenge of teaching physically challenges students. Similarly absence of right attitude of the teachers and absence of qualified counsellors and lack of follow up activities in the schools the children who discontinue the school for some reason do not get the chance for entering in the formal educational system again.

To make their knowledge correlate with the present technological advancement and globalization, to minimize the teaching errors, to improve the quality, to increase students exposure ICT supported teaching learning process is a good option. Information communication technology supported teaching, introduces students to the wide pool of knowledge and opens before them innumerable opportunities to learn , unlearn and relearn ,All types of learners whether in- service,or physically challenged all can be aided by this mode of teaching . It helps reaching to all students.

The concept of Blended Learning

Blended learning is the concept that comprises outlining teaching learning process that assimilates both face to face teaching and teaching supported by ICT. Blended learning incorporates direct training, indirect instruction, cooperative teaching, individualized computer assisted learning. it includes:

a) Blended learning provides full room for traditional classroom teaching where students get sufficient of time to interact with their teachers which can be called as Face to face teaching and usually get influenced by their personality, behaviour and value system. Face to face interaction helps in synchronous message.

b) Traditional mode of teaching and the school campus provides student time to interact directly with their course content through printing material and ICT mediated education provides them indirect interaction with their course content in a versatile and different interesting way.

(c) Inside the school campus students learns by formal means and they also learn informally when they interact with their peer groups. School campus provides many prospects for this during playground activities, social exchange during free time

d) classroom teaching not only provides students interaction with teachers but elegant strategies such as Group discussion and exchange of ideas- which helps students to undergo discussions with their class mates on diverse aspects of the course and exchange ideas.

e) Another part of ICT supported teaching learning in blended learning is Accessing e-library. In traditional mode students get access to school library that is limited but digital library gives them access to different books related to their topic and on expanded areas. This broadens their outlook and enriches their knowledge, which helps in meeting the cognitive objectives.

f) Virtual classroom provides student an option to learn anywhere, everywhere ,anytime and from anyone. Regardless of the geographical boundaries Students can be a part of a virtual classroom meeting with his co-students and teacher in cyber space. School can also provide facility for it so that the system gains flexibility and students who cannot attend school habitually can gain advantage from this mode

g)Immediate feedback is a key factor in learning as it motivates the learner and is based on values of readiness. Online assessment helps to make evaluation system more creative ,formative, transparent and more fast. It becomes more reliable and unprejudiced.

h) Students get less chance for nurturing their creativity in traditional classrooms because of rigid time table and lot of pressure of class work, assignments and coping with examination stress but Accessing and maintaining educational blogs provide students a platform to show their creativity and can get feedback also.

i)Webinar is an also a feature of blended learning that is ICT reinforced format. It means that students participate in seminars in diverse topics relevant to them through internet connection. All the participants are connected through different software's available like Skype, Google talk , google meet etc. They can present paper and participate in discussions through video conferencing.

j) The blended earning provides student to gain advantage of the experts of the course content they are studying as they can easily watch the different lectures by well-known experts from diverse fields available on you tubes. In addition to it college can also upload video of lecture by its own teachers so that if student is not able to attend the college he can avail this facility and can gain benefit of the teachers instruction.

k) Virtual laboratories can be used in professional courses where the laboratory work is very crucial and sometimes the cost of establishing a well-furnished laboratories is not feasible .In some cases the experiments are dangerous and it is not safe for students to handle those equipment then in such cases students can access virtual laboratories and can learn need skills by working in this virtual laboratory. All these features when blended in one edge it is called blended learning.

Features of Blended Learning

Students in blended learning can select either the traditional mode of classroom teaching where they can get personal interaction with teacher and their classmates or they can choose ICT supported teaching learning it is an important feature of the blended learning that teachers are very dynamic, techno savvy and fully trained to work efficiently in both the formats traditional classroom format and ICT supported format. Students can do face to face interaction as well they interact in virtual space. Students get training in different life skills . Tradition classroom teaching is helpful in memory level and is empathetic of teaching and so help in cognitive domain development and at same time teacher's behaviour, playground experience and social group with classmates develop affective and physical domain at same time online experiences help in reflective level of learning so develop higher faculties of min and social networking sites and other social interactions though internet help in right type of value development. Students get wide exposure and new perspectives of the course content. It is very necessarily up to secondary level to have physical presence of teacher via traditional approach students get that human touch which is very necessary for balanced student's emotional quotient . It provides multicultural and multi dimension approach to teaching learning process Makes teaching learning process child centered blended learning is designed to provide maximum gain to students and thus reach the goal of child centered education.

4. Prerequisite of Blended Learning

Implementing blended teaching is not an easy task. It requires certain fundamental preparations in all the elements of teaching learning process- teacher, student, content designing, and infrastructure. The following are the basic requirements for implementing a successful blended learning.

- Teachers should be well acquainted with the concept of blended learning and fully trained and skilled to blend both types of approaches- tradition and technological. Though child centered but teachers are an important pole of blended learning.

-Having scientific attitude is the prerequisite for teaching profession. Teachers should have good observation skill, they should be optimistic should have problem solving skills.

-A as it is must for the success of any innovative idea or method blended learning process also need teachers with a wider outlook and they should be flexible, they should be ready to accept any changes and challenges , they should be very innovative and dynamic.

- One of the compulsory factor of blended learning Complete facilities like well-furnished computer lab, internet connection, provision for video chatting.

-Students have access to internet at their private computers- This requires a positive attitude and good investments schemes from the government.

-Flexibility in the system- The system should be flexible, flexible time table, examinations system all this is very crucial for implementing blended learning.

- The school authorities and higher educational bodies should be ready to completely implement continuous internal assessment(CAI) and other tools of formative evaluation as summative evaluation is not supported in the blended learning .

Relevancy of Adapting Blended Learning in India

Indian education system has various problems like failing to expand the system to provide facility of free and compulsory education to all children. Problems like abating to maintain quality along with increasing the quantity , Changing the educational curriculums to meet demands of international market has to be dealt immediately. Teachers are not fully dedicated towards their profession and are not able to conserve and propagate Indian value system .Teacher's inefficiency is adversely influencing the learning of the students. There is an exigent need of some essential steps and major revolutions within to overcome the challenges. Blended learning to some extent will help in resolving these problems of Indian education system.

The technological and scientific improvement continuously demands the education system to match their pace and associate with them so that students are able to cope up with the fast changing global scenario. Lack of good teachers is also a major issue. Scarcity of good Teachers many primary schools are posing problems such as not having appropriate teacher pupil ratio, this problem exist not only in government sector but private institutes are in a similar state. Generally the problem of indiscipline, irregular attendance and dropouts etc. occur because our traditional mode is not able to cater individual demands of every student and is not able to convey the content interestingly to the students. As blended learning is giving pupils more advanced and quality education that is from dynamic resource so learning thus becomes more purposeful. Free and compulsory education for all the children up to age 14 is provided in the constitution but our system is not able to meet this goal also. The education of special children also poses problems but blended learning with its diversity can easily cater to the needs of special children like those who are brilliant can satisfy their thrust of knowledge in blended learning,

Implementation of Blended Learning in Indian Education System

Implementing blended learning needs a full perseverance on the part of educational authorities and managements of educational institutes. It needs a well-planned design that include all from individuals top to bottom of the educational hierarchy. For preparing educational institutes for blended learning we will need to increase educational budgets, it can be done by taking help of NGOs and also coordinating with the industrial and corporate sector. These sectors can be encouraged to give their financial contributions for blended learning execution as these sectors will be most promoted if, the output from these educational institutes are more resourcefully groomed for the universal market. The other major issue that has to be considered is development of precise type of attitudes towards this revolutionary concept in all those who are concerned with educational system. For changing the attitudes of parents, community, teachers and students- awareness programmes, seminars,webinars, discussion forums should be organised. These can be utilized to make people aware about the benefits of blended learning so that a right mind set is prepared for its implementation. Mass media can well be utilized for this purpose. Training programmes for teachers both in-service and pre-service have to be reoriented to prepare teachers for blended learning approach.

To conclude it can be said that blended learning is to some level is the answer to problems prevailing in our educational system. If executed in a well-planned, organised way with right type of attitudes it can become the future of our educational system. In the future, teachers and students will need to work collaboratively and take equal responsibility in determining the best principles for an approach that redefines what it means in order to teach and learn .

Conclusion and Future Study

The younger generation is eager and enthusiastic to bring about change in the education system. They are more comfortable with computers and enthusiastic about taking the education system a step ahead. It is also evident from the study that the total percentage of teachers and the percentage of skilled teachers are decreasing in India leading to a serious crisis, which might occur in the coming decade. Further, as Bhattacharya and Kunal point out, in order to prepare the present generation for the Digital Age it is imperative for India to adopt Blended Learning instead of getting into Online Learning (Bhattacharya & Sharma, 2007).

Although the teachers have the basic computer and Internet skills, a very small percentage of teachers are using computers for creating audio and video lessons other than downloading the prepared supplementary aids from YouTube. Thus the teachers are not yet aware of the Internet portals and tools which could be used for discussion and creating effective lessons. Further study regarding the availability of Internet-education-portals and the ways to adapt them in the teaching and learning process is suggested. A study regarding the adaptation of Blended Learning and possible change in curriculum and its delivery are suggested.

References

[1] Bonk C.J., & Graham, C.R. (2006). The handbook of blended learning environments: Global perspectives, local designs.

[2] Coach resources (2012-10-11). “in the real world | Coach resources". Khan Academy. Retrieved 2013-10-24.

[3] Creating a Premium Blend? 20 Questions and a Case Study – Learning Solutions article by Gina Ann Orefice

[4] "Blended Learning: A Disruptive Innovation". Knewton

[5] Dangwal Kiran L.: (2004) Computers in Teaching and Learning:Shre Vinod Pustak Manir, Agra

Governance Reforms And Development In India In Related To Textile Industry

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Abstract:

Indian textile sector is one of the oldest industries in Indian economy.There is close connection of Indian textile industry with the agriculture and ancient culture of country makes Indian textile sector a unique sector in comparison to the industries of other countries. Indian textile company has a capacity to produce different types of product which are suitable for different market within India as well as across the world. Textile industry is one of the largest industry and has some major foreign exchange earner sector of the country at present. It include 14% of Industrial production and 35% in the countries contribution after China. India is the world's biggest supplier of textile sector. The textile industry is basically concerned with the design and production distribution protection of clothings.

This research paper we are going to study about the governance reform and development in India and the major actions taken by the government to improve the textile sector, suggestions to improve the sector and conclusion. In this paper we are going to know about that government reforms and the development made by the Indian government related to textile industry.

Keywords: Textile Sector,Government Reforms, Indian Economy

Introduction:

The India Textleindustry is extremely varied and the hand span and hand woollen textile sector at one end of the spectrum while the capital intensive sophisticated mills sectors are the other end of this industry. Indian textile industry has around 4.5 crore employed worker including 35.22 lakh Handloom worker across the country. We can say that this industry has contributed 7% to the total industry output in 2018-19.This industry contribute 2% to the GDP, and 12% to the export earning and had held 5% to the global trade in textile in 2018-19. It is expected that Indian textile market is growing day by day and it would be worth 209 billion US dollar by 2029.

Objective of the study

- To study about the government reforms and their development in India related to textile industry.
- To study about the government policies which affect the textile market.
- To study about the government initiatives taken for the development of textile industry.
- To understand the new reforms to grow the market by the government.
- To exploit the growth and uses of these policies that are run by the government to develop the industry.
- To give suggestions and conclusions in related to government reforms and development in India in related to the textile industry.

Government reforms and initiatives

Indian government has come up with several policies for the Indian textile market. There were various scheme proposed by government to incentives MMF Apparel and MMF fabrics and 10 segments of technical textile product. Various policies that are initiated by the Indian government for the textile sector are as follows:

- Indian government has notified uniform goods and service tax rate at 12% on man made fabrics and MMF yarns ,MMF fabric for Apparel which will come into effect from the January 1, 2022.
- Union textile minister Mr PiyushGoyal announced an mega Handloom cluster in Manipur and Handloom handicraft village at Bishnupur.

- The mega cluster will be estimated at the cost of 30 crore under the National Handloom development programme.
- In October 2021 Mr PiyushGoyal announced the creation of hundred textile machine Campion in the country and to promote it in the global market.
- In 2021 ministry of textile approved the continuation of handicraft cluster development scheme with the total outlay of 160 crore.
- The government introduced summer training at 75 training centre across the country to accelerate the scheme of coverage among artisans.
- In April 2021 union minister SmritiIrani has assured strong support from the textile ministry to reduce the industry dependence on the imported machine tools.
- In August 2021 Flipkart and Himachal Pradesh State handicrafts and Handloom corporation signed a memorandum to help state master craftsmen weavers artisans and to develop the E-Commerce platform.
- To support Handloom weavers and declared the mudra scheme was launched to provide money margin assistance by 20% of the loan support subject to the maximum rupees 10000 per weaver. The loan is provided at the interest of 6% with credit guarantee of 3 years.

Major Policies Of Textile Sector

The government of India has planned many policies to promote all textile sector of India that includes social welfare schemes, insurance cover, area development as well to upgrade outdated looms, tax benefits and many more. The Government initiatives that has played a vital role in strengthening textile production and encourage this industry to capture the domestic and international markets efficiently are as given below:

1)Amended Technology Upgradation Fund Scheme for textiles industry (ATUFS)

The old machinery, tools, equipments and technologies used in the textile industry can affect productivity and safety. ATUFS is designed to provide incentive to entrepreneurs and business owners for improvement of technologies. A one-time capital subsidy is offered to business owners from Technical Textiles, Garments, and Weaving. The Central Government will offer 15% subsidy to the garment, apparel and technical textile sectors.

Other sub-sectors will receive 10% subsidy for improvement.

A fund of $2.7 Bn has been allotted for ATUFS scheme which was launched in January 2016. The funds will be used for the span of next seven years. ATUFS facilities are expected to receive on this investment of $15 Bn and create 3 million jobs in the country which is great achievement .Under the Union Budget 2019-20, Rs 700 crore have been allocated for ATUFS.

2) Scheme for Integrated Textile Parks (SITP)

Scheme for Integrated Textile Park has been planned to provide support outstanding infrastructure facilities for setting up of textile units. Government of India has provided up to 40% of the project cost subject to a ceiling of Rs. 40 crores.

However, Government of India has grant up to 90% of the project cost for first two projects (each) in the States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Himachal Pradesh, Uttarakhand and Jammu & Kashmir; with limit of Rs. 40 crores for each textile park.

Almost total of 59 textile parks have been sanctioned under SITP by the Ministry of Textiles out of which 22 textile parks have been finalized and rest of others are under various stages of construction.

3) National Textile policy 2000

The National Textile Policy 2000 was framed almost 13 years ago. Since then, the textile industry has experienced various different reforms on the domestic and international front. The domestic textile industry has noticed large-scale modernisation and technological up-gradation in the last decade and has also tackled various new challenges.

Key areas of this policy are:

• Increasing contribution of private sector by setting environment-friendly and technological .
• To Increase Productivity, Improved Marketing and Distribution, Technological Up-gradation and enhanced Research Development in Handloom Sector.
• To Produce cloth of good quality at conventional prices that can fulfil the growing needs of the market.
• Continuously contributing to the provision of sustainable employment and the economic growth of the nation.
• Confidence to achieve a larger share in the global market.
• Recently, the updated draft for this policy was formed which confirms employment to 35 million by attracting foreign investments. Government is focusing on establishing a modern apparel garment manufacturing hub in every North Eastern state for which they had invested an amount of US $ 3.27 million.

4) Foreign Direct Investment (FDI)

Textile and apparel sector in India provide one of the most liberal investment policies for foreign investments. Through Automatic Route 100% foreign direct investment (FDI) is allowed in India.
Automatic Route indicate that the non-resident investor or the Indian company need not require any sort of approval from Government of India for the investment.
With the arrival FDI, India increased to $55.56 bn in 2015-16, $60.22 billion in 2016-17, $60.97 bn in 2017-18 and in 2018-19 India noted its highest ever FDI inflow of $62.00 bn. Moreover, India has been able to attract more than $74 bn investments across sectors during 2019-20.

5) Saathi Scheme

The Ministry of Textile and Union Ministry of Power have jointly launched a scheme called SAATHI (Sustainable and Accelerated Adoption of efficient Textile technologies to Help small Industries). Under this initiative, Small and Medium Power loom units will be provided with energy efficient power looms, motors and rapier kits at no advance costs by Energy Efficiency Services Limited (EESL), which is a Public Sector Undertaking under the Ministry of Power.
• Key clusters such as Ichalkaranji, Surat, Erode etc have been chosen for the implementation of the scheme.
• The initiative is based on the accumulation, bulk acquirement and financing model that EESL has successfully posted in several sectors like Electric Vehicles, Smart Met Meters and LED bulbs.
• Under this initiative, the owner of the unit does not have to assign any advance capital cost to procure this equipment. He also does not have to administrate additional expenses for repayment.
• The accumulation of demand and bulk acquirement leads to a reduction in capital cost and benefits of it can be passed on to power loom units so that their repayment amount and period would lessen.
• Use of this efficient equipment results in energy savings that in turn, leads to cost savings to the owner of the unit. This helps the owner repay the equipment cost to EESL in instalments over a period of 4 to 5 years.

6) Merchandise export from India Scheme

The Government of India has introduced Exports from India Schemes through the Foreign Trade Policy (FTP) 2015-20 with came into effect from 1st April 2015.
•Merchandise Exports from India Scheme (MEIS) and Service Exports from India Scheme (SEIS) are the two schemes for export of merchandise and services which has been designed with the goal of making India's export products more competitive in the global markets.
•As part of this, the Government has provided rewards to exporters to counterbalance infrastructural efficiencies and associated costs involved and to supply exporters with a level field.
•In the new draft of this policy the Directorate General of Foreign Trade (DGFT) has revised rates for incentives under the Merchandise Exports from India Scheme (MEIS) for two divisions of Textiles Industry that are ready made garments and made ups from 2 percent to 4 percent.

7) Scheme for Capacity Building in Textiles Sector (SCBTS)

This skill development scheme named 'Scheme for Capacity Building in Textile Sector (SCBTS)' was approved by the Cabinet Committee on Economic Affairs (CCEA) in 2017 with an expenditure of Rs 1,300 crore from 2017-18 to 2019-20. The programme aims at skill development of 10 lakh youth by 2020 which covers the entire value chain of textile sector except spinning and weaving.

•The key focus of this scheme is to provide a demand driven and placement-oriented skilling programme to create jobs in the organised textile sector and to promote skilling and skill up-gradation in the traditional sectors.

•The scheme enables to provide sustainable livelihood either by wage or self-employment to all section of the society throughout the country.

•Through this programme various types of training are being provided in advanced technology-oriented features like Aadhaar Based Biometric Attendance System (AEBAS), CCTV recording, dedicated call centre, mobile app-based Management Information System and online monitoring

•To take Samarth – Scheme for Capacity Building in Textile Sector (SCBTS) forward, sixteen state governments have signed memorandum of understanding (MoU) with the Union ministry of textiles.

Conclusion

- It is Notice that in June 2021 KVIC recorded as 7.71 growth in a gross annual turnover of to rupees 95741.74 crores
- Through the various schemes developed by the government it was noticed that government has expanded the textile sector and It helped industry a lot.
- Through various policies of Indian government textile industry looks a promising strong domestic consumption and exported demand to other countries.
- This seems helps a lot two other various sectors also.
- This help Indian government in increasing disposable income.
- It increases employment opportunities to various person.

Reference

1) www.techtextrends.com
2) http://www.ibef.org
3) www.texmin.nic.in
4) http :// mindiamart.com
5) https:// www fibre 2 fashion. Com
6) in.apparelresources.com

ISSN : 2278-9308
February, 2022

GST and Indian Economy

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Abstract :

Basically India's tax structure depends heavily on indirect taxes .The goods and services tax (GST) is an indirect federal sales tax that is applied to the cost of All goods and services. In India GST is a single national uniform tax. In GST, all Indirect taxes such as excise duty, central sales tax (CST) and value- added tax (VAT) etc. will be subsumed under one nation one tax regime . Introduction of The Goods and Services Tax (GST) expected as a significant step towards a comprehensive indirect tax reform in the country, which would lead India for its economic growth. The Proposed study is designed to know the impact of GST on Indian Economy with the Help of Its individual effect on different sectors.

Key Words: TAX, GST,VAT,CGST, SGST, IGST.

Introduction :-

The implementation of goods and service Tax (GST) was on 1st july 2017 by the president of India Pranab Mukherjee and Prime Minister Narendra Modi all over India including Jammu and Kashmir.GST is the biggest reform in India founded on the notion of " one nation , one market , one tax . Government proposed amendments to introduce goods & service tax for every transaction across the country. Newly implemented tax regime would provide a common national market for goods & services & would also remove cascading effect of taxes on them. Before GST ,there were various kind of taxes such as excise duty , service tax , VAT , Entry tax , Central Sales Tax etc.VAT was quiet difficult to understand hence it was confusing the common customers . But in GST Regime there is only one tax remove all questions for the consumers. GST categorized in 5 different slabs of 0%, 5%, 12% ,18% and 28%. GST however, there will be three parts such CGST, SGST, IGST and the other 5 union territories without legislatures have adopted the UTGST Act. Basically India's tax rigime relaid heavily on indirect taxes .But the Indian system of indirect taxation was characterized by cascading , distorting tax on production of goods and services which leaded to hampering productivity and slower economic growth .

Objectives

1. To understand the concept of goods and service tax
2. To find out short effect of GST on Economy.
3. To find out the Impact of GST in future.
4. To evaluate the benefits and challenges of GST.

Research Methodology: The present research paper is an empirical research paper based on secondary data collected from various research papers, news papers, journals and from websites.

Defination of GST:

"The goods and services tax (GST) is a value added tax levied on most goods and services sold for domestic consumption . The GST is paid by consumers, but it is remitted to the government by the business selling the goods and services. In effect GST revenue for the government".

- www. Google .com

❖ **How GST is applied** :

GST is an intake based tax/levy. It is built on the "Endpoint principle." GST is applied on goods and services at the place where final/actual consumption happens. GST is collected on value-added goods and services at each stage of sale or buying in the supply chain. GST paid on the getting of goods and services can be set off in contradiction of that payable on the supply of goods or services. The manufacturer or wholesaler or retailer will pay the related GST rate but will claim back through tax credit mechanism. But being the last person in the supply chain, the end consumer has to bear this tax and so, in numerous respects, GST is like an end-point retail tax. GST is going to be collected at point of Sale.

❖ **Impact of GST on Indian Economy :**

The GST is said to have a positive impact on the economy as a whole. But when it comes to sectoral-wise classification, the GST have both positive as well as negative impact on each of the sectors. Here are some sectors given and its GST is given below :-

1) Technology (Information technology and ITes):

The GST system of indirect taxation has made the duty on the manufacturing goods from 14% to 18-20%. As a result, the prices of the software products will be at high which will give either a neutral or slightly negative impact on the Technology Sector as a whole. But they will be benefited through the reduction of tax and benefits of other industries and can somewhat mitigate it.

2) Telecommunications:

The telecommunications sector is presently paying the tax at the rate of 14% which is expected to be increased during the GST regime. And, it is assumed to be around 18% which will be expected to be passed over to the customers and this gives a picture that GST will adversely affect this sector.

3) Pharmaceuticals:

Presently, the Pharma companies are paying taxes around 15- 20%. Since, there is no clear picture of tax treatment for Pharma if it is less than 15% it would be a positive impact on the Sector but if it is above 15% then it will cause some slight negative impact.

4) Automobiles:

The Automobile industry is currently paying a tax rate of a range between 30-45%. And it is expected that after GST the rate will be around 18% which will be a huge positive for the automobile industry and which will be profitable to both the Manufacturers/ dealers and the ultimate consumers. The standard and the social status of the consumers get uplifted. There will be a huge boom in the Automobile Industry as a result of implementation of Goods and Services Tax.

5) Financial Services:

The Financial services such as banking, Stock Trading firms are currently paying 14.5% as VAT which is likely to be increased to 18 to 22% in the near future under the GST regime. And the services are likely to be costlier.

6) Textiles:

Currently, the Textile industry is paying the tax at the rate of nearly 12.5% plus surcharges and which varies upon the MRP of the products. Since there is no JIBC August 2017, Vol. 22, No.2 - 7 - clear idea about the tax rate of this industry under the regime of GST it is expected at the rates of 15% which will be having a moderate impact on the industry. This moderate impact may either be neutral or slightly negative when compared to the other present system of taxation. But they will be benefited through the reduction of cost in transportation, savings etc.

7) Media and Entertainment:

The tax rate for the Media is around 22% as of now and since the authority for the levy of taxes remains to be the right of the local bodies, it is expected that the cinema fares are expected to come down after the GST regime and the cost of DTH and cable television services are likely to become costlier. There is somewhat either neutral or slightly negative impact of GST on the Media and Entertainment Industry.

8) Consumer durables:

The current of tax rate of this industry is around the range between 23-25%. And under the GST regime it is considered to be lower around 15- 18% which will be positive impact to this industry.

9) Cement Industry:

The cement industry currently pays the tax at the rate of 25% currently. And, after the GST regime, it is expected to be fixed at the rate of 18 to 20%. This will be a major relief for the companies of that industry. And the logistics tax also is to be reduced; it would be a double benefit for all the industries involved in manufacturing.

10) Real estate:

Real estate contributes about nearly 7.3% of India's GDP and it is the largest generator of employment immediately after IT. Real estate is said to get a positive impact under the GST regime immediately after its implementation. It is expected that since there is a single system of Taxation under GST, all other forms of indirect taxation will be removed which results on reduction of property prices and the cost of construction. Thus, we can have a positive impact of GST on the Real estate sector. Problems in Implementing GST There are certain challenges and problems in implementing the GST in India.

In India we have five slabs with as many as three rates which consist of integrated

Rate , a central rate and a state rate. In addition to these cess is also levied. By considering all these facts and factors government is as keeping close eye on inflation so that common man should not be suffered.

While government is also reducing the rates of taxes on various commodities for giving relaxation to the Consumer promote the trade. Recently in this month of December 2018 government has revised rates of Taxes on various good and services by keeping in mind the turnover of essential goods and services. No doubt government is continuously reviewing the tax structure after implementation of GST so that adverse effect can be avoided.

❖ **Benefits to the economy**:

Following points highlights the benefits of GST to the economy

1) GST is expected to create one unified market for most goods and services in the country. It means that for every producer in the economy the size of the market will expand

2) If the prices of the goods and services tend to fall in the domestic economy, exports will rise, leading to higher earnings of the foreign exchange.

3) A unified market is expected to lead to Balanced Regional Growth With the growth of market size, GST is expected to raise the level of economic activity in the economy.

4) Implying faster GDP growth It would also mean faster generation of the opportunities of employment.

5) GST is expected to improve tax compliance Because:

(a) Input credits will be available to only those who buy their inputs from GST-compliant firms.

(b) There is to be a digital record and monitoring of value of value addition at stages of production activity Higher degree of tax compliance would mean:

(a) Higher tax-GDP ratio.

(b) Gradual elimination of the 'shadow economy' or the black money economy.

❖ **Benefits for the consumer:**

1) Single and transparent tax proportionate to value of goods and services:

Due to multiple indirect taxes being levied by Center and state , with incomplete or no input tax credits available at progressive stages of value addition, the cost of most goods and services in the country today are laden with many hidden taxes. Under GST , there would be only one tax from the manufacturer to the consumer, leading to transparency of taxes paid to the final consumer.

2) Relief in overall tax burden:

Because of efficiency gains and prevention of leakages, the overall

Tax burden on most commodities will come down, which will benefit consumers.

❖ **Challenges:**

The government is trying to smoothen the road to GST .It is important to take a leaf from global economies that have implemented GST before us, and who overcame the teething troubles to experience the advantages of having a unified tax system and easy input credits. But still in India there

Are some challenges before the government on which work is yet to be done , like enactment of separate Law, avalilability of IT infrastructure in all states, keeping a close check on the rates of GST to control the inflation and employment , impact on pricing of goods and services due to subsumed taxes, constitutional amendments to enable GST to central and state governments etc.

❖ **Conclusion:**

Tax policies play an important role in the economy through the impact on both efficiency and equity. Before the advent of GST we had 72 Different taxes to be paid at different level of business chain. With an aim to ease the existing tax regime in the country the government on 1st july 2017 introduced the Goods and Services TAX (GST) under the 'one nation one tax' regime, widespread makeover was observed not only in the country's business landscape but in lives of common people as well. The government termed GST a game changer for the Indian economy as it abolished various indirect taxes and brought all of them under a single window. It can be concluded from the above discussion that GST will provide relief to producers and consumers by providing wide and comprehensive coverage of input tax credit set-off , service tax set off and subsuming the several taxes. It can be further concluded that GST have a positive impact on all stakeholders.

References:

➢ publication at: https://www.researchgate.net/publication/329210122 by Dr. Namita mishra.
➢ An open access Internet journal (http://www.icommercecentral.com)
➢ Priyanka Sharma , Assam India Article History.
➢ Scholars Impact - Journal No. 41129 Volume – VI January 2019 (Special Issue)

Innovation And Challenges In Commerce, Humanities, Science & Technology: Postcovid opportunities And Challenges

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Abstract

Covid-19 was not less than a calamity. It changed the lifestyle completely and brought challenges.Covid-19 epidemic has caused a huge loss and tremendous impact on all sectors of servicesand economy. The sudden shut down of factories and companies as well as services gave place to unemployment and frustration among youngsters. The sudden closure of campuses and priorityto maintaining distance to prevent community transmission has shifted face to face classes to online learning systems. But these online classes again brought problems in the countries like India. Online system has not yet reached far flung areas of our country. It can- not prove fruitful in the developing countries. It's a complete failure in the countries like India. It's a countryof youngsters and the pandemic has brought the feeling of uselessness among them. It has made them lazy and dull. It has effected not only education but agriculture also. It affected transport as well as export import. Farmers didn't get enough prices for their crops. Some of the farmers threw their crops which could not be stocked and the main problems markets to sell the crops were not available. Industries also suffered from great losses. It affected the GDP and GNP. The lowest GDP has been recorded after the pandemic. Similarly it has severely affected the service sector. It caused to unemployment and migration of the labors from local place to native place. It also affected the global environment. But the situation is under control and economy has started to grow up. At the same time it has provided opportunities too to come up again. This paper speaks about post covid challenges and opportunities in detail.

Keywords-pandemic, unemployment, Covid -19, agriculture, services, challenges, opportunities

Introduction:-

Covid- 19 was a demon which brought destruction and disturbance in all over the word. Today, though its effect has deemed down but the havoc it brought can- not be forgotten or neglected. It is still alive.

The covid-19 pandemic is thought as the most crucial global health calamity of the century and the greatest challenge that the humankind faced since the 2nd World War. It emerged in Wuhan city of China in December 2019. It is an infectious respiratory disease. It was named COVID -19 by the World Health Organization. It spread rapidly around the world causing health issues economic, environmental and social challenges to the entire human population. It has severely bitten the global economy. Different measures were applied globally such as lockdown, home quarantine to control the spread of virus. If we talk about India, a long term lockdown was followed and it affected a lot. Total stay at home was there. Still service sectors like schools, railways are not run in a full of swing. The pandemic took us 10 years back. There was a situation just like untouchability. Total stop on face to face communication only the means of communication was electronic media…exa. Mobile.

This unwanted disease has scared the world completely. Though vaccine has been invented and the pandemic is diminishing, its side effects or worst effects can-not be avoided. It changed the track of life completely. It was really a toughest time ever. This paper discusses the challenges and opportunities brought up by the pandemic.

Impact on Agriculture

Covid- 19 disrupted some activities and in agriculture and supply chain. Reports showed that non-availability of migrant labor interrupted some harvesting activities, for example, in northwest India where wheat and pulses were to harvest but faced the problems. Transportation problem disturbed the supply chain. Prices declined for wheat, vegetables, and other crops. Yet consumers are paying more. Closure of hotels, restaurants, sweet shops and tea shops depressed the milk sales. Poultry farmers also badly hit due misinformation that chicken were the carriers of covid-19.

World is trying to get out of the covid-19 shock and trying to recover the losses. It requires strong implementation by the authorities that the earlier normality would come into existence. Government should be a responsible body to tackle the situation. Poor sectors like farming must be supported to bring them up instead avoiding them.

Impact on Industry

Growth in trade of goods and services declined in the quarter of 2020, second quarter of 2020 detected much more dramatic decline in trade of goods and services. Medical products related to covid-19 such as personal protective equipment, ventilators, thermometers, sanitizers etc. experienced very high growth in the second quarter of 2020. There was decline in automotive and chemical industries of China , USA, European union.

Foreign Direct Investment flows have fallen dramatically

Covid- 19 had an immediate and negative impact on FDI. FDI is projected to decrease further in 2021 and only begin to recover in 2o22 at the earliest. Following the outbreak of COVID-19, FDI was instantly struck by the lockdown.

Industry shut caused to Rise of unemployment

Because of sudden closure of industries, labors had to migrate to their native place where there no work was available and they were pushed to extreme poverty. Just because of shut of industries, the debtors were unable to pay their EMI and the banks charged more interest on the amount. This brought a wave of frustration and suicidal problems.

Impact on services

Service sector has an important place in the economy of country. It has near about 57% share in the GDP e-sector. It caused to stop all the recruitments in government sectors, public sectors, still the same situation is found. No new appointments, as well as no salaries brought negativity in the society.

Restaurants and hotels

As a precautionary measure, people avoided to have food in restaurants and hotels. It indirectly affected on the workers' wages. Still people's mind has not changed and resorts and hotels are not getting enough response. It affects the government's tax policy also.

Recreation sector

It includes the movie theaters, gaming zones……etc

The recreation has a huge craze in India. But we observe these centres are still closed.

Social and personal services

It includes the parlor, salons, carpenter, plumbers, electricians, lawyers, medical care etc. Among this only health care unit was run, others were totally closed. So these services faced decline during the pandemic spread.

Impact on Education Sector:

1) Due to covidsituation , universities and colleges will shift to a model of blended learning where both face to face delivery along with an online model will become a norm. This will require all teachers to become more technology savvy and go through same training to bring themselves to the level

2) This pandemic situation induced people to learn and use digital technology and resulted in increasing the digital library

3) During this pandemic situation most of the students preferred ODL mode as it encourages self – learning providing opportunities to learn from diverse resources and customized learning s per their needs.

Post Covid Opportunities

1.The lockdown around the world with less cars on the road, less planes in the sky and slowing down of industrial activities have given a chance to the planet to breathe some fresh air and slowly heal. A significant improvement in the air quality and ozone layer's recovery is being reported by scientists. Now a post covid 19 world will b3e able to meet the goals set in the Paris Climate Accord.

2.The pandemic has forced the realization amongst power-holders and policymakers that health is a public good.

3.There is so much haste to go back to the 'normal', which is riddled with abnormalities.

4.The backward migration from urban to rural areas provides an opportunity to the government to correct the rural-urban imbalance through development of the agriculture sector.

5.The pandemic gave enormous opportunity to the government to establish its writ vis-à-vis the religio-political lobby in the country. Insteadoff becoming hostage to their blackmailing, the government should have dealt with their defiance w3ith an iron hand in the name of protecting public health.

Conclusion

This pandemic affect the education sector adversely. The interaction between the teachers and the stuents is a crucial component of teaching and cannot be replicated in online classes. This Covid-19 outbreaks poses serious concerns to global education system.The coronavirus spread so rapidly that it has changed the rhythm of the globe. The most obvious consequenceinclude economic recession, crisis of global governance, trade protectionism and increasing isolationist sentiment. After we overcome the pandemic, we must craft measures to cope with these challenges together. The consequences of such disease in one country will become global ones because we are living in the age of globalization. Everyone wants to turn the page on covid-19 as soon as possible. But lessons are inevitable. We must take lessons from the consequences we faced andshould try to protect our environment instead of spoiling it. It's time to give up conventional thinking based on stereotypes and finally start acting from moral perspective. After all, our best bet is happy future for all who live on Earth, our common home. Pandemic has brought challenges and opportunities together. Government must implement better policies to face these challenges and must utilize the opportunities. Though the effect of pandemic is fading away, the rescue system for the further calamity must be ready.

Reference-

- www.ilo.org.,
- www.ndtv.com.,
- www.eepcindia.org.,
- www.researchgate.net.,
- https://www.weforum.org.,
- http://www.educationinsider.in
- The Handbook of blended learning

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Human Resource Management: A Theoretical Perspectives

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Abstract:

The present paper aims at theorizing the basic concept of Human Resource management in the context of its development stage. It is also attempted to gauge the avenues of recurring challenges in the rapid changing scenario of business management under the impact of modernization and globalization. The modern trade, in the larger, context has been shifted to the ownership of corporate sector and entrepreneur enterprises. Accordingly the development of Human Resource management is influenced by many new factors such as corporate restructuring of business, new organizational designs, emphasis on total quality management, changing job profile, changing workforce profile, increasing role of working women and role of woman employees. The skill component is also a significant element affecting Human resource management.

Keywords:deployment Human Resource, globalization, entrepreneurship, establishment,

Introduction

The establishment requires a variety of resources to produce a fixed product or marketable goods. Land, financial capital, machinery, raw materials and manpower are roughly five resources. In the present research, the researcher has done research work in line of reviewing the concept of Human Resource Development in the light of modern day, unprecedented development in every walk of life. Different scholars have attempted a defination of Human Resource. Leon C. Megginsoon defines human resources as follows. "From a national point of view, human resource means knowledge, skills, creativity, ability, intelligence and a positive outlook; similarly from the point of view of an individual entrepreneur." (Leon 256) We need manpower of different abilities to carry out our various tasks. They are categorized according to the work they are carrying out, e.g. production department, marketing department, finance department, procurement department.

Research Methodology:-

The research is of descriptive type which is purely based on secondary data which is collected from mass media sources like newspapaer.news.articles and internet.

Objectives of the study:-

1.To study the Human resources management.

2.To study the functions of Human resource management,

Human Resources Management

Human resources are the most important and essential support of an organization. Wiki, advertising, financial balance sheets. Many tasks like registration etc. cannot be done without manpower. Manpower resources in new establishments is viewed from the perspective of a creative energy source that works to mobilize resources other than human resources and hence the importance of human resources.

Human resource management is a pragmatic approach to managing the manpower in an establishment. The main objective in managing the manpower is to ensure that the workers / employees working in the establishment do the work assigned to them in the job to their full potential and at the same time develop them personally. Human resource management seeks to contribute to the development of both the establishment and the manpower by being consistent with the goals and policies of the establishment and socially and mentally integrated with the manpower. Therefore, human resource management is seen as an intimate link between management and workers, not just administrative matters.

From study point of view, the human resource management is part of the discipline of management. The four basic methods of Human Resource management includes planning, organization, direction and regulation to achieve the objectives of the organization by recruiting, developing and maintaining the manpower in the human resource management establishment. Human resource management is an ongoing process. According to George R. Terry, the human resource management process is not about turning on or off tap water or 1 hour a day for one day a week. Human resource management is related to the existing manpower in the establishment as well as the manpower that will be useful to the future establishment. (Terry 256) Human resource management has an important role to play in finding the right people for the establishment and bringing them into your establishment. Real human resource management is a management tool that supplies the establishment with the best manpower from the workers to the top managers.

A role to play in the proper and efficient utilization of selected human resources and the proper use of tools and techniques in human resource management functions as a guideline for the establishment while achieving policy objectives. While it is true that establishments have different departments and each department has different people and different objectives, such different departments and people depend on others for their work. Human resource management plays a vital role in achieving the objectives of the establishment by all the manpower in an organized manner by maintaining a good correlation between the different departments of manpower and their functions.

The current scenario :

The systematic study of the concept of human resource development began in the field of management in the early 20th century. Human resource management can be defined as follows. Human resource management is a pragmatic approach to managing the manpower in an establishment. The main objective in managing the workforce is to ensure that the workers / employees working in the establishment do the work assigned to them to the fullest extent possible and at the same time develop them personally. Human resource management seeks to contribute to the development of both the establishment and the manpower by being consistent with the goals and policies of the establishment and socially and mentally integrated with the manpower. Therefore, human resource management is seen as an intimate link between management and workers, not just administrative space.

Main Functions of Human Resource Management

Human resource management is an activity that acts as a method in the context of establishment. That is, it is a management approach in the context of an organization, but human resource management has its own contextual identity. Combining organizational context and human resource management helps us understand the method of human resource management and where it helps to understand what its functions are. The objectives of human resource management are as follows.

1. Attracting manpower in the establishment.
2. To motivate the manpower for best performance and to motivate and develop them for the same.
3. To ensure that the human resources in the establishment remain an integral part of the establishment.
4. Manpower recruitment
5. Human resource development
6. Employee evaluation and compensation
7. Supplement for employees and commitment to their maintenance.
8. Maintaining industrial correlation.

Emerging Challenges :

The last decade of the 20th century saw dramatic changes in business management practices globally. Its repercussions were felt in India as well. These changes have left entrepreneurs facing many challenges in adopting new strategies in business management. Human resource management has a key

ISSN : 2278-9308
February, 2022

role to play in managing people in the workplace and thus brought human resource management to meet the changes and challenges posed by the open economy and globalization. Objectives were forced to implement a further 128 effectively. The following emerging trends at the global and Indian levels have a profound effect on human resource management practices.

1. Globalization of economy
2. Corporate restructuring of business
3. New organizational designs.
4. Emphasis on total quality management
5. Special importance to Kaizen system
6. Changing job profile
7. Changing workforce profile
8. Increasing role of working women role of woman employees.
9. Special importance to knowledge management

Globalization of economy is a challenge nowadays in the path of development and management of Human resources. The borders of countries are limited to political affairs and economic matters have never been crossed. The classification of the market is not based on national standards but on international standards. Due to globalization, many international bad products have come to India and the IT sector in India has spread its wings across the national border in the international market. Human resource management has a big responsibility as they have to have in-depth knowledge about the manpower, their skills, their culture, the way they work, etc. In the same way, personal attention has to be paid to the personal needs of the people e.g. Housing needs, health, education, entertainmentetc.

Business Restructuring

Business restructuring is a relatively new technique. In this, entrepreneurs reorganize their entire business in line with the core strengths of their business which is the core of the core. Business restructuring involves getting out of the less important or weaker side of your business or selling that business or industry. At the time when such developments take place, there is a state of panic in the business manpower. Can your job be gone? Can wages be reduced? Do I have to relocate or relocate? Etc. The fear of nature arises in their minds. This is where manpower resource management has to focus on satisfying and trusting their human resources so that people don't quit their jobs. The organization's new blueprint for today's reshuffle of manpower in the business is based on departmental responsibilities, authority, location in the establishment, skills, adaptation and adaptation to modern human resource-based human resources. Restructuring is done in the direction of bringing. Instead of a straightforward system of authority in management, each person is delegated authority according to his or her responsibilities.

In short, this can be called decentralization of power. Human Resource Management thus requires to make a careful effort to redesign the organization and increase its responsibility. Special importance to overall quality management Globalization has created a need for high quality in both the manufacturing and service sectors. High quality is used to impress on the mind of the customer how your product or service is superior to your competitor as the customer has a large selection in the market. The Indian Institute of Statistics defines overall quality management as follows.Overall quality management is the company's approach adopted by the organization to ensure that the work of the customer and all the employees will be of high quality to meet its expectations. To strive for that goal is to adopt the right method of problem solving to achieve the goal.

Change in the nature of the total workers

Due to the change in the nature of work, it is natural that the nature of the workers also changes. In the old days, the working class was uneducated and trained in any kind of technology. Once in the establishment, they used to be trained according to the needs of the company and today the situation has changed completely. Today's worker is well educated and trained in modern technology and then comes to work. At the same time, the expectations of these relatively young workers are high. Similarly, younger officers are being recruited in the officer class as well. Such young manpower is constantly looking for new jobs with the expectation of higher salaries, so the big challenge for human resource management is to keep the experienced and trained manpower out and prevent it by adopting various measures.

Growing Role of Working Women

Globalization and free market system have raised the standard of living of men and as such a rising standard of living cannot meet the needs of one member of the family, women in the family have also been deprived of employment. The role of women in management and non-management is becoming more and more important as the impact of women's education has increased. Some companies in India have implemented separate recruitment programs for women only. The former president of Hindustan Lever had announced in 2005 that Hindustan Lever's companies would have about 20 per cent women in the management sector in the next five years. Thus the number of female employees is increasing worldwide, female employees are facing their own unique problems. Women have to take care of household responsibilities along with their personal careers. When children are young, female employees are under a lot of stress and they cannot deal with these issues alone. Another important issue is sexual harassment of women in the workplace. The human resource management department has to look at the issue of female employees very sensitively. If possible, the husband and wife need to get a job in the same organization or at least in a village. Human resource management has the primary responsibility to ensure that women workers are not sexually harassed and that they do so as soon as possible.

Importance to Knowledge Management

In many establishments, human resource management has come to be referred to as knowledge resource. The main reason for this is that knowledge is very important in today's economy. The economy is divided into two parts. In order for the old economy and the new or knowledge-based economy to survive in the current competitive environment in the global market, businesses need to be identified with the knowledge in their organization and entrepreneurs need to consider their organization as a resource by managing smart and intelligent manpower.

Conclusion

The concept of human resource management and development is needed to studied at a theoretical level, in addition to adoption of practical approach. After getting detailed information about the nature of resources in the industry, what is the meaning of human resource, its importance as well as its management, what exactly is the concept and its function becomes clear. The above discussion of how the human resource management process has evolved, all the stages in the human resource management process have been proved a big asset of support to the authority. The above discussion has provided an in-depth look at the workings of human resource management and discusses how it works. It answered the issues like what is the current Indian framework for human resource management. Likewise the complete information about the whole nature and concept of human resources has a suggestive value.

References:

Frederick W. Taylor. *Scientific Management.* New York Harper, 1911.

eon C.Megginsoon, *Personnel and Human Resource Administration*, Homewood Ill Richard D.lrrwin, 1982.

eorge R.Terry. *Principles of Management.* Homewood, Ill Richard D.Irwin, 1988.

Pat Loery. (1909) "Personnel Management", Plus, December 1909.

ichal Armstrong (1987) Human Resource Management - A Case of the Emperor's New Clothes", Personnel Management, August 1987.

KarerLegge, "Human Resource Management Rhetorices and Realities, New York Macmillan 1995.

GST and The Indian Economy

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Abstract:

Research is outlined as careful thought of study relating to a specific subject or concern victimization of scientific strategies.

GST or Goods and Service Tax may be a uniform revenue enhancement levied on all the products and services across India and has replaced several different taxes just like the VAT, the excise duty, service tax ,surcharges and extra duties on customs.

This paper is written as an effort to review the thoughts on Goods and Service Tax and the way it's considerably wedged the Indian Economy . In conjunction with the introduction and salient options of planned GST and the way it will work, this paper additionally aims at highlighting the benefits and challenges of GST within the Indian state of affairs.

Keywords: - Goods and Service Tax (GST), Indian Economy, Tax system of India, VAT, Prices.

Objectives of The Study:

1. To review the thought of products and Services Tax (GST) and its impact on Indian Economy.
2. To grasp how GST works in India .
3. To understand the benefits and challenges of GST in Indian context.

Research Methodology:

The study focuses on in depth study of Secondary information collected from National& international Journals[Journal of Internet Banking and Commerce],[IOSR journals],[Business and Economic journal],government reports [world wide journals],[GST council.govt.in]publications from numerous websites[Research gate],[Avalara] that centered on different aspects of Goods and Service tax.

Ekta Narula and Priyanshi Rastogi (2016) have explained that the main aim of GST is to streamline the existing indirect tax system with a single tax on consumption of goods and services manufacture and V tax money handler is termed as Direct tax ,i.e taxation, capital levy, corporation tax. A tax that's levied on production and sales of products and services by the govt. on the tax money handler is an Indirect tax. For example- excise duty, VAT, service tax.

Goods and Service Tax (GST) was passed within the Parliament on 29th March, 2017 and came into effect on 1st July ,2017. it's a multi-staged legal system and is applied on the sale of products and services. GST is that the biggest tax reform in India based on the notion of “one nation, one market, one tax”. [1]

India hasbecome the quickest growing major economy in the world and is predicted to be one amongst the highest 3 economic powers within the world over consequent 10-15 years. Quite a hundred and fifty countries have already enforced GST to date across the planet. Under GST, there's a mix of Central and State taxes into one tax. It might additionally enhance the position ofIndia in each, domestic as well as international market. In India, merchandise and services are divided into 5 tax slabs for assortment of tax – 3%, 5%, 12%,18% and 28%.

Extisting revenue enhancement structure in India*:*

A. Central Taxes

Central Excise duty- Central excise duty is an **indirect tax**, i.e. each person, rich or poor, is liable to pay tax indirectly on purchase of goods which have already been charged to duty.

· further duties of excise- Act 7 of 1986. - Additional excise duties in the place of sales tax are presently being levied on sugar, tobacco, silk fabrics, woollen fabrics, cotton fabrics and man-made fabrics, as per the rates specified in the First Schedule to the Additional Duties of Excise (Goods of Special Importance) Act, 1957.

· Excise duty levied underneath medicative & Toiletries Preparation Act- An Act to provide for the levy and collection of duties of excise on medicinal and toilet preparations containing alcohol, drugs,narcotics.

· further duties of customs (CVD & SAD)- Subsume Countervailing Duty (CVD) and Special Additional Duty (SAD)

· Service Tax-Service tax is a tax charged by the government of India on specific service transactions carried out by the service provider.

· Surcharges&Cesses- Cess is calculated on total tax and surcharge amount; surcharge is calculated on total tax amount only.

B. State Taxes

· State VAT / excise- VAT is meant for State government and Central Excise Tax is levied by central government.

· Central excise

· Purchase Tax- a tax added to the price of goods sold to consumers.

· amusement Tax (other than those levied by native bodies)- Entertainment tax is levied by the government on commercial shows, movie tickets, sporting events, music festivals, amusement parks, exhibitions, theatre shows, and other private festivals.

· Luxury Tax- It is a tax levied on the products that are considered non-essential or are affordable only to the wealthiest consumers.

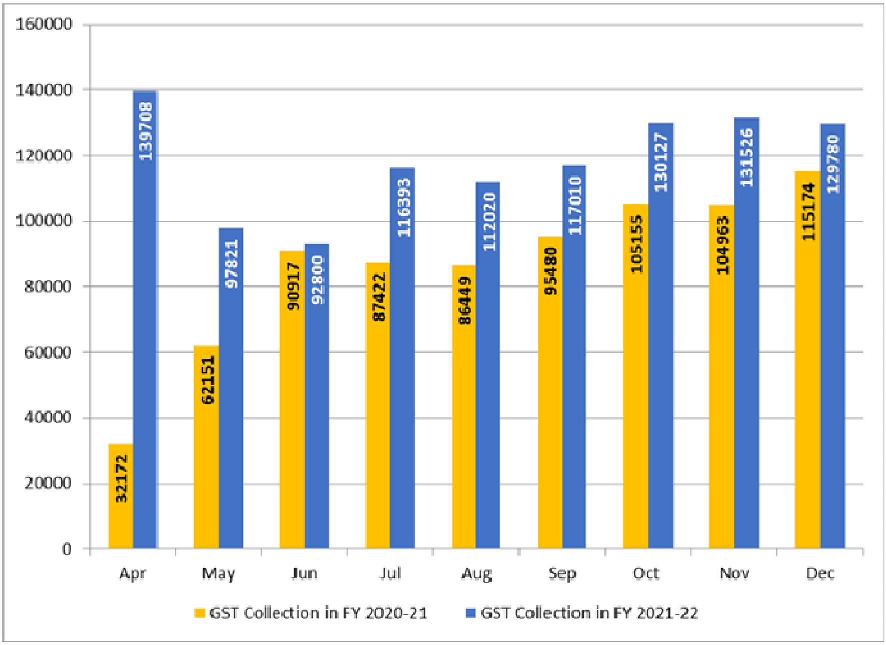
· Entry Tax (All forms) - Entry tax is a fee levied by the state governments on the transfer of goods from one state to another

· Taxes on lottery, sporting & gambling.[2]

Although taxes on crude merchandise, electricity, alchoholic drinks are individually collected by the authorities. there's a special rate of 0.25% on rough precious and semi-precious stones and 3% on gold.[3]

Therehavebeen 227 things withinthe 28% slab that have currently cropped to 62 things, whereas the rest of the things have currently been place within the 18% slab. The year 2022 might witness a possible arrange of the GST provisions and rate slabs keeping in mind all the strain of varied industries, while keeping in mindto meet its tax targets,given the sustained economic revival from the pandemic.' DIGITISATION' is going to be the mantra of this year. January 2022 has been recorded as the month with highest collection of GST since the day it absolutely was implemented- the gross assortment is at Rs one,40,986 crore.

[4]



Rationalization of rate slab is the key focus and it's expected that the present 4 slab structure are going to be reduced to 3 slab structure.

Thegovernment ispredicted to still lower custom on ra components and elements utilizedby make rs and additionally increase duties on import of finished merchandise.

Recently, it's been additionally proclaimed that taxpayers having annual turnover upto Rs 5 crores aren't needed to file the reconciliation statement in kind GST-9C and therefore the taxpayers having annual turnover upto Rs 2 crores aren't needed to file annual returns in kind GST- 9.

Suggestions:-

• to produce additional skill and awareness to the individuals of Republic of India regarding the GST

• Consent from all states and suggestions from each state for betterment of GST and therefore the supply of government revenue.

• The loss of government revenue ought to be managed and remunerated correctly through proper diversification of funds while not burden to anyone.

• There ought to be a scale back within the frequency of come.

• There ought to be a rise within the threshold limit for obtaining accounts audited considering all the complexities concerned within the audit yet because the time and energy needed is big.

• Reducing the amount of tax slab rates- as mentioned 4 slabs should be reduced to 3 slabs.

• The Central and therefore the authorities ought to be in correct understanding and cooperative with one another for the self-made implementation of GST.

Merits of GST in India:-

1. GST has brought along variety of taxes into one tax simplifying the taxation method for service and merchandise businesses.

2. GST are going to be levied solely at the ultimate destination of consumption supported the VAT principle and not at varied points (from producing to retail outlets). this may facilitate in removing economic distortions and convey regarding development of a typical national market. [5]
3. GST is aimed towards reducing corruption and sales without receipts.
4. GST brings responsibility and regulation to all or any the unorganized sector within the country.
5. With GST replacement multiple state and central taxes, the tax collected is probably going to be distributed across the country , providing funds for development to the developing or underdeveloped pockets in Asian country.
6. GST brings uniformity within the taxation method and permits centralized registeration. this offers an opportunity to all the little business to file their tax returns quarterly via a simple on-line mechanism. This reduces the multiplicity of taxes as they are doing not have resources to rent tax specialists.
7. GST would be easier and easier to administer than all the opposite indirect taxes levied up to now.

Demerits of GST inIndia :

At Present, variant speculations are going on once the GST can truly be applicable in our countrylooking into the political surroundings of this country, it looks that a bit longer is going to be needed to confirm that everyone is satisfied. The states are confused on whether or not the GST can hamper their revenues, though the Central Government has assured the states regarding compensation just in case the revenue falls down, still a bit mistrust is a severe balk. The GST could be a superb form of tax. However, for the prospering implementation of a similar, there are few challenges that ought to face to implement GST in our India . Following are a number of factors that has to be unbroken in mind regarding GST:

1. GST theme has augmented the price of operation- With its implementation, the business now calls for employing tax professionals and trains its employees in GST compliance. This results in a rise in the expenses for small businesses, becoming GST compliant while increasing their overhead costs.
2. In keeping with the sooner theme, the excise duty was levied solely on businesses with associate annual turnover of quite Rs.1.5 crore. However, currently businesses with associate annual turnover of quite Rs.40 large integer ought to pay taxes below the new GST theme.
3. The tax burden has augmented on Small and Medium Enterprises (SME's)- it has increased the tax liabilities for small and medium enterprises (SMEs).
4. Several international or domestic firms trade and subsume mediate states and union territories. With obligatory GST filing across cities , the registration would possibly become complicated and take an extended time
5. Since GST is associate IT-driven law, it can't be certain whether or not all the states in Asian country ar presently equipped with infrastructure and force convenience to embrace this law. solely some states have enforced this E- Governance model. Even nowadays some states use the manual VAT returns system.[6]

Conclusion:

Tax policies play a crucial role on the economy through their impact on each potency and equity. A decent legal system ought to confine read problems with financial gain distribution and, at a similar time, additionally endeavour to get tax revenues to support government expenditure on public services and infrastructure development. the continuing tax reforms on moving to goods and services tax would impact the economy, International trade, companies and also the shoppers .There has been a decent deal of criticism moreover as appraisal of the planned Goods and Services Tax regime. It's thought of to be a serious improvement over the pre-existing central excise duty at the national level and also the excise tax system at the state level, the new tax are going to be an additional vital breakthrough and also the next logical step towards a comprehensive tax reform within the country. GST isn't merely VAT and service tax, however a serious improvement over the previous system of VAT and disjointed services tax – a even revolution. one rate would facilitate maintain simplicity and transparency by treating all merchandise and services as equal while not giving special treatment to some 'special' merchandise and/or services. This may scale back judicial proceeding on classification problems. it's additionally expected that implementation of GST within the Indian framework can cause business edges that were untouched by the VAT system and would primarily cause economic development. Thus, GST could begin the likelihood of a collective gain for trade, trade, agriculture and customary shoppers moreover as for the Central Government and also the regime. Sooner or later, the GST can sure knock the doors of Asian country. And once that happens, we have a tendency to as future torch bearers of the profession are needed to be ready and totally equipped with our information concerning GST. Forewarned is forearmed. Thus, we have a tendency to should be able to subsume GST and lots of different changes that are about to surface in our country. Slowly, India shall move to hitch the planet wide standards in taxation, company laws and social control practices and be among the leaders in these fields.

References: -

1.https://cleartax.in/s/impact-of-gst-on-indian-economy#:~:text=GST%20the%20biggest%20tax%20reform,one%20tax%E2%80%9D%20is%20finally%20here.&text=The%20single%20biggest%20indirect%20tax,barriers%20with%20respect%20to%20trade.

2.https://www.researchgate.net/profile/Mr-A-Dash/publication/318421150_POSITIVE_AND_NEGATIVE_IMPACT_OF_GST_ON_INDIAN_ECONOMY_A_DASH/links/5968a117aca2728ca67bc406/POSITIVE-AND-NEGATIVE-IMPACT-OF-GST-ON-INDIAN-ECONOMY-A-DASH.pdf

3. https://www.ijcrt.org/papers/IJCRTRIETS101.pdf
4. https://pib.gov.in/PressReleasePage.aspx?PRID=1786774
5. https://www.indiafilings.com/learn/gst-advantages-disadvantages/
6. https://www.karvy.com/growth-hub/tax/advantages-disadvantages-of-gst-in-india

Topic:- Human Resource Accounting

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Abstract:

Human resource accounting is accounting and recognition of expenses related to employees of the organization and involves costs related to recruitment, selection, training, hiring. Human resource accounting is basically the accounting of human resources of the company. As the human resources are the important resources of the company without which it cannot survive, hence it should be properly accounted for. In the present era, the companies have to work hard to face the stiff competition and to become the pace setter of the market. This will become possible only when the companies capitalize its investments in the human resources. There are various approaches to quantify the value of human resources. This paper is based on secondary data and focuses on the meaning, need, importance, methods, present position, and criticisms of human resource accounting.

Keywords:- Human resource, Capitalizing, Employees, Assets, Accounting.

Introduction:-

As the human resources are the important resources of the company without which it cannot survive, hence it should be properly accounted for. In the present era, the companies have to work hard to face the stiff competition and to become the pace setter of the market. This will become possible only when the companies capitalize its investments in the human resources. There are various approaches to quantify the value of human resources are considered as important assets and are different from the physical assets. Physical assets do not have feelings and emotions, whereas human assets are subjected to various types of feelings and emotions. In the same way, unlike physical assets human assets never gets depreciated.

Therefore, the valuations of human resources along with other assets are also required in order to find out the total cost of an organization. In 1960s, Rensis Likert along with other social researchers made an attempt to define the concept of human resource accounting (HRA).

Objectives of the Study

Objectives of Hunan Resources Accounting The aim of HRA is to depict the potential of HR in monetary terms, while casting the organization's financial statements. The concept can be examined from two dimensions:

- Improve management by analyzing investment in HR
- Consider people as its asset
- Attract and retain qualified people
- Profile the organization in financial terms.
- Measuring cost related to the human resource of the organization
- Enabling management to properly plan and budget for training and other services for the human resource.
- To ensure proper utilization of resources is done or not.
- Increasing awareness and value about human resources;
- To proper accounting of retiring benefits and other benefits over the service period;
- For efficient and better human resource planning;
- For determining actual cost incurred by the organization on human resources;

➢To determine whether an organization has gained from inputs put on human resources, training, recruitment, and other facilities.
➢To aid top management on human resource analysis.

The main objective of human resource accounting is to facilitate the management to get information on the cost and value of human resources. Human resources accounting brings to light the quantum of human resources and indicates the right control of conservation, depletion and appreciation of it 9 in the right perspective. It provides data to the interested persons about the cost of human resources and correspondingly comparing it with the benefit obtained out of its utilization.

They further explain the value of an employee to the firm as "the present value of the difference between wage and marginal revenue productn. An employee's value drives from the ability of the firm to pay less than the marginal revenue product. Thus, it involves measuring the costs incurred by business firms and other organisations to recruit, select, hire, train and develop human resources. It also involves measuring economic value of people to organisations. In short, they intend to make it clear that the term 'human resource' recognises people who form organisational resources.

To quote Davidson, "Human resource accounting in the measurement of the cost and value is a term used to describe a variety of proposals that seek to report and emphasise the importance of human resources knowledgeable, trained and loyai employees in a company's earning process and total 'assets".

Need of Human Resource Accounting

The need for human resource accounting on India is also emphasized by Jasrotia (2004). According to him, the economy have shifted from manufacturing to service industry, the success of which is dependent to a large extent on the knowledge and intellectual capabilities of the personnel working in it. So, Human resource accounting should be made compulsory for every organization by the Indian Government in the same manner as it has been done in Denmark from the year 2005 onwards.

The development of an organization is dependent on its human resources. No other physical asset can move or develop by itself without the help of the human resources. This is the basic reason for their accounting. Human Resource Accounting plays an important role in an organization by providing the Cost value information about the time of acquisition, development, allocation and maintenance of HR.

- Formulating Policies and plans for human resources;
- Decisions regarding cost and benefits from human resources;
- Determining the training and development cost;
- Determine or ensure proper utilization of resources.
- Determine the value of human resources and benefits from it.
- Aid to top management regarding cost reduction and planning programs.
- Determining the value of critical employees and benefit from it.
- Methods of Human Resource Accounting

Methods of Human Resource Valuation followed by companies in India Human resources have started gaining due importance with the change of time Various human resource accounting models have been developed to quantify the talent, skills and knowledge of employees or workforce. Some of the models for human resource valuation are as follows

1) Historical Cost Method

This method was developed by William C.Pyle (and assisted by R. Lee Brummet & Eric G. Flamholtz) and is adopted in 1969 by R.G.Barry Corporation, a leisure footwear company. Under this method, the historical cost is considered to be the cost incurred on hiring, selecting, training and developing employees. A proportion of this cost is written off to the income or the benefits which the employee provides through his service to the company. I f the human asset leaves the company prematurely then the whole of the amount not written off is charged to the income of the year in which the human asset left.

ISSN : 2278-9308 February, 2022

2) Replacement Cost Model

This model was developed by **Rensis Likert,** and **Eric G. Flamholtz** on the basis of concept of replacement cost. According to this model the value of employee is estimated as the cost of replacement with a new employee of equivalent ability and efficiency. Flamholtz divided the replacement cost in two parts i.e. individual replacement cost and positional replacement cost. Individual replacement cost includes the cost of recruiting and selecting the new employee; providing him training anddevelopment to make him as much capable as the employee who is leaving. Positional replacement cost meant the loss of production caused to the company due to the replacement of the leaving employee, the set of jobs which was expected to be performed by the employee of the present position and the cost of recruiting and developing the employee to make him so much capable as will justify the present position as that of the leaving employee.

3) Opportunity Cost Model

This method was first advocated by Hc Kiman and Jones .Under this method the cost of a human asset is equal to the benefit which he can provide if been put to some alternative work. Opportunity cost is the maximum alternative earning that is earning if the productive capacity or asset is put to some alternative use. It is very difficult to calculate the value of Human resource by this method because alternative use of HR within the organization is restricted and at the same time the use may not be identifiable in the real industrial environment.

4)Standard Cost Method

This method was coined by David Watson. According to this method the value of human resource is equal to the total of the standard costs incurred in recruiting, hiring, training and development per grade of service.

5) **Stochastic Rewards Model**

This model was developed by Eric G. Flamholtz. This model considers both the factors that are the probability of promotion of an employee and also the rewards generated by him during his period of service. Flamholtz has measured the expected realizable value of an individual as income levels.

6) The Lev and Schwartz Model

In Lev and Schwartz model the present value of future benefits to employees is determined on the following assumption –

- Employees are classified into age, skill, and experience
- Average annual **earnings** of each age group are determined
- Then earnings till the retirement of each group are determined
- Later value arrived of each group is to be discounted with the rate of the cost of capital
- This method only considers the salary and wages of employees and no other benefits
- This method ignores the possibility of employees leaving or other possibilities

7) The Eric Flamholtz Model

This model is similar to the Present value model but considers the fact of employees leaving earlier, Voluntary Retirement or Retrenchment or death of the employee, etc.

Assumptions/ Facts –

- Determine the period of working of the employee for the organization.
- Identify the period after which an employee may leave the organization.
- Estimating the value of employees for organization and benefits from it to the organization;
- Applying the present value method and considering the above facts.

Need of Human Resource Accounting

- Formulating Policies and plans for human resources;
- Decisions regarding cost and benefits from human resources;
- Determining the training and development cost;
- Determine or ensure proper utilization of resources.

- Determine the value of human resources and benefits from it.
- Aid to top management regarding cost reduction and planning programs.
- Determining the value of critical employees and benefit from it.

Importance of Human Resource Accounting:

Human Resource Accounting provides useful information to the management, financial analysts and employees as stated below:

- Human Resource Accounting helps the management in the Employment, locating and utilization of human resources.
- It helps in deciding the transfers, promotion, training and retrenchment of human resources.
- It provides a basis for planning of physical assets vis-à-vis human resources.
- It assists in evaluating the expenditure incurred for imparting further education and training in employees in terms of the benefits derived by the firm.
- It helps to identify the causes of high labour turnover at various levels and taking preventive measures to contain it.
- Helps management in employment and utilization of human resources in a cost-effective manner;
- Helps management in deciding promotion, demotion, transfers, retrenchment, and VRS schemes.
- Provide a basis for planning about human resources.
- Helps in identifying key employees and their cost and benefit
- Managerial decisions can be improved with the help of Human Resource Accounting.
- It helps management to implement the best methods of salary, wages, and overtime administration.
- The system of Human Resource Accounting discloses the actual value of the human resource and its benefit from the same.
- Proper and efficient utilization of manpower resources;
- Productivity can be increased.
- **Limitations Of Human Resource Accounting:**

There is no standard procedure for valuing human resources.

All methods of valuation are based on assumptions.

The life of working cannot be adequately estimated due to certain factors that are not in the hands of the organization. Hence valuation can be seen as unrealistic.

Different methods used by various firms in the industry; hence no comparison can be made with the industry.

Employee turnover is ignored in valuation.

Conclusion

Human Resource is the most critical asset of any organization. The organization will run properly and will be able to stand in the long run because of its efficient human resources. Hence its accounting is vital. Accounting of human resources is based on certain assumptions; thus proper valuation is not possible. There are certain limitations of human resource accounting.

Human Resources are an asset which has the ability of value creation like any other physical and financial asset. There are various methods which can be followed for computation of human resources. Many organizations have already adopted the process of accounting for human resources others are also expecting.

References:-

[1] Batra, G. S. (1996). Human resource auditing as a tool of human resource valuation: interface and emerging practices. Managerial Auditing Journal, 11 (8), 23-30.

[2] Bullen, Maria. L., & Eyler, Kel-Ann. Human resource accounting and international developments: implications for measurement of human capital. Journal of International Business and Cultural Studies, 1-16.

[3] Cherian, Jacob., & Farouq, Sherine. (2013). A Review of Human Resource Accounting and Organizational Performance. International of Journal Economics and Finance, 5 (8), 74-83.

[4] Dhade, Aruna. (2005). A Human Resource Accounting: A Way to succeed in knowledge-driven economy. Management & Labour Studies, 30 (4), 381- 392.

[5] Dr Anthony Hesketh "Valuing your Talent" Research report July 2014, www.valuingyourtalent.co.uk

[6] Dasari.Pandurangarao*; Dr.S.Chand Basha;Devarapalli.Rajasekhar, "A Study On Human Resource Accounting Methods And Practices In India" International Journal of Social Science & Interdisciplinary Research ISSN 2277 3630, IJSSIR, Vol. 2 (4), APRIL (2013),pp95-102

[7] Human Resource Accounting – A Study Material of Company Secretarial Practices in India.

[8] Kothari, C.R.(1990), Research Methodology; Methods and Techniques, Wishwa Prakashan,New Delhi. [9] Lau, A. H. and Lau, H. S. (1978), "Some Proposed Approaches for Writing Off Capitalized Human Resource Assets". Journal of Accounting Research, No. 16, pp. 80-102.

[10]Ratti Mamta "An Analytical studyof Human Resource Accounting Practices –An Indian Experience" Integral Review - A Journal of Management e-ISSN : 2278- 6120, p-ISSN : 0974-8032,Volume 5, No. 2, Dec.- 2012, pp 37-45

[11]Sharma, Dr. C. S., & Lama, Sameer. (2014). A Critical Evaluation of Measuring the Immeasurable: Human

ISSN : 2278-9308
February, 2022

Morphotaxonomical study of Selaginella repanda from Melghat region of Amravati district of Vidharbha region. Maharashtra.

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Abstract –

Melghat Forest lies on the southern shoot of the Satpuda range of hills. This part of Satpuda is known as Melghat , it consists of succession of hills and vallies. The most prominent geological feature of Melghat is the Gavilghad range of hills which is abundantly rich in biological diversity. The entire area of Melghat is covered by the forest of the Dry deciduous Teak Forest. It extends for about 65 km from North to South between latitude 21^{0} 46' and 20 $^{0}11'$ North and about 95 km. from East to West between longitude 77 ^{0} 34' and 76 ^{0} 38' East.

As the name implies, Melghat is literally a meeting place of Ghats.It consists of sucession of hills and vallies with constant and abrupt variations in altitude, aspects and gradient. The annual rain fall varies from place to place within short distance; with the change in altitude and aspects. The annual rain fall varies from place to place within short distances; with the change in altitude and aspects.

Pteridophytes formed a dominant part of Earth's vegetation in the historic past. In the present day flora, excluding the non- vascular plants, they rank only next to spermatophytes.InMelghat Forest the moisture present in the invisible form in the troposphere belt of the atmosphere, is known as humidity.The relative humidity in Melghat Forest area varies from 63.25 -64.0. so that Pteridophytes flourishes very well in Melghat Forest. Selaginellarepanda also flourishes finely in Melghat Forest in rainy season.

Key words – Pteridophytes, Melghat ,Sellaginella.

Introduction –

The entire area of the Melghat is covered by the forest of the Dry deciduous Teak Forest. Tectonagrandis is the most important and dominant species distributed in the entire areas. The high altitude with heavy rain fall, high moisture, humidity, minimum moderate temperature, waterfalls, moist rocks, and humus soil. Pteridophytes grow under shady and damp places, along waterfalls, road sides of Ghats, in association with Angiosperms and Gymnosperms. The forest of Melghat is mostly of the Dry Mixed deciduous type and one of the important forests of Vidarbha region of Maharashtra in India. The vegetation varies considerably with the change in altitude , soil, temperature, humidity and rainfall. The average rain fall varies from 1300 mm to 1450 mm, the temperature range varies from 13 to 410 c and humidity varies from 48% to 100 %. The soil is also different types .The general floristic study of Melghat Forest includes the plants like 94 tree species, 708 shrubs, 368 small herbs, 66 climbers, 2 species of Bamboo, 127 species of grasses. Pteridophytesflourishes in Melghat under shady and damp places, along waterfalls, road sides of Ghats, in association with Angiosperms and Gymnosperms**.**

Melghat is known as paradise of Vidharbh. Melghat means the 'meeting of Ghats 'which is just what the area is, a large tract of unending hills .The forest of Melghat is mostly of the Dry Mixed Deciduous type and one of the important forests of Vidharbh region .Melghat lies on the Southern shoot of the Satpuda range of hills. This part of Satpuda is known as Melghat, It consists of succession of hills and vallies

Materials and Methods

Pteridophytes division of vascular plants which do not produce seeds. It include Ferns, Club mosses and Horse tail. In Melghat under shady and damp places, along waterfalls, road sides of Ghats, in association with Angiosperms and Gymnosperms.

The plant specimen of Selaginella was collected in every stage of their growth and habitats and reproduction from different localities of Melghat Forest area. The plants were collected in tin vasculum. The plants are pressed flat, before their wilting. They are pressed after the day's visit.

The Selaginella was pressed between the sheets of news or blotting paper. These sheets were alternated between sheetsof news or blotting paper.The plant became dry by transferring their moisture into the blotting papers.

After drying of plant material, the plant specimen were mounted on herbarium sheets of standard size . The specimens are labeled as per all data. TheSelaginellsspecimen were preserved in 4% formalin solution.

Observation –

The sporophyte collected from hilly regions in the shady places, especially in humus black coloured soil. It is distributed from August to October. The strobilus observed from September to October. The sporophyte terrestrial erect, dichotomously branched, 1.4 to 2.0 cm long.

Leaves dorsiventralheterophyllous and alternate, leaves are of two kinds in four vertical rows, dorsal two rows are small, ventral two rows are large, ligulate. Ligule arises from the base of leaf, delicate, green with entire margin and acute apex.

The stem dorsiventral, dichotomously branched,solid. The rhizophore white coloured, 0.5 – 1.0 cm long. A Rhizophore is an organ intermediate in structure and function between the stem and root, it is root like in appearance and behavior but has no root cap. Rhizophore grows down to the soil and true roots emerge from them.

Roots are adventitious, produced from the ends of the rhizophores. The spore bearing organ known as strobilus.Sporophylls are spirally arranged at the tips of the lateral branches forming strobilus. The sporangis develop in the axil of leaves called as sporophylls. The sporophylls are similar to photosynthetic vegetative leaves.

There are two types of sporangia, the microsporangis, thesporophyll bearing microsporangia called microsporophyll. The megasporangia, the sporophyll bearing megasporangia called megasporophyll. The strobilus always terminal in position. The sporophylls are ligulate which present between the sporangium and the base of sporophylls. The strobilus also called the sporangiferousspilke or the cone.

Strobilus shows strobilar axis. Sporophyll spirally arranged around the axis. Sporophyllus are ligulate. Sporophyll shows heterospory , microspores and megaspores. Microspores brown coloured, triradiate. Megaspores orange coloured, pyramidal shape. Sporangia are stalked, two layered jacket, jacket cells are chlorophyllous.

Result and Discussion

The pteridophytes are considered as a first vascular plants that colonized the terrestrial habitat. In the course of evolution they reached uptoarborescent habit that has resulted into a gigantic and thick forest in Siluro- Devonian period.Pteridophytes have well developed conducting system. The plants are with feather like fronds.

The living members are represented by living taxa widely distributed over the surface of the global part .In Melghat Forest area Selaginella with three different specis distributed in different climatic conditions.Selaginella distributed on rock at moist condition with creeping stem, spirally arranged leaves, sporangia arranged in terminal atrobilus.

Selaninella shows ecological succession in forest ecosystem.

References

Alston, A.H.G.; (1945), An enumeration of the Indian species of Selaginella, Proc. Natl. Sci. India. 11 : 211-235.

Baishya, A.K. & R.R. Rao; (1982), Ferns and fern-allies of Meghalaya State, India.-Jodhpur (Scientific Publishers).

Bir, S.S.; (1960), Acta Bot. Neerlandica 9: 224-234.
Blatter, E,; (1922), The Ferns of Bombay : D.B. Taraporevalasons and Co. 122 p.
Chandra, S.;(2000), The Ferns of India. Enumeration, synonyms and Distribution.-459p.
Dhore, M.a and P.A. Joshi; (1981), Flora of Melghat Tiger Reserve 1-24.
Mukherjee, R. N. &Sen, U.; (1981), A. Forked vein and frilarfibres in Selaginella.Fern. Gaz. 12; 175-177.
Patel, R.I.; (19680, Forest Flora of Melghat. International Book Distributor, Deharadun. : v- xxii.

ISSN : 2278-9308
February, 2022

Impact of Covid-19 on Higher Education in Rural India

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Abstract:

The world today is facing the biggest public health risk which is leading to one of the largest and the quickest reorganization of the world order. By the end of March 2020, the epidemic had spread to over 185 countries and resulted in the closure of over 90 percent of all schools, colleges and universities impacting close to 1.38 billion students. The speed of the spread of the epidemic, the closure of higher education institutions and the transition to online teaching was so swift that it hardly gave any time to plan and to reflect on the potential risks or the potential opportunities that such a sudden change could bring. Given such a situation it is important to look at the impact and reflect on what has transpired and what is likely to happen as we move forward in the field of global education. The following paper try to put light on sudden change in mode of teaching due to Covid -19 and the issues face by teachers during online teaching, through a small survey carried out in this regard.

Introduction:

Education in the 21st century is more dynamic than ever. New breakthroughs in technology and the emergence of fresh approaches in pedagogy are perpetually transforming teaching. Along with these changes come new challenges for teachers in schools and colleges. Perhaps at no other time were these challenges more apparent than during the disruption caused by the corona virus pandemic. By the end of March 2020, the epidemic had spread to over 185 countries and resulted in the closure of over 90 percent of all schools, colleges and universities impacting close to 1.38 billion students. The whole educational system from elementary to tertiary level has been collapsed during the lockdown period of the novel corona virus disease 2019 (COVID-19) not only in India but across the globe. Corona virus pandemic has triggered the significant change, imposing many challenges in the higher education community globally, after about four months in the global crisis, we have started realizing that the COVID-19 is here to stay and we need to find solutions to move on.

Scenario in India: India is a demographically diverse large country with high population density. The nationwide lockdown was the only strategy in the fight against COVID-19 pandemic, which started on 25th March 2020 and is continued in its fifth phase until 30th June 2020 with some relaxations in no infection areas. Citizens across the country chose to sit at their homes abiding the guidelines issued by the government of India. Academic activities in India were rapidly halted in the middle of the year, by individual institutions and states even before the countrywide lockdown began. As per the recent guidelines issued by University Grant Commission (UGC), the apex body for higher education in India, the educational institutes must strive to provide quality education, ensuring uniformity, equity and universal accessibility to all the learners. There is constant encouragement from Hon. Prime Minister Shri Narendra Modi, for innovative use and promotion of technology in ushering educational reforms to create a vibrant knowledge society.

Schools across the country competed to provide the best digital educational environment and the responsibility of online teaching fell squarely on the shoulders of teachers who were caught unawares by the sudden shift in the mode of transacting the curriculum. The online teaching process is fraught with challenges that leave teachers overworked since it demands practical and refined digital skills. Low and irregular student attendance, lack of attention by students, apprehension for technology (especially among older teachers), poor internet connectivity, and, in most cases, the added pressure of household chores, have made online teaching a daunting task for many teachers.

Following are the objectives of study

1. To reveal the various forms of online teaching-learning modes adopted during COVID-19 pandemic.
2. To examine the challenges faced by the teachers and in adapting to the online teaching-learning process during COVID-19 pandemic.

Methodology

The researcher has used both Secondary and Primary data for study,
Secondary data is collected through various sites of Govt. of India, India Today Survey, Economics times Survey, referred various journal papers etc, so as to collect more information about the changing scenario of education system,

The Covid-19 pandemic has disrupted the education sector globally. Classes have been suspended to enforce social distancing, and educational institutions, from schools to universities, have shifted to online methods of teaching and evaluation. Still, there is no certainty about when normalcy will be restored. This has encouraged some sort of permanent tilt, if not a complete shift, to online education. With 51,649 institutions and 37.6 million students, India has one of the largest higher education systems in the world. A survey by Learning Spiral revealed that 3 out of 4 children faced a combination of challenges to access education due to Covid-19.

Result of the study in general

Challenges faced by teachers The task is challenging for all levels of teachers, from pre-primary to senior school ones. Apart from preparing engaging digital lesson plans, a lot of effort goes into gathering and preparing the items and props, for the primary teachers. Senior school teachers have a huge number of papers and assignments to mark, which can be very time consuming. They also have to work overtime to brainstorm ideas and plans for their online classes.

Unprepared teachers for online education Online learning is a special kind of methodology and not all teachers are good at it or at least not all of them were ready for this sudden transition from face to face learning to online learning.

Thus, most of the teachers are just conducting lectures on video platforms such as Zoom which may not be real online learning in the absence of a dedicated online platform specifically designed for the purpose. There is a risk that in such a situation, learning outcomes may not be achieved and it may be only resulting in engaging the students.

Challenges posed by technology

New technologies are making eLearning and blended learning the new normal in education. But it has been observed that teachers take more time in teaching online than face to face.

In the online mode, teachers do not find proper methods of providing feedback to all students.

Teachers have concerns over the laboratory activities since virtual labs are not accessible to all students and not many lab activities can be conducted through virtual medium.

In the virtual mode, teachers often feel less connected to students and find it difficult to establish a good rapport with them. While formative assessments are being done, online summative assessments are still posing a huge challenge. Authentic assessments are not happening online.

Challenges posed by pedagogical advances

New pedagogical innovations are changing the way teachers teach in today's classrooms. The education has become more student-centric and many lessons are customized rather than being generic to address specific gaps in student learning. Teachers have to keep themselves apprised of the new assessment tools to better evaluate students' academic progress. A teacher's role is transforming from a knowledge provider to a knowledge facilitator and counselor because of the abundant information that's easily available online. The nature of today's learners is a far cry from those of a decade ago. Students today have a different attention span and are not interested in classroom chalk-talk or learning by rote. They are becoming needs-based learners. Teachers have to meet their rising expectations by making lessons interesting and engaging.

Passive learning by students

The sudden shift to online learning without any planning -- especially in countries like India where the backbone for online learning was not ready and the curriculum was not designed for such a format -- has created the risk of most of our students becoming passive learners and they seem to be losing interest due to low levels of attention span, added to this is that we may be leaving a large proportion of the student population untouched due to the digital divide that is part of many developing nations including India. We are now beginning to realize that online learning could be dull as it is creating a new set of passive learners which can pose new challenges.

Result in particular to rural areas

When it comes to Online Education or E-Learning, rural population is not completely equipped with utilities like fast internet, uninterrupted power supply and electronic devices. There have been improvements regarding basic infrastructural facilities but many rural areas in India are still grappling with these challenges to make education completely digital or online.

These are prominent hurdles that come in the way of enabling online education in the rural regions of India. Though the power and network infrastructure have improved leaps and bounds in the remote areas of the country, there is still a room for improvement. Teachers and students in villages are becoming more accepting towards digital means of learning, but the infrastructural facilities there have not developed fully to become at par with what online learning require. Steady flow of electricity and lack of high speed internet still pose major problems for the rural population.

Limited availability of technological devices

While we look at the domain of digital learning, it is imperative to consider the availability of the right devices to every student for accessing digital content. Not a lot of people in rural India have access to personal laptops or computers, and phone screens are not conducive to long learning hours. Also, data packs and their costs can be a big deterrent both for teachers as well as learners, especially for live classes. Many students either don't have personal laptops/smartphones or they are available for a limited time. Hence, the learning remains restricted with the limited availability of technological devices.

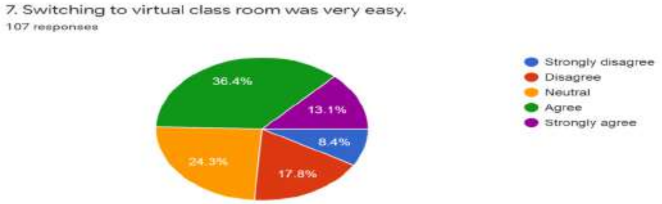
Lack of Familiarity with Digital Technology

While Smart Classrooms and Digital Learning have already made a way in urban educational setups, some rural countries still rely on traditional teaching methods for their lessons. Therefore, shifting from traditional pedagogical methods to the digital one cannot happen overnight. Teachers as well as students require proper training and more user-friendly platforms to make them familiar with digital technology so that they can be comfortable teaching/learning using them.

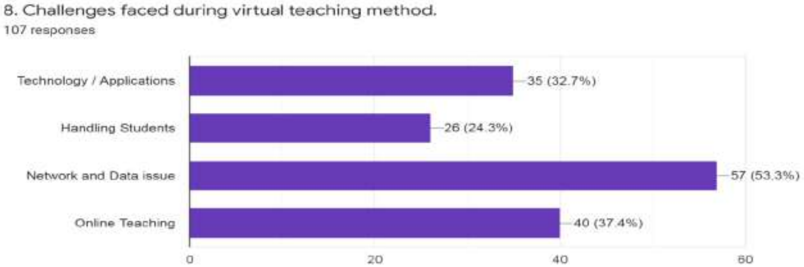
Shortage of Teachers

Shortage of teachers or the poor teacher-to-student ratio in villages pose another challenge towards making learning entirely digital in such areas. To make complete digitization of education in rural areas, this ratio needs to be improved and a large number of skilled and well-trained teachers are required so that each and every student receives complete attention even during an online class. While the contemporary online classroom solutions are designed to facilitate engagement and intuitiveness among students towards learning, a teacher's guidance and attention remain indispensable for learners.

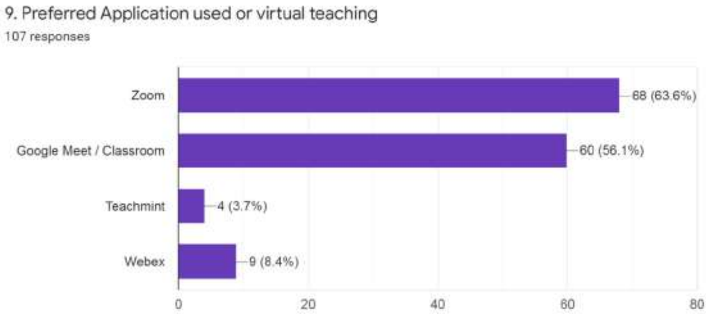
Results of study by using primary data- Primary Data has been carried out through a small survey online - Google forms; a simple questionnaire was prepared to collect the opinions of teachers regarding the online teaching learning process in HEIs during the lockdown period. This study is limited to R.A. College Sant Gadge Baba Amravati University, and few are from outside the university. R.A. Arts Shri M.K. Commerce College is situate in the rural area of Vidharbha, which is also on a developing phase not developed as such like west Maharashtra region Mumbai Pune Nashik, the Vidharbha region is more agriculture oriented, the college which is falling in this area is almost 90% dependent on agriculture and allied activities, and the students are coming from family of very limited income source, Population and Sample the total of one hundred six (106) faculty members from all three disciplines participated as a sample in a descriptive survey taken through Google forms to assess their perception towards online teaching learning. Both the objectives are covered in this survey.



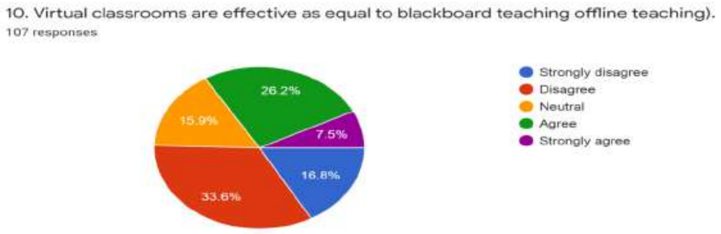
As per above diagram it is clear that for 49% teachers switching to virtual classroom as easy, also this might be because most of them are in young age group, so ease in adapting new tech.



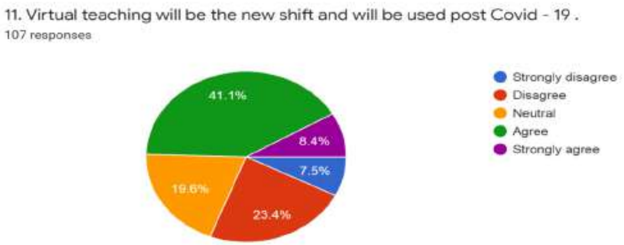
From above bar diagram it is clear that Challenges faced during virtual teaching method is related to Network and Data issue and Technology Application during online teaching the second most issue.



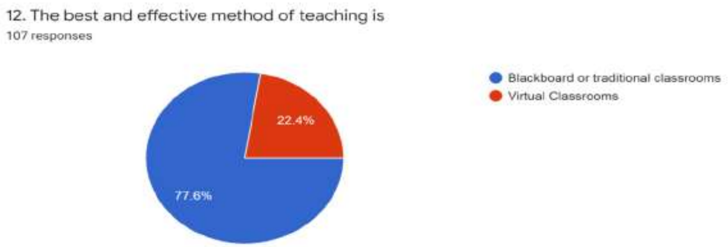
Amongst most of the preferred application used for Virtual teaching is Zoom 68% and Google Meet 60%. Zoom app is supposed to be more easily handled by teacher.



When asked whether virtual teaching is effective as equal to blackboard teaching, 50% were not satisfied with this mode of teaching.



Almost 49% of teacher's agree for the new mode of teaching, online will be used post Covid-



19

And almost 78% of teachers still find Blackboard or traditional classrooms to be the most effective method of teaching, since they are satisfied with the student's involvement in the lecture and teacher attention one student is also possible, by reading their facial expression.

Programmes and Policy of the government of India on online teaching- learning in HEIs

The government of India started thinking gravely on this matter with emphasizing on ICT and use of online education as a part of compulsory teaching learning – process at tertiary level. Moreover it is reflected on preparing draft new education policy 2019 that has been regarded as proactive and highly techno efficiently step in the time of this pandemic. Study Webs of Active Learning for young Aspiring Minds (SWAYAM) is a programme or Massive Open Online Courses in different quadrants. The SWAYAM PRABHA is a group of 32 DTH channels dedicated to telecasting of high quality educational programmes throughout the week. Annual Refresher Programmes in Teaching (ARPIT) is an online professional development programme launched by the MHRD on November 13, 2018 using SWAYAM platform. Another initiative of MHRD was e-PG Pathshala run by the University Grants Commission (UGC) that provided high quality curriculum and interactive e-content in 70 subjects across all disciplines. E- Pathshala is a portal jointly run by MHRD and National Council of Educational Research and Training (NCERT) launched on November 7, 2015 that provided educational resources for teacher's educators, research scholars, students and parents through an online platform. Therefore it can be said that we were not unaware of the challenges and prospects of online education.

India's apex regulatory body of higher education, UGC, has taken the present educational scenario very seriously and put some efforts proactively to resolve the deadlock of completing courses and examinations in on-going semesters as well as issued circular regarding the academic calendar after the recommendations of one of the committees constituted by the UGC itself. It has also become mandatory for all the universities in India to complete the 25% syllabus through online teaching mode and 75% face to face interaction (UGC, 2020). The educational scenario of post COVID- 19 outbreak would not be easy to manage teaching learning situations without using online teaching platforms rigorously, it can be anticipated that in the upcoming time student would face multiple challenge of educational hardships including quality education, hands on experience, and innovation. Hence, the tentative solution of post COVID- 19 educational tantrums is to maintain the equilibrium of online and offline learning classes (hybrid mode).

Conclusion

With the Covid-19 putting a halt on classroom learning sessions, online learning has paved a new way to retain normalcy for students and teachers. It is heartening to see that not only urban educational institutes, but the state-run schools in rural areas have also gone digital and resorted to online classes to avert academic losses. Although, not every village and town in India is infrastructural developed to sustain online education, it is motivating to see many rural schools and colleges adapting completely to e-learning during these times. Also, many affordable and low-bandwidth e-learning solutions are coming up with multi-lingual platform to facilitate easy and convenient online learning classes in rural India.

In the last few years, we have observed substantial changes in rural India regarding education, infrastructure and other facilities. Undauntedly, the government must ensure the availability of reliable communication tools, high quality digital academic experience, and promote technology enabled learning for students to bridge disparities originated in the education system before and after COVID- 19, which is also inevitably necessitated for uninterrupted learning. Few steps should be accounted in the wake of this pandemic, to develop curriculum that reflects the perceptible change in the content of knowledge and learning experience of students as well as enable them to think critically.

References

1. Strielkowski W. How Can the COVID-19 Pandemic Help Higher Education?; 2020, http://dx.doi. org/10.13140/RG.2.2.11331.96804.

2. Lockdown in India: Lockdown till May 31 can stall coronavirus pandemic, says study | India News - Times of India. https://timesofindia.indiatimes.com/india/lockdown-tillmay-31-can-stall-coronavirus-pandemic-says-study/ articleshow/75653149.cms (accessed 11.05.20).

3. Bhat R, Singh VK, Naik N, Kamath CR, Mulimani P, Kulkarni N. COVID 2019 outbreak: the disappointment in Indian teachers. Asian J Psychiatry J. 2020, http://dx. doi.org/10.1016/j.ajp.2020.102047.

4. UGC Guidelines: UGC issues new calendar for universities; 2020-21 session to begin from Aug 1. https://timesofindia. indiatimes.com/home/education/news/ugc-issues-newcalendar-for-universities-2020-21-session-to-begin-from-aug1/articleshow/75453706.cms (accessed 09.05.20).

5. Corona virus: India's education minister aims to ''save'' academic year | Times Higher Education (THE). https://www. timeshighereducation.com/news/coronavirus-indiaseducation-minister-aims-save-academic-year (accessed 09.05.20).

6. Covid-19 lockdown: How the pandemic bringing change in Indian education system

7. How the Covid-19 pandemic has thrown education around the world in a loop
8. Covid-19: Education system's big shift from classrooms to computers
9. Effect of Covid-19 on campus: Major steps being taken by colleges to keep education going
10. https://www.indiatoday.in/education-today/featurephilia/story/covid-19-impact-4-major-challenges-faced-by-students-of-rural-india-1709294-2020-08-10
11. https://www.financialexpress.com/education-2/online-education-challenges-faced-by-rural-communities/2103301/
12. https://idronline.org/aser2020-covid-education-in-rural-india-during-lockdown/
13. https://coed.dypvp.edu.in/educational-resurgence-journal/documents/jan-2021/35-40.pdf
14. https://www.indiatoday.in/education-today/featurephilia/story/how-covid-19-pandemic-has-adversely-impacted-education-in-rural-india-1775127-2021-03-03
15. https://www.educationworld.in/covid-19-challenges-faced-by-students-and-how-are-schools-coping-with-the-same/

Impact of GST On Constituents Of Indian Economy

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Abstract :

Tax in form of direct and indirect is the major source of income to the government. Indian economy is the witness for accelerating the growth in very short span of time Chairman of 13th Finance Commission Dr. Vijay Kelkar, has suggested to have a rational, scientific and modern taxation system in tune with developed nations from the base behind the introduction of goods and Service Tax (GST) in India. Tax structure is planned and implemented in such a way that it leads to the development of country. A Taxation Structure which facilitates easy of doing business and having no chance for tax evasion brings prosperity to a country's economy. The Good and services tax (GST) is the principal and extensive indirect tax reform since 1947. Replacement of exiting taxes like value – added tax, excise duty, service tax and sales tax is the main idea of GST. It will be imposed on manufacture sale and consumption of goods and services. GST is expected to effect of the existing tax structure and result in uniting the country economically.

Keywords :

Direct and Indirect Tax, GST, Fiscal Federalism, Tax Reform, Indian Economy

Introduction :

Indian Taxation System comprise of Direct and Indirect Tax. Goods and Services Tax (GST) is one of the most contributory Indirect Taxation reforms. The only means of financing is taxes the public goods because they cannot be priced appropriately in the market. They can only be provided by governments, funded by ta

The concept of GST that is goods and services is a Canadian value – added tax levied on most domestic consumption. The tax is levied to provide revenue for the government. The GST is aid by consumers, but it is levied and remitted to the government by business selling the goods and services.

At the national level GST is a full inclusive of indirect tax levy on manufacture, sale and consumption of goods as well as services. All indirect taxes which will be imposed on goods and services by Central and State government of India under GST. It is aimed at being wide ranging for most goods and services. France is the first country in 1954 GST is first implemented the world.

- In 1944 Baghchi Report suggests the introduction of " Value Added Tax (VAT) for taxing the Goods and Services in India.
- In 2000, for the further discussion on GST started which was initiated by the Vajpayee Government by locating authorized committee, the Finance minister Asim Dasgupta of West Bangal was headed, the aim of designing the GST model and overseeing the IT back-end awareness for its rollout.
- GST in India included with integration of Indirect tax which was strongly recommended by Vijay Kelkar in 2004.
- Later in 2006, Shri. P. Chidambaram Union Finance Minister encouraged towards GST in his Budget and projected to introduce it by 1st April, 2010.
- Constitution (122nd Amendment) Bill introduced in the Parliament in December,2014.
- On 6th May 2015, the lok Sabha agreed the much – delayed Constitutional Amendment Bill to introduce (GST) Goods and Service Tax, The new framework of it is extremely positive has taken into consideration the requirements of the common man.
- In 2017- GST Council finalizing the GST Rules and GST Rates

- The Constitution (One Hundred and First Amendment) Act 2017 Modi Government has announced the GST Bill from 1st July 2017,

GST in new Form :

It defines that goods and services appeal the same rate of tax.India is planning at present which will carry 8 Lakh Crore revenue to the government by tax rate at 5% , 12% and 18% and. A tax structure of 5%, 12%, 18% and 28% with lower rates a four – tier GST for essential items and the highest for industry for luxury was decided by the all – powerful GST Council. It is planned to get input tax credit (ITC) whether for provision of service or sale of goods to a person, under the GST has caught the attention of the market which has been one of the key things given its implication on earnings of companies . Large numbers of items has kept under 18% tax slab by the government.

Literature Review :

- Jaiprakash (2014) has mentioned in his about the GST at both of Central and the state level which are expected to give more relief to industry , trade , agriculture and consumers through a more full and wider exposure of input tax set-off and service tax set off , subsuming of several taxes in the GST and phasing out of GST. The best option is offered to us by GST to extend our tax base and we should take advantage of this opportunities to introduce it when the situation are quite favorable and economy is adoring steady growth with only slight inflation.
- In study of GST studied in India; A Big Leap in the Indirect Taxation System discussed by Vasantha gopal (2011) , the article focused on the impact of GST on various sectors of the economy. The article further stated that GST is a big leap and a new impetus to India's economic change. The paper is concluded positive impacts on different sectors are dependent on a unbiased and normal design of the GST.
- In the article of pinki, Supriya Kamma and Richa Verma (June 2017) studied, " Study on Impact of goods and services tax implementation in India " focused on goods and services tax implementation in India which is necessity to understand it as well as a process. They concluded that the organization as well as the consumers, by embracing the new tax reformation, may help the government to accelerate the growth of the Indian economy

Objectives of the Study :

1. To study Impact and Challenges of GST on various constituents Indian Economy.
2. To study the conceptual framework of GST in Indian Context
3. To suggest measures to deal with adverse impact on various stakeholders

- **Research Methodology :**

The study focuses on extensive study of secondary data collected from various books, Journals, government reports publication from various websites which focused on Goods And Services Tax.

- **Impact of GST on various Areas of Economy :**

GST has a impact on the economy and on various sectors which are as follows :

►Impact on Food Industry :

Since food constitutes a large portion of the consumer expense of lower income households, any tax on food would be regressive in nature. The food processing sector will root difficulty in extending GST in view of the fact that production and distribution of food is largely unorganized in India, in most of the countries tax food keep at a lower rate with view the considerations of fairness and equity on global observe. Countries such as Canada, UK and Australia where food establish a relatively small portion of the consumer basket and food is taxed at zero rates. Even in some countries , food is taxed at a standard rate which is considerably as low as 3% in Singapore and Japan at the commencement of the GST. In level of international jurisdictions, no division is tired on the degree of processing of food. Hence , the gain of lower or zero tax rates should also be prolonged to all food items in India regardless to degree of processing.

►**Impact on consumer goods sector :**

The Food Manufacturing Consumer Goods sector consist 50% Food and Beverage sector And 30% is Household and Personal care. FMCG sector which is also called consumers Packed goods is the key taxation contributor both direct and indirect in the economy. The Multiplicity of the taxation influence the company decision on manufacturing location And Distribution of Goods. Their companies set their manufacturing units and warehouse where They can gain tax benefits. They have to pay taxes to transfer the stock from the warehouse Among the states. FMCG sector would surely impacted because of GST as taxes affect the Cost to the company.

►**Impact on Cement Industry :**

According To Angel Broking, GST implementation is expected to be neutral for the cement industry. Earlier, cement was taxed at 12.5 per cent excise and VAT rates between 12.5-15.5 per cent. Under GST , the cement will be taxed at 28 per cent, which is nearly the same as the current tax structure.

►**Impact on Brokers and equity investments :**

With the service tax being subsumed into GST, the rate of GST on financial services stands Modified from 15 per cent to 18 per cent. From a long – term investor's perspective, this May not be too significant since the overall shift is just about 3 basis points. This 3 basis Points for short term traders, will change the economics of mixing their funds in the equity Markets. It remain to be seen whether it actually affected the volumes and liquidity in the Markets.

►**Impact on small Scale Enterprises :**

In the small enterprises there are three categories, those below threshold need not to register for the GST. Those between the threshold and composition turnovers will have the option to pay a turnover based tax or opt to join the GST regime. Those above edge limit will need to be within context of GST. In respect of the central GST the situation is slightly complex's is expected to encourage compliance and which is also to widen tax base adding up 2% to GDP. Less tax with implication of GST with have to pay by manufacturers, traders.

►**Impact on Infrastructure sector :**

The Indian infrastructure sector largely comprises power, road,port,railways and mining. Each of them the indirect tax levy is different and exclusive, and this is composite in nature. While this sector enjoys different exceptions and concern as it is important on national front. With the implication of GST the multiplicity of taxes will be removed and it would increase the tax base with continuation of exceptions and concerns for national interest and growth.

►**Impact on Information Technology services :**

The proposed GST rate under the IT industry is not yet decided. The discussed joint rate of GST for the product is 27% According to projected GST if electronic form software is transferred through it would be regarded as service (intellectual property) and if it is transferred through media or any other touchable property then it should be treated as goods. Price will be reduced by implementation of GST in uniform simplified and single point taxation.

►**Impact on Automobile and auto ancillaries :**

In consideration of Auto sector the GST rates are mostly expected likely to be neutral except for the hybrid cars which will be taxed at the 28 per cent GST. No significant changes will not see from the current tax structure by other vehicle categories. Tractors companies will face negative situation which be taxed at 12 per cent against current 6-7 per cent which in the categories.

ISSN : 2278-9308
February, 2022

►Impact on Telecom :

The sector is facing severe pressure in the form of intense competition from Reliance Jio. Under the GST regime, Telecom services will be taxed at 18 per cent as against 15 per cent earlier.

- **Challenges of GST in Indian Context :**

The GST is a very good type of tax, the successful implementation of the same, there are few challenges which have to face to implement GST In India. Following are some of the determinants that must be kept in mind about GST

- Various provisions of GST are still ambiguous. Classification of goods and services in various cases is still not clear. Provisions for anti-profiteering, as well as the now deferred e-way bill, which tracks consignments across states, are unclear.
- The understanding of GST by regarding its provisions and its impact on their business is still at emerging stage , and still many are findings the locations and places they need to be registered in.
- Staff with perfect required skill with efficient GST knowledge and their training subject are not easily available. This has located that an Businesses will requires to file manifold returns, a minimum of 37 in most cases for assesses, and this can increase multifold with business models.
- Various businesses are not yet map the accounting software and IT systems in concern with the new tax provisions, to create a invoice of GST, and abstract required reports

Findings :

Different Indirect taxes will reduces by GST Since there will be no hidden taxes it brings about Transparency.

- It is a huge step in support of realizing Make in India and digital India initiative
- Due to one type of Tax i.e. GST It Will remove economic distortions and contribute towards the development of a common national market.

Suggestions :

- The GST Council Should bring the four tire taxes under the net to prevent states from raising tax rates.
- It is suggested that government should opt plans and policies in this regard for positive implementation and their result.
- Special programs may be implemented to familiarize businesses and consumers with the functioning of GST.
- For the purpose digitization of GST system a proper and efficient network system has to be established and maintained to manage.

Conclusion :

Tax policies play an important role on the economy as it is the revenue source, is has a positive impact on both efficiency and equity. In view issues of income distribution a good tax system should keep pace with it and at the same time it should also endeavor to generate tax revenues to support government outflows on public services and infrastructure development.

References :

1. Garg, Girish (2014). Basic Concepts and Features of Good and Services Tax in India. International Journal of scientific research and Management, 2 (2). 542-549
2. Empowered Committee of Finance Ministers (2009). First Discussion Paper on Goods and Services Tax in India, The Empowered Committee of State Finance Ministers, New Delhi
3. Bird, Richard M. (2012). The GST/HST : Creating an integrated Sales Tax in a Federal Country. The School of Public Policy, SPP Research Papers, 5 (12), 1-38
4. Satya and Amaresh Bagchi (2007), Revenue-neutral rate for GST, The Economic Times, November 15.
5. Kelkar, Vijay (2009). GST Reduces Manufacturing Cost and Increase Employment, Times of India,
6. International Journal of Trade, Economics and Finance, Vol.2, No.2, April 2011

Websites :

- www.google.com
- www.wikipedia.com

ISSN : 2278-9308
February, 2022

Innovations And Challenges In Commerce, Humanities, Science And Technology: Global Business Trends

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Abstract

As we all are known with the fact of covid-19, it affected the economy not only of India but the world economies. It has brought challenges as well as put forward many opportunities to bring the economies up and ability to last in the competition. Commerce is being more easy and flexible that we can perform our commerce activities easily and smartly. We can perform the works from home. Off course it's the effect of commercial innovations. Similarly, humanities are the stories, the ideas and the words that help us to make sense of our lives and our world. Humanities is being made more lucrative and affective by bringing new trends in the branch. In the age of science it is again a challenge to make it make more developed. Science and technology is being more powerful and result giving. We can't live without science and technology. A lots of innovations and behind innovations new challenges are coming forward. Everywhere, there is the improvement and development just because of technology. Every field, every sector is modernized using technology. We can't ignore technology in the world of competition.

.The economies in the world are trying to rebuild the economy using advanced technologies and available talent. Economists in the world are suggesting some measures to bring the economy up. It's a challenge not only for the poor economy but for the strongest economy also. The Global Competitiveness Report 2019 has published its learning about the factors of future productivity.

The Global Competitiveness Index 4.0 is organized into 12 pillars. For exa.institutions, infrastructure etc.The index has the scoring system ranging from 0 to 100. Global Competitiveness Index 4.0 in 2019 has revealed top trends in the global economy or business which are discussed in detail in this paper.

Keywords : Economy ,competitiveness ,world, global, humanities, science, technology

Introduction

The entire world has been smart and digital just because of technology. Every sector though it is education, commerce or other have been occupied with technological innovations and made them easier and smarter. A lots of things or studies we can aquire just from home. As the dependency on technology is growing up, more and more challenges to make them more result oriented are also coming into eyes.

The entire world is going through weak economy. It's a challenge for each and every country to maintain economy and to re-establish the lost heritage. The most burning problem created by the epidemic is unemployment, it's a challenge for countries of the world to promote employment. Global business trends refer to current issues of the global economy which are shaping our future in the upcoming months or years. Global business trend is a statement about what is currently happening and not a prediction about what is going to happen. Global business Trends are used by organizations, governments to make strategies for better economic efficiency and market condition. Global economic trends pertain to forward looking minded executives who are interested in extrapolating rather than predicting. World economies try to reach the highest scoring systematized by Global Competitiveness Report .Each indicator ranges from 0-100. Country rankings are volatile and changing. Japan used to be among the top three most competitive countries in the late 1980s and fell to the bottom half of our WCC results five years ago.The increasingly digital economy is changing daily life in emerging and advanced economies alike ;India and Canada are no exception. While both nations face their own unique challenges and rapid technological advancement , their shared values create a unique opportunity for collaboration. The

Canada- India track 1.5 Dialogue on Innovation , Growth and Prosperity-a three-year partnership between the Centre for International Governance Innovation (CIGI) and Gateway House-was created to explore those opportunities.Modi , the prime minister of India is trying to maintain healthy economic relation globally for enhancing economy of India.

Innovations and challenges in ichst

Top commerce innovations

1.Real time location based mobile selling
2.Super fast delivery and instant pickup counters
3.AI powered personalization
4.Voice powered shopping
5.Shopping using AR technology
6.Blockcain
7.single-click checkout
8.Chatbots to handle customer queries
9.Social commerce
10.Digital storefronts

The task is challenging too. They have to go through a tough path while implementing new innovations.

Challenges Before Humanities

Right now the principal challenges to the humanities in our universities fall

1.Money-Humanities don't have properthe assistance. Facilities as science are not made available. It needs support to sustain and flourish.

2.A conflict-There is always seen a conflict among views of humanists. They don't agree on the same theme. It is a challenge for humanities.

3.Communication-Lack of communications among professors and administrators actually create the radical splits that divide discipline. Communication is must to solve the crisis.

Innovations In Science And Technology

There is no need to tell the miracles of science and technology. Everywhere is seen the touch of technology. The world has become completely digital and is using technology to bring more and more development.

Top Five Trends In The Global Bu8iess As Revealed By The Global Competitiveness Index 4.0 In 20191.It is the observation of last 10 years that global leaders take rapid action to mitigate the worst of the financial crisis, but it alone has not proved sufficient to boost productivity growth

Since the great recession, policymakers have kept the global economy afloat primarily through ultra-loose and unconventional monetary policy. But despite the huge injection of liquidity –the world's four major central banks of UK, US , EU, and Japan alone injected $ 10 trillion between 2008 and 2017-prpoductivity growth has continued to stagnate over the past decade.

Over believe on monetary policy may have role in reducing productivity growth by encouraging capital mis-allocation, less interest of banks in leading businesses, favouring firms with poor credit, and prioritizing fee-generating and trading activities instead. Each and every country can not escape from 12 levels of competitiveness. Countries must pursue all 12 avenues but create their own sequencing strategy to balance and focus efforts, with the help cheaper capital and technolog. As the adage goes, "fix the roof while the sun is shining."and the policymakers have a narrowing window before a predicted slowdown.

2.With monetary policy running out of steam, policymakers must revisit their tooklit to include a range of fiscal policy tools, reforms and public incentives.

Excessive belief in monitary policy also means fiscal policy has been misutilised.. Public investment has reduced globally. If hysteresis has permanently lowered the growth path, then investment led stimulus could be strong action to revive growth in stagnating advanced economies , specially fiscal policy that gives priority to investment in infrastructure, Rand D green procurement , human capital. It will prove a great hel[p in enabling responsible and inclusive businesses. Government public investment is on decline globally in the sectors like schools, hospitals and R&D.

3.Policy makers must invest in developing skills with ICT adoption and promoting technology to provide opportunity for all in the era of the Fourth Industrial Revolution

It is the era of fourth industrial revolution. It will be critical finding a balance between technology integration, human capital investments and the innovation ecosystem for enhancing productivity in the next decade. Right skills and training workers become smart worker and more contribute in productivity. Smart worker is an essential factor in this era. Scientific publications, patent applications, R&D expenditure and research institutions are all well established aspects of developing innovative capability. But these are not enough.

A number of softer factors are equally important for business. Ability of companies to embrace disruptive ideas, the attitude toward entrepreneurial risk-US is 2^{nd} with 75.9 while France is 55^{th} with 52.9 points, diversity of workforce and flat hierarchical structures in companies are some softer factors for commercialization.

4. It's true that competitiveness is must for improving living standards , but speed, direction and quality of growth must be looked after by the policy makers**.**

Sustained economic growth remains a critical pathway out of poverty and core driver of human development and living standards. It's not enough. We have two greatest challenges for the next decade first is, building shared prosperity and second is managing the transition to a green economy. We just have to look for the solutions of the two. Data in the report shows a marked rise in market concerntration in advanced and emerging economies –business leaders assessment of market competition over the past 10 years decreased by 15% in the US and 12% in Germany. There is inequality in income growth , for example,the share of income of top decline over the past 10 years grew from 43% to 47% in the US , from 36 to 41% in china and from 32 to 35 % in Germany.

There is need of time to focus not just the speed of growth but also its direction and quality.

5.More visionary leadership is necessary to place all economies on such a win-win trajectory.

Policymakers, business leaders and international multilateral systems have to work together to set new direction and must now make bold and visionary choices to lead us to a win-win trajectory for growth , shared prosperity and sustainability.

The ups and downs in the trade, social and environmental factors may emerge from short term and narrow view of growth but can be overcome by adopting a holistic and longer term approach to growth. Some economies such as Denmark , Sweden and Finland are technologically advanced , innovative, dynamic ,and are providing better living conditions to the people of their country. These countries are more sustainable than their peers at a similar level of competitiveness. It has been possible just because of visionary leadership and far sighted view.

6 .trends that will shape the global business over the next decade :

We can't expect that the upcoming decade will be normal. Interest rates at historic laws, heating up planet, deflationary pressure everywhere, a rapidly aging population , and so on , are the problems to be faced.

The bank's global research outlined 10 megatrends that are likely to shape the global economy over the next decade. Those are-

Peak globalization, recession, quantitative failure, demographies, climate change, robots and automation, splinternet, moral capitalism ,smart everything and space.

An understanding of these trends and their impacts will help investors navigate through the myriad challenges and opportunities over the next 10 years.

Conclusion

As we all are aware about pandemic threat today, acceleration of inequality, remote work and greater tech market dominance are likely here to stay for some years. Beyond managing the pandemic and vaccine rollout , these trends could shape a new era of fiscal, monetary and competition policy, as well as bigger government. International coordination is key to resolving global challenges such as vaccine manufacturing and distribution. Except pandemic, China's economy continues to outperform. China's industrial production is up. It's just because government's farsightedness and government – inspired investment infrastructure. What matters in the nation's development is government's policy. Lesson should be learnt from china.

Above mentioned trends could be helpful for the economic growth of nation and prosperity. Still it depends on the government's policy and its implementation. We have a lot of example of poor countries progressing and developing despite unavailability of enough resources. China is one of them. What needed is implementation and proper utilization of labour.

Reference

www.imd.org. ,www.cigionline.org/economy-2019 ,info.ceicdata.com/world-trend/plus-datasbase

ISSN : 2278-9308
February, 2022

Cashless Economy in India –Present Scenario

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Abstract:-

Digital cash brings benefits as well as problems. One major advantage of digital cash is its increased efficiency opening new opportunities, especially for small businesses. On the other hand, it will encourage potentially the worsening of problems over taxation and money laundering. In turn, these problems may alter foreign exchange rates, disturb money supplies, and encourage an overall financial crisis. The transnationality of digital cash - the ability of digital cash to flow freely across national borders - encourages these benefits and problems, and could have significant repercussions internationally. From an economic view, this transnationality is the most important characteristic of digital cash. If digital cash behaved like traditional currencies, circulating within a national border and controlled by a central monetary authority, there would be few economic implications that would be worth analyzing. In this scenario, digital cash would be nothing more than a convenient transaction method such as a credit card. However, digital cash's very transnationality has the potential to cause conflict between cyberspace and nation states. If digital cash spreads successfully in the next century, its history may be written as a transcript of economic battles between nation states.

Key Words: Cashless Transactions, Cashless Economy, Economic Growth, Electronic-payment , Information Technology, Unified Payments Interface.

I. Introduction:-

A seamless and non-traditional system involving one or more participants, where transactions are effected without the need for cash. Digital transaction involves a constantly evolving way of doing things where financial technology companies (Fintech) collaborate with various sectors of the economy for the purpose of meeting the increasingly sophisticated demands of the growing tech-savvy users .**Digital currency** (**digital money** or **electronic money** or **electronic currency**) is distinct from physical (such as banknotes and coins). It exhibits properties similar to physical currencies, but allows for instantaneous transactions and borderless transfer-of-ownership. Examples include virtual currencies and cryp to currencies. Like traditional money, these currencies may be used to buy physical goods and services, but may also be restricted to certain communities such as for use inside an on-line game or social network. Digital currency is a money balance recorded electronically on a stored-value card or other device. Another form of electronic money is network money, allowing the transfer of value on computer networks, particularly the Internet. Electronic money is also a claim on a private bank or other financial institution such as bank deposits. Digital money can either be centralized, where there is a central point of control over the money supply, or decentralized, where the control over the money supply can come from various sources.

II. Objectives

1. To know the positive and negative impact of Cashless transaction.
2. To know how Cashless Transaction impact on Economic growth

III. Review Of Literature:-

Cashless economy is not the complete absence of cash, it is an economic setting in which goods and services are bought and paid for through electronic media. **According to Alvares, Cliford (2009) in their reports —**The problem regarding fake currency in India.‖ It is said that the country's battle against fake currency is not getting easier and many fakes go undetected. It is also stated that counterfeiters hitherto had restricted printing facilities which made it easier to discover fakes. **Jain, P.M**

(2006) in the article —E-payments and e-banking‖ opined that e- payments will be able to check black —An Analysis of Growth Pattern of Cashless Transaction System. Taking fullest advantage of technology, quick payments and remittances will ensure optimal use of available funds for banks, financial institutions, business houses and common citizen of India. He also pointed out the need for e-payments and modes of e-payments and communication networks.

IV. Research Methodology :-

The study is based on secondary sources of data/ information. Different books, journals, newspapers and relevant websites have been consulted in order to make the study an effective one. The study attempts to examine the Impact of Cashless Transaction in India.

4.1. Impact of Cashless transaction :-

As we know every coin has two sides like it Cashless Transaction has also positive and negative impact.

4.2. Positive impact of Digital Transaction:-

1. A cashless economy will allow less tension of tackling a wallet full of notes along with us, which is not at all safe in a world full of anti-socials. We can rather use our mobile as a one-stop solution for all kinds of transactions such as bill payments, fees payments, funds transfer, recharge, etc.
2. It will ensure a 'black-money free India' or rather the so-called 'parallel economy' where people bypass the banks to gather money in their closets at home without coming under the purview of tax will suffer a setback.
3. Crime rates have already started diminishing due to cash ban as most of the terrorist activities are funded with black money that has bore the brunt of this. In addition to this, other crimes such as burglary, extortion, bank robbery, etc. are also declining.
4. One of the biggest advantages is the increase in the span of the income tax. Due to least involvement of cash, transactions have to be done through banks where proper KYC verifications will be done prior to banking transactions and hence, it will be easier for the Government to monitor and mend the income tax evasion by the unscrupulous persons. This will, in turn, enhance the revenue received by the Government

4.3. Negative impact of Cashless Transaction:-

1. The cashless economy will see a hike in the hacking of the personal information over the internet such as credit and debit card numbers, PINs, passwords and other sensitive information due to an increase of digital transactions. In short, cyber crimes will escalate like anything if proper internet security measures are not taken.
2. The poor section of India who is in majority and is scarcely covered under conventional banking system will suffer a lot, as they are solely dependent on cash for their daily wages.
3. Sectors such as real estate, retail, restaurants, cement and other MSMEs, where huge cash transactions are involved are going to be affected terribly.
4. Inadequate internet infiltration, low internet speeds, limited Smartphone and broadband penetration, very less PoS machines are the roadblocks towards achieving full digitalization that is here the main substitute for cash transactions.
5. Funds will always be in control of the third party such as Government, banks, payment interfaces, etc. which lead to extreme uncertainty.

4.4. Cashless Transaction impact on Economic growth:-

1) **Cost of printing money:** Printing money is the direct cost that effects the bank(Reserve Bank Of India). In the cash system of economy where maximum people will work on the cash transaction, government has to produce more and more cash notes. Printing notes it is a costly affair. Data from a Right to Information answer by the RBI in 2012 shows that it costs Rs. 2.50 to print each Rs. 500 denomination note, and Rs. 3.17 to print a Rs. 1,000 note. From April 1994 to June 2016, currency has shown a yearly growth rate of 17%, while the share of bank currency has remained around 5%.2 It was estimated that, for 2009–2010, RBI incurred an annual cost of INR 2800 Crores for printing currency

notes (Das and Agarwal 2010). As per the new declaration of demonetization by Modi it has cost the nation an additional burden of 12000 Crore on the exchequer.

2) **Maintenance Cost:** Other than printing cost of the currency notes there are many other expenses that RBI and government has to do. Another important aspect is the maintenance in the form of storage of notes, transportation of the notes to the distant places, security of the notes, and devices for the detection of counterfeit notes. The other major aspect of the maintenance is that the distribution of money through ATM machines at the different locations. It is reported that all this maintenance cost the government about 5% of the GDP of India. In nutshell we can save somewhere around 500 crores by this mean only.

3) **Eradication of the corruption**: going cashless is going to eradicate the corruption to some extent. The direct transactions of the money cannot take place easily. These transactions will be simple easy and transparent which in turn will show in the accounts of the senders and the receivers. This cashless economy is going to hit the corruption in a very planned way from the government offices. This is again going to save enough money in the economy of the country.

4) **Help to Check High Rate Of Organized Crimes**: Such As Armed Robbery, Kidnapping Terrorist Activities And Money Laundering: It is a well known fact that the criminal underworld usually requires huge volumes of cash to carry out their nefarious operations in order to avoid being traced or tracked. Therefore, placing a limit on the amount of cash flowing in the system, will curtail such activities as armed robbery, kidnapping, drug and gun running and money laundering. In an environment of extensive and predominant use of cheques and e- payments, criminal transactions can be easily traceable and tracked. All the terrorist related activities are highly funded by the cash. The cashless economy helps the government to keep a check on the free flow of cash to the terrorists and terrorist related activities.

5) **Wipe away the black money from the market:** it has been observed that many businessmen start evading the real money. Most of them never show the actual business on paper. This habit of evading sales has caused a lot of Impact on the tax of the country. Small shopkeepers and big industrialists do this to save tax. This practice has created a very big problem of loss of tax to the exchequer. The loss of huge money has lead to the parallel economy in the state that has created a big los not only to the government but towards the development of the common people's goal. The presence of cashless economy will definitely lead to the development of the country by means of collecting surplus taxes and also to spend these taxes for the benefit of the scheme. Modi in his poll manifesto of 2014 general election has announced that if the government is able to bring back the black money in the mainstream than every Indian will have 15 Lakhs of rupees in their accounts irrespective of their income potential.

6) **Installation of formal and pure form of economy:** It has been observed that cashless economy leads to the start of proper formal and functional economy in the country. When all the transactions are made proper clear clean and taxed, it may lead to the establishment of formal setup of the total financial system that leads the country towards the development.

7) **Stop Leakages:** Cashless economy is the best and one of the few ways in the system to stop leakages of the money by the officials of the government while distribution money to the beneficiary. The present policy of the linkage of AADHAR or UID NO. by the government has resolved this issue to the great extent. The direct benefit transfer policy of the government has helped the identification of the beneficiary on the basis of biometric identity and helps the people to get their dues directly in their bank accounts. This is again a digital or cashless system of transaction that helps the individual to save time and money

8) **Decrease the cost of commodity:** the cashless economy aims at reducing the cost of the commodities by setting aside the black market and the proper deposit of the tax. All this leads to the development of the system where one can find the cost of the commodity going down in the market. The developed economy like China is the best example for this. customers. Making Transaction is very easy by using information technology.

V. Conclusion :-

The adoption of one type of cashless payment will affect another type of cashless payment in the short run. The impact of adopting cashless payment on economic growth can only be significantly observed in the long run. Hence, any policy that promotes cashless payment will not affect the economy immediately.

References :-

[1] http://www.investopedia.com/terms/d/digital-transaction.asp

[2] http://www.ijcter.com/papers/volume-3/issue-4/impact-and-importance-of-cashless-transaction-in-india.pdf

[3] http://www.gjimt.ac.in/cxt_content/cxt_themes/gjimt_cxt_theme/files/2017/May/Sharad-Malhotra---Impact-of-Cashless-Society-for-the-Economic-Growth-in-India.pdf

[4] https://en.wikipedia.org/wiki/Digital_currency http://essayonquotes.com/positive-negative-impacts-cashless-economy

ISSN : 2278-9308 February, 2022

A Comparative Study of Sales Revenue Analysis and Financial Performance of Micro & Macro Retail Shop in Akola and Buldana District

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Abstract:-

India is currently the ninth largest retail market in the world. The Indian retail industry is divided into organized and unorganized sectors. Although The Indian retail industry is valued at about $ 300 billion and is expected to grow in future, only three per cent of Indian retail is organized. In current years the whole concept of shopping has altered in terms of format and consumer buying behavior, ushering in a revolution in shopping. Over the last decade, the Akola and Buldhana retail landscape has witnessed dramatic changes. The sector is divided into 2% organized. The present research was conducted to find out the potential of Micro and Macro retail stores of Akola and Buldhana district in terms of customer satisfaction, facilities offered, administration, Lay-outs etc. In the present study total 283 Micro shops and 17 Macro shops were taken into consideration. The data was collected from the shop owners in the form of questionnaire. Similarly for finding the customer satisfaction index, total 1200 customers were requested to fill the questionnaire regarding their opinion about the Micro and Macro shops administration and management. After analyzing the data it was found that the retailers of both Micro and Macro shops at Akola and Buldhana district are trying to provide facilities to their customers however the customers were more satisfied from overall management of Macro retail shop than Micro retail shop but no one retailer had proved their efficient management due to less efficiency in customer relationship and administration. Hence In order to satisfy the customer needs the retailer must have a thorough understanding of how customer make store choice and purchase decision. Perceptual mapping of the consumers provides some valuable insights into the process and therefore is useful for the store management decision making.

Introduction:-

Emerging markets such as India and China are the final frontier for retail taking the focus away from saturated Western markets. Since 2001, 49 global retailers entered 90 new markets, but at the same time, 17 retailers left markets in 2005. The Indian retail industry in valued at about $300 billion and is expected to grow to $427 billion in 2010 and $637 billion in 2015. Only three percent of Indian retail is organized. Retailers of multiple brands can operate through a franchise or a cash-and-carry wholesale model. Retail is India's largest industry, accounting for over 10 percent of the country's GDP and around eight percent of employment. Retail in India is at the crossroads. It has emerged as one of the most dynamic and fast paced industries with several players entering the market. That said, the heavy initial investments required make break even hard to achieve and many players have not tasted success to date. However, the future is promising; the market is growing, government policies are becoming more favorable and emerging technologies are facilitating operations. Retailing in India is gradually inching its way to becoming the next boom industry. The whole concept of shopping has altered in terms of format and consumer buying behavior, ushering in a revolution in shopping. Modern retail has entered India as seen in sprawling shopping centers, multi-storied malls and huge complexes offer shopping, entertainment and food all under one roof.

Objective of the study : -

A challenge of a changing retail industry is a curtain raiser to the book and presents the changes sweeping the consumer products industry. Retailer's activities are going to play the role as professionals. This research is conducting to find out potential to retail mall in district place likes as Akola, Buldhana etc. Multi channel management traces the development of multi-channels in retailing and underscores the need for retailer to tap them. Retailer should initiate new management strategies based on profit-driven product selection and customer targeting. For attracting and increasing the customer base Radio Frequency Identification is recognized as a revolutionary technology in the retailing industry..

1. To understand the techniques of portfolio commodity management in Micro and Macro level Retail Shop.
2. To understand the problems of Credit Management and Receivable Management of Retail Shops.
3. To analyze the stores performance in the given time period.

Review of literature:-

Sales forecasts are conditional in that a company prepares the forecast prior to developing strategic and tactical plans. The forecast of sales potential may cause management to adjust some of its assumptions about production and marketing if the forecast indicates that: 1) current production capacity is inadequate or excessive, and 2) sales and marketing efforts need revisions. Management, therefore, has the opportunity to examine a series of alternate plans that propose changes in resource commitments (such as plant capacity, promotional programs, and market activities), changes in prices and/or changes in production scheduling.

Through forecasting the company determines markets for products, plans corporate strategy, develops sales quotas, determines the number and allocation of salespeople, decides on distribution channels, prices products or services, analyzes products and product potential in different markets, decides on product features, determines profit and sales potential for different products, constructs advertising budgets, determines the potential benefits of sales promotion programs, decides on the use of various elements of the marketing mix, sets production volume and standards, chooses suppliers, defines financing needs, and determines inventory standards. For the forecasting to be accurate, managers need to consider all of the following factors:

• **Historical Perspective**: As a starting point, management analyzes previous sales experience by product lines, territories, classes of customers, and other relevant details.

• **Business Competence**: The ability of a company to respond to the results of a sales forecast depends on its production capacity, marketing methods, financing, and leadership, and its ability to change each of these to maximize its profit potential.

• **Market Position**: Forecasting also considers the competitive position of the company with respect to its market share; research and development; quality of service, pricing and financing policies; and public image. In addition, forecasters also evaluate the quality and quantity of the customer base to determine brand loyalty, response to promotional efforts, economic viability, and credit worthiness.

• **General Economic Conditions**. Although consumer markets are often characterized as being increasingly susceptible to segmentation in recent years, the condition of the overall economy is still a primary determinant of general sales volume, even in many niche markets. Forecasters incorporate relevant data that correlate well or demonstrate a causal relationship with sales volume.

• **Price index.** If the prices for products have changed over the years, changes in dollar volume of sales may not correlate well with volume of units. At one point in time when demand is strong, a company raises its prices. At another time, a company may engage in discounting to draw down inventories. Therefore, accountants devise a price index for each year which compensates for price increases. By dividing the dollar volume by the price indexes, a company can track its "true" volume growth. This process is similar to an inflation index, which provides prices in constant dollars. As a result, management is able to compare the price-adjusted dollar sales volumes.

• **Secular trends.** The secular trend depicts: 1) general economic performance, or 2) the performance of the specific product for all companies.

- **Trend Variations**. Forecasters study the underlying assumptions of trend variations to understand the important relationships in determining the volume of sales. Although markets may be strong, the sales force might need to be adjusted.
- **"Intra-Company" Trends**. By analyzing month-to-month trends and seasonal variations over both the long and short terms, small business owners and managers can adjust the sales forecast to anticipate variations that historically repeat themselves during budget periods. Management may then construct a budget reflecting these variations, perhaps increasing volume discounts during traditionally slow periods, exploring new territories, or having sales representatives solicit product and service ideas from current customers.
- **Product Trends**. Forecasters also trend individual products, using indexes to adjust for seasonal fluctuations and price changes. Product trends are important for understanding the life cycle of a product.

Analysis and Interpretation of Data:-

The present study deals with the comparative analysis of Micro and Macro Retail Management of Retail Mall, Super Bazaar and Retail Stores in Akola and Buldhana District. In the present study a retailing survey was made for both owners and customers of Macro (organized) and Micro (unorganized) shop. The following are points through light on the interpretations made from the survey based analysis. The comparative analysis catered through organized and unorganized shop in both the districts as sample of owners and customer by obtaining their views with the help of questionnaires. The following analysis had carried out on Five sections of the owners of Micro and Macro retail shop of Akola and Buldhana districts.

Evaluation Of Sales Revenue And Expenses Analysis Of Micro Shop

Sr. No.	Particulars	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	%
1	Sales and other Income	212500000	236950000	261400000	285850000	310300000	100
2	COGS	148750000	165865000	182980000	200095000	217210000	70
3	Shrinkage	2125000	2369500	2614000	2858500	3103000	1
4	Occupation Cost	14875000	16586500	18298000	20009500	21721000	7
5	Employment Cost	10625000	11847500	13070000	14292500	15515000	5
6	Advertising & Promotion	2125000	2369500	2614000	2858500	3103000	1
7	Energy Cost	4250000	4739000	5228000	5717000	6206000	2
8	Operations & Administration	12750000	14217000	15684000	17151000	18618000	6
9	PBDIT	17000000	18956000	20912000	22868000	24824000	8

10	Interest	2125000	2369500	2614000	2858500	3103000	1
11	PBDT	303571.4286	16586500	18298000	20009500	21721000	7
12	Depreciation	42500000	4739000	5228000	5717000	6206000	2
13	PBT	10625000	11847500	13070000	14292500	15515000	5

In terms of ratio analysis showed that the performance regarding accounts and financial management of Micro shop COGS , Shrinkage , Occupation Cost, Employment Cost, Advertising & Promotion, Energy Cost, Operations & Administration, PBDIT was 70%, 1%, 7%, 5% , 1%, 2% , 6% and 8% respectively.

❖ As per data analyzed it is represented that Micro shop owner have profit before depreciation, interest and tax 8% whereas profit after depreciation, interest but before tax only5%.It means that 3% spread of profit had gone due to interest on borrowed capital and depreciation of fixed asset. So in this case the owners of micro shop have to reduce the operating expensed of the business than they are able to increase net profitability of it.

❖ The small retail shop owners are purchasing the 80% of merchandising from local distributor on credit basis and only 20% from directly from company which was increased their cost of goods and reduced the gross profit of the business

Evaluation Of Sales Revenue And Expenses Analysis Of Macro Shop

Sr. No.	Particulars	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	%
1	Sales and other Income	125500000	152000000	166000000	180000000	197500000	100
2	COGS	75300000	91200000	99600000	108000000	118500000	60
3	Shrinkage	1255000	1520000	1660000	1800000	1975000	1
4	Occupation Cost	6275000	7600000	8300000	9000000	9875000	5
5	Employment Cost	8785000	10640000	11620000	12600000	13825000	7
6	Advertising & Promotion	3765000	4560000	4980000	5400000	5925000	3
7	Energy Cost	3765000	4560000	4980000	5400000	5925000	3
8	Operations & Administration	10040000	12160000	13280000	14400000	15800000	8
9	PBDIT	16315000	19760000	21580000	23400000	25675000	13
10	Interest	1255000	1520000	1660000	1800000	1975000	1
11	PBDT	15060000	18240000	19920000	21600000	23700000	12
12	Depreciation	2510000	3040000	3320000	3600000	3950000	2
13	PBT	12550000	15200000	16600000	18000000	19750000	10
Sr. No.	Particulars	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	%
1	Sales and	125500000	152000000	166000000	180000000	197500000	100

	other Income						
2	COGS	75300000	91200000	99600000	108000000	118500000	60
3	Shrinkage	1255000	1520000	1660000	1800000	1975000	1
4	Occupation Cost	6275000	7600000	8300000	9000000	9875000	5
5	Employment Cost	8785000	10640000	11620000	12600000	13825000	7
6	Advertising & Promotion	3765000	4560000	4980000	5400000	5925000	3
7	Energy Cost	3765000	4560000	4980000	5400000	5925000	3
8	Operations & Administration	10040000	12160000	13280000	14400000	15800000	8
9	PBDIT	16315000	19760000	21580000	23400000	25675000	13
10	Interest	1255000	1520000	1660000	1800000	1975000	1
11	PBDT	15060000	18240000	19920000	21600000	23700000	12
12	Depreciation	2510000	3040000	3320000	3600000	3950000	2
13	PBT	12550000	15200000	16600000	18000000	19750000	10

❖ Macro shop COGS , Shrinkage , Occupation Cost, Employment Cost, Advertising & Promotion, Energy Cost, Operations & Administration, PBDIT was 60%, 1%, 5%, 7% , 3%, 3% , 8% and 13% respectively right from 2001 to 2006 which showed drastic difference between Cost of goods sold, Occupation Cost, Employment Cost, Advertising & Promotion, Energy Cost, Operations & Administration, PBDIT.

❖ Macro shop owners have profit before tax 10% which is creating remarkable gap between them. Its basic cause was value of cost of goods sold which has difference of 10% due to bulk purchasing strategy of Macro shop owner.

❖ The small retail shop owners are purchasing the 80% of merchandising directly from company on cash basis and only 20% from distributor from which was reduced their cost of goods and increased the gross profit of the business.

❖ As per data analyzed it is represented that Micro shop owner have profit before depreciation, interest and tax 13% whereas profit after depreciation, interest but before tax only10%.It means that 3% spread of profit had gone due to interest on borrowed capital and depreciation of fixed asset. So in this case the owners of micro shop have to reduce the operating expensed of the business than they are able to increase net profitability of it.

Conclusion:-

❖ It was also examined through the observation these shop owner are providing credit facility to their customer for attracting and keep retain with them due to keen competition which directly effected on their net profitability of the business.

❖ It was also examined through collected secondary in Akola district the Micro shop owner are doing good business in comparison to Macro shop owner.

❖ It was also examined through collected secondary in Buldhana district the Macro shop owner are doing good business in comparison to Micro shop owner.

❖ The Macro shop owner had appointed the experience management graduates who resulted in increasing in the profitability due to their proper management of customer relationships, fund of business, cash and inventory on day to day basis.

References:-

1. Bolt, Gordon J. Market and Sales Forecasting. Franklin Watts, 1988.

2. Cohen, William A. The Practice of Marketing Management. Macmillan Publishing, 1988.

3. Crosby, John V. Cycles, Trends, and Turning Points: Practical Marketing and Sales Forecasting Techniques. NTC Publishing, 2000.

4. Henry, Porter, and Joseph A. Callanan. Sales Management and Motivation. Franklin Watts, 1987.

5. McCarthy, E. Jerome, and William D. Perreault, Jr. Basic Marketing: A Managerial Approach. Irwin, 1990.

6. Mentzer, John T., and Carol C. Bienstock. Sales Forecasting Management: Understanding the Techniques, Systems, and Management of the Sales Forecasting Process. Sage, 1998.

7. Further Reading:

8. Krupp, James A. "Measuring Inventory Management Performance." Production and Inventory Management Journal. Fall 1994.

9. Piasecki, Dave. "Optimizing Economic Order Quantity." IIE Solutions. January 2001.

10. Weiss, Howard J., and Mark E. Gershon. Production and Operations Management. Boston: Allyn and Bacon, 1989.

11. http://www.answers.com/topic/sales-forecast#ixzz1UuUYJnkF

ISSN : 2278-9308
February, 2022

Study on Socio- Economic Status of Fishermen in Akola District, Maharashtra, India

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Abstract:

Akola is popular district of Maharashtra for fish production, situated in the central eastern part of the state. It is located in 20.17 to 21.16 of the northern latitude and 76.78 to 77.4 eastern longitudes. Akola district is one of the richest water resources.Major reservoirs in Akola district are used in multipurpose ways like fishery, irrigation, entertainment, employment, etc. These reservoirs have vast potential of fishery and they supply fishes to all over the Akola region and other states of India.

The present study reveals that the Socio-economic status of fishermen of Akola district. The study was carried out for the period of one yearJanuary 2021 to December 2021. On the basis of study, it has been found that 70% of fishermen are economically and socially backward in Akola district.

Keywords: Fisherman, Akola, Socio-economic status.

Introduction:

Fish food serves as excellent source of protein for human kind and also plays an important role in economic development of the country, provides employment to millions of people.

Total area of the district is 5417 Sq. Km where 1) Akola, 2) Murtizapur, 3) Akot, 4) Telhara, 5) Barshitakali, 6) Balapur and 7) Patur are the seven towns. Average rainfall of the district is 750 to 1000 mm. prominent rivers of the district are Purna, Katepurna, Morna, Wan, and Nirguna. Overall length of the rivers is 465 km.

Akola district has 221 ponds which includes 165 seasonal and 56 permanent in those six major reservoirs having water area more than 200 hectors i.e.1) Katepurna reservoir tal. Barshitakali -805 hec. 2) Wan reservoir tal.Telhara -461 hec. 3) Morna reservoir tal.Patur -348 hec. 4) Dagadparava reservoir tal. Barshitakali -288 hec.5)Nirguna reservoir tal.Patur -275 hec. 6) Uma reservoir tal.Murtijapur -217 hec. The total water area of Akola district is 4274 hector. Fishery sector includingfisherman community plays an important role in socio-economic development of the country.

A detailed study on socio-economic condition of the fisherman has not been documented in Akola district. I found that 70% of fishermen community were illiterate or less educated, economic condition of educated fish farmer were improved and now they getting enough earning and good economic and living condition. Therefore proper education about fish farming and fishery management training, social and economic support may improve the livelihood of the fisherman, which will increase the overall fisheries productivity of Akola district , Maharashtra ,as well as India.

Material and Methods:

The study is done between the time periods January 2021 to December 2021.For the study, I conducted survey of fisherman nearby Akola city and visited various fish market as well as fish collection site of major reservoirs.To determine the current socioeconomic status of fisherman in Akola district, questionnaire was made which includes name, age, sex, caste, education, type of family-joint or nuclear, family members, smoking/ drinking habits, medical facility, traditional or adopted fisherman, food consumption pattern etc. for the present investigation 200 families in Akola district taken in to consideration.

Results and Discussion:

In the present investigation, it is observed that age group of fishermen which is actively involved in fishing activities are 20 to 55.On the basis of survey 30% of fishermen are literate and economically stable, participating in various fish farming and processing training conducted by office of assistant commissioner of Fisheries and Krishi Vigyan Kendra. They play an important role in fish handling, processing, transportation and marketing. These fisherman lives in villages near by Akola city and engagedin fish farming in their own ponds constructed in the farm, prefer to cultivate Rohu, Catla, Mrigal, cyprinus by polyculture method and getting enough earning.

70% of fishermen communities are unemployed, live below the poverty line, there are more than five members,male in the families are addicted to drinking, smoking and tobacco. Women play an important role in to improve financial development of the family by helping fish processing and marketing along with household activities.Children of this community not healthy suffer from gastrointestinal disorders and malnutrition.Monthly income of fishermen was comparatively low spending it on basic daily needs.Take fish/crab/prawn with roti as main item of the food. They do not have proper balanced diet and drinking water facility.

Present study shows thatmaximum fishermen are traditionally depends on fishery sector and aresocially and economically backward. Measures should be taken to improve the scientific fishery education like- fish farming, capturing, processing, preservation and marketing. Educational and financial developments areessential for community. Socialand economic support, life insurance and medical facilities may improve the livelihood of the fishermen.This will ultimately increase the fish production in Akola district, as well as Maharashtra and India.

Socio-economic condition of the fisherman has been reported by earlier researchers [1-10].

References:

1) Balsubramaniam S. and Bihari B. (2001). Socioeconomic variables of fishermen in Hirakund reservoir and their technological adoption. Paper presented during the Nat. Sem. On riverine and reservoir fisheries- Challenges and strategies, May 23 to 24, Cochin.
2) Bhuyan S, Islam S. Present Status of Socio-economic Conditions of the Fishing Community of the Meghana River Adjacent to Narsingdi District, Bangladesh. J. Fisheries Livestock prod 4: 192. Doi: 10.4172/2332- 2606.1000192, 2016.
3) Bijayalakshmi DN, Ajitkumar N, Socioeconomic conditions and cultural profile of the fishers in India - a review IOSR Journal of Agriculture and Veterinary Science. 2014; 7(9):42-48.
4) Chauhan P. K. (2002). Socioeconomik status of fishermen on Pong reservoir. Lake Reservoir Management. 18 (1): 15- 19.
5) Chauhan Y. K. and Saxena A. (2008). Machuarasamudaykisamayaenavmsujhav. Published in MachuaraKendritMatsaySansadhanPrabandhan, RashtriyaSamgoshthi, Ranchi (Jharkhand) pp 21.
6) Devi NEL, NA Kumar. Socioeconomic conditions and cultural profile of the fishers in India – a review, IOSR journal of agricultural and veterinary science. 2014; 7(9):42-48.
7) FAO, World review of fisheries and aquaculture. In: The state of world fisheries and aquaculture 2009. FAO, Rome, 2010; 3-87.
8) Jacob MJK, Rao RB. Socio-ecological studies on marine fishing villages in the selective south coastal districts of Andhra Pradesh. Ecotoxicology and Environmental Safety. pp. 1-6. http://dx.doi.org/10.1016/j.ecoenv.2015. 08.026i, 2015.
9) Krishna PV. Socio-economic conditions of fishermen community in some selected coastal villages of West Godavari district, Andhra Pradesh coast. Aquacult. 2004; 5(2):241-246.
10) Yadav YS, CJ Juneja. Aquaculture and women employment. J. Kurukshetra, 2000; 48:31-32.

ISSN : 2278-9308
February, 2022

Challenges and Opportunities in Higher Education

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Abstract

As India strives to compete in a globalised economy in areas that need highly skilled professionals, the quality of higher education becomes increasingly important. So far, India's large, educated population base and its reservoir of at least moderately well trained university graduates have aided the country in moving ahead, but the competition is severe.This paper highlights few challenges and opportunities in higher education faced by students in India

Introduction

India's higher education system is the world's third largest in terms of students, next to China and the United States. Unlike China, however, India has the advantage of English being the primary language of higher education and research. India educates approximately 11 per cent of its youth in higher education as compared to 20 per cent in China. The main governing body at the tertiary level is the UGC (University Grants Commission) in India, which enforces its standards, advises the government, and helps coordinate between the centre and the state. Universities and its constituent colleges are the main institutes of higher education in India.

Presently the Gross Enrolment Ratio of India in higher education is about 12.4%.Other countries such as USA (82%),China (23%), and Brazil (75%) have much higher enrolment rates.There are around 30,484,746 students are taking higher education in India. There are several private institutes in India that offer various professional courses in India. Distance learning is also a feature of the Indian higher education system. Some institutions of India, such as the Indian Institutes of technology (IITs), have been globally acclaimed for their standard of education. The IITs enroll about 8000 students annually and the alumni have contributed to both the growth of the private sector and the public sectors of India.

Higher Education In India

Higher education follows a trajectory in which it will transform from being the privilege of a few (elite phenomenon), to a resource of the majority, more as a right (mass phenomena), and finally a collective obligation (a universal phenomenon).Elite level implies a national enrolment ratio of (up to) 15%, the mass level ranges between 15% and 50%, and surpassing 50% enrolment is indicative of the universalisation of higher education.Higher education in India by these standards stands out to be in a stage of initial massification with 26.3% Gross Enrolment Ratio (GER) in 2018-19.

This massification of higher education happens through:Changing policy perspectives (that guarantee rapid expansion of higher education institutions and enrolments).Growing impact of democratic forces in politics (democratisation of higher education).Strong voices from the civil society (endorsing accessibility and spread of higher education).

Issues In Higher Edcation In India

Enrollment:

According to the All-India Survey on Higher Education (AISHE) report 2018-19, the Gross Enrolment Ratio (GER) in Higher education in India is only 26.3%, which is quite low as compared to the developed as well as, other developing countries. With the increase of enrollments at the school level, the supply of higher education institutes is insufficient to meet the growing demand in the country.

Quality:

Ensuring quality in higher education is amongst the foremost challenges being faced in India today. However, the Government is continuously focusing on quality education. Still, many colleges and universities in India are unable to meet the minimum requirements laid down by the UGC and our universities are not in a position to mark their place among the top universities of the world.

Political Interference:

Increasing interference of politicians in the management of higher education jeopardises the autonomy of HEIs. Also, students organise campaigns, forget their own objectives and begin to develop their careers in politics. Poor Infrastructure and Facilities: Poor infrastructure is another challenge to the higher education system of India, particularly the institutes run by the public sector suffer from poor physical facilities and infrastructure. Faculty shortages and the inability of the state educational system to attract and retain well-qualified teachers have been posing challenges to quality education for many years. Large numbers of NET/PhD candidates are unemployed even though there are a lot of vacancies in higher education.

Inadequate Research:

There is inadequate focus on research in higher education institutes. There are insufficient resources and facilities, as well as limited numbers of quality faculty to advise students. Most of the research scholars are without fellowships or not getting their fellowships on time which directly or indirectly affects their research. Moreover, Indian Higher education institutions are poorly connected to research centres and to industries.

Poor Governance Structure:

Management of Indian education faces challenges of over-centralization, bureaucratic structures and lack of accountability, transparency, and professionalism. As a result of the increase in the number of affiliated colleges and students, the burden of administrative functions of universities has significantly increased and the core focus on academics and research is diluted.

Way Forward

Revamping State HEIs: In order to receive much more funding and support from the State system, State universities would have to commit to delivering lots more to the State and its people where they are located. They must come up with a new vision and programmes specifically addressing the needs of the State, its industry, economy and society, and on the basis of it make the State-level players commit to providing full ownership and support to them.

Foreign Collaboration: Government must promote collaboration between Indian higher education institutes and top international institutes and also generate linkages between national research laboratories and research centres of top institutions for better quality and collaborative research.

Multidisciplinary Approach: There should be a multidisciplinary approach in higher education so that students' knowledge may not be restricted only up to their own subjects. HEIs in both public and private must be away from political affiliations, provided with good infrastructure and facilities.

Economics Of Higher Education

Access to higher education needs to be widened in the country, both within the formal system and through other effective innovative measures, such as a truly open system and networking of Universities. It is now imperative on the part of Indian Universities to generate their own resources to a large extent. This could be done through several methods, like raising tuition fee and collecting capitation fee, both of which having severe limitations; and others like, launching courses for foreign students, obtaining donations from philanthropists, etc., which have a good potential.

Other Issues

One of the greatest challenges faced by higher education in India is the chronic shortage of teaching faculty.

Nearly 30 to 40% of faculty positions are vacant.

Further, most faculty lack quality in teaching, research and training.

None of the universities and institutions from India are in the list of top hundred universities in the world.

This resulted in graduates with low employability, a common feature of higher education in India.

An ineffective quality assurance system and lack of autonomy and accountability by institutions to the state and central government, students and other stakeholders.

Measures Needed To Improve In Universities In India

- Research cannot be improved merely by regulating universities, instead they need efforts to create enabling atmosphere for which it is imperative to grant more autonomy, better funding and new instruments to regulate work ethic.
- New initiatives like Hackathon, curriculum reform, anytime anywhere learning through SWAYAM, teacher training are all aimed at improving quality. These need to be effectively implemented.
- As India wants to transform its universities into world class institutions, it must safeguard the interests of young researchers and thousands of temporary faculty members by expediting the permanent appointments in a time-bound framework and transparent manner.
- Establish world-class multidisciplinary research universities
- Create a master plan for every state and union territory
- Each state must establish an integrated higher education master plan to provide an excellent education for all its residents.
- Attract the best and the brightest talent to be faculty members
- One of the fundamental changes India must institutionalize is a radically new compensation and incentive structure for faculty members. A flexibility to pay differential salaries based on market forces and merit must be part of this transformation.

Impact Of Covid-19 On Higher Education

Usually, this is the time young students write entrance exams, consider which colleges to apply to in India, or make plans for studies abroad. But there's nothing usual about the times today. The Covid-19 pandemic has shocked the world. The pandemic has pushed the world to drastically reinvent ways of coping with the 'new normal'. After the initial phase of complete overhaul, it is critical to understand the short and long-term impact and future measures. Can India emerge from this crisis with a refreshed perspective and boost to higher education?

Online learning is here to stay

An immediate and effective response to the crisis was to go digital. Developing robust online platforms has become necessary to offer continuity in learning. Yet in a developing country like India with vast disparity in socio-economic backgrounds of students and the quality of educational institutions, the shift has not been easy. The digital divide has been further widening the gap, and needs urgent attention from both public and private sector players as the crisis continues. Good teachers, refreshed curricula and effective tools will ensure students stay involved and active in the learning process.

More Indian students will stay home in India:

Lakhs of Indian students have increasingly chosen to pursue higher education abroad. As per reports, India is the second-largest source of international students in the world. This usual exodus is likely to transform—at least in the immediate few years—to an influx into Indian institutions, given travel restrictions and health risks.

This means that crores of rupees and resources spent in foreign education could potentially be retained in the country, as more students look towards options at home. While international institutions might bear the brunt of the change, it is a remarkable opportunity for India to enhance its capacities and offer quality education at par with global standards.

The effects of a shrinking global economy:

The economy has taken a severe hit, and its ripples can be felt in the education sector as well. While many students will chart alternative paths, the pandemic is also leaving others in limbo. As unemployment is predicted to increase and the financial capacity of Indian homes comes under stress, the country can expect a drop in enrolments and challenges with tuition fees. Public institutions too, may be under threat of reduced funding. On the flipside, the pandemic could also prompt reform in fee structures and creation of more cost-effective programmes.

New trends in teaching & learning will emerge:

Beyond the top band of institutional excellence with private universities setting best practices, Indian academia has been in need of transformation, long before the onset of the pandemic. There is an opportunity to rethink the traditional education system now.

Digital learning is leading the charge as a mainstay, and many new trends are picking up momentum across the globe. Multidisciplinary and modular pedagogy that afford transferable skills and customised learning will succeed. Post-pandemic times could see a blend of e-learning and mainstream face-to-face teaching with a boost from traditional universities and the ed-tech sector.

A call for greater global collaboration between students, academia & industry

Opportunities for student mobility and practical exposure through exchange programmes, internships, participation in conferences, and more could likely be off the table for some time. Innovative new forms of collaboration and alternative paradigms are needed to drive learning, research and teaching. Sharing of knowledge between institutions globally through joint-teaching, virtual guest lectures, etc. could give students an enriched global perspective in these difficult times.

Will educators rise to the challenge?

A paucity of contemporary teachers has been a pressing challenge already, and it is growing more serious. Faculty are being called upon to redesign course content to meet the current and future needs. Moving away from traditional pedagogies in most average institutions, the demand for quality educators will shape the way higher education moves forward from this crisis.

Conclusion

Education is a process by which a person's body, mind and character are formed and strengthened. It is bringing of head, heart and mind together and thus enabling a person to develop an all rounded personality identifying the best in him or her. Higher education in India has expanded very rapidly in the last six decades after independence yet it is not equally accessible to all. India is today one of the fastest developing countries of the world with the annual growth rate going above 9%. Still a large section of the population remains illiterate and a large number of children's do not get even primary education. This is not only excluded a large section of thepopulation from contributing to the development of the country fully but it has also prevented them from utilising the benefits of whatever development have taken place for the benefit of the people. No doubt India is facing various challenges in higher education but to tackle these challenges and to boost higher education is utmost important. India is a country of huge human resource potential, to utilise this potential properly is the issue which needed to discuss. Opportunities are available but how to get benefits from these opportunities and how to make them accessible to others is the matter of concern. In order to sustain that rate of growth, there is need to increase the number of institutes and also the quality of higher education in India. To reach and achieve the future requirements there is an urgent need to relook at the Financial Resources, Access and Equity, Quality Standards, Relevance, infrastructure and at the end the Responsiveness.

References

https://www.educationstalwarts.com/issues-and-challenges-in-higher-education-in-india/
https://www.ugc.ac.in/oldpdf/pub/report/12.pdf
https://www.researchgate.net/publication/348391045_Emerging_Issues_and_Challenges_in_Higher_Education_of_India
https://jgu.edu.in/blog/2020/06/29/impact-of-covid-19-on-higher-education-challenges-opportunities/
https://www.drishtiias.com/to-the-points/Paper2/higher-education-in-india-1
https://www.gyanvihar.org/journals/index.php/2020/06/24/higher-education-in-india-the-challenges-and-opportunities/

ISSN : 2278-9308
February, 2022

Cashless Economy In India

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Abstract

A truly digital cashless society is intuitive and imminent. Several countries such as Singapore, Hongkong, Sweden had started the journey quite early. However, most of these early initiatives were centered around plastic money that comes in various forms, such as debit and credit cards, prepaid cards, and store cards. The intention was to encourage monetary transactions through digital means and limit or remove the flow of hard cash in the economy. This paper highlights about cashless economy in India.

Introducton

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. “Faceless, Paperless, Cashless” is one of professed role of Digital India.When the transactions in an economy are not heavily based on the money notes, coins or any other physical form of money but are aided by the use of credit cards, debit cards and prepaid payment instruments, such an economy is called cashless economy.

The cashless Economy in India has been amplified with the Indian Government’s initiative of Digital India. This is a flagship programme with a vision to transform India into a digitally empowered society and knowledge economy.

Types Of Cashless Modes And Payments

Mobile wallet: It is basically a virtual wallet available on your mobile phone. You can store cash in your mobile to make online or offline payments. Various service providers offer these wallets via mobile apps, which is to be downloaded on the phone. You can transfer the money into these wallets online using credit/debit card or Net banking. This means that every time you pay a bill or make a purchase online via the wallet, you won’t have to furnish your card details. You can use these to pay bills and make online purchases.

Plastic money: It includes credit, debit and prepaid cards. The latter can be issued by banks or non-banks and it can be physical or virtual. These can be bought and recharged online via Net banking and can be used to make online or point-of-sale (PoS) purchases, even given as gift cards. Cards are used for three primary purposes – for withdrawing money from ATMs, making online payments and swiping for purchases or payments at PoS terminals at merchant outlets like shops, restaurants, fuel pumps etc.

Net banking: It does not involve any wallet and is simply a method of online transfer of funds from one bank account to another bank account, credit card, or a third party. You can do it through a computer or mobile phone. Log in to your bank account on the internet and transfer money via national electronic funds transfer (NEFT), real-time gross settlement (RTGS) or immediate payment service (IMPS), all of which come at a nominal transaction cost

Acceptance infrastructure and digital inclusion: Lack of adequate infrastructure is a major hurdle in setting up a cashless economy. Inefficient banking systems, poor digital infrastructure, poor internet connectivity, lack of robust digital payment interface and poor penetration of PoS terminals are some of the issues that need to be overcome. Increasing smartphone penetration, boosting internet connectivity and building a secure, seamless payments infrastructure is a prerequisite to transition into a cashless economy.

Financial Inclusion – For a cashless economy to take off the primary precondition that should exist is that there should be universal financial inclusion. Every individual must have access to banking facilities and should hold a bank account with debit/credit card and online banking facilities. Read more about Financial Inclusion in the linked article.

ISSN : 2278-9308
February, 2022

Digital and Financial Literacy – Ensuring financial and digital inclusion alone are not sufficient to transition to a cashless economy. The citizens should also be made aware of the financial and digital instruments available and how to transact using them.

Cyber Security – Digital infrastructure is highly vulnerable to cyber-attacks, cyber frauds, phishing and identity theft. Off late cyber-attacks have become more sophisticated and organised and poses a clear and present danger. Hence establishing secure and resilient payment interfaces is a prerequisite for going cashless. This includes enhanced defences against attacks, data protection, addressing privacy concerns, robust surveillance to pre-empt attacks and institutionalised cybersecurity architecture.

Changing habits and attitude – Indian economy functions primarily on cash due to lack of penetration of e-payment modes, digital illiteracy of e-payment and cashless transaction methods and thirdly habit of handling cash as a convenience. In this scenario, the ideal thing to do is to make people adopt e-payments in an incremental fashion and spread awareness to initiate behavioural change in habits and attitude.

Urban-Rural Divide – While urban centres mostly enjoy high-speed internet connectivity, semi-urban and rural areas are deprived of a stable net connection. Therefore, even though India has more than 200 million smartphones, it is still some time away for rural India to seamlessly transact through mobile phones. Even with regard to the presence of ATM's, PoS terminals and bank branches there exists a significant urban-rural divide and bridging this gap is a must to enable a cashless economy.

Advantages Of Cashless Economy

No Forged Currency: Forged currency values will be declared worthless. People who involve in social evil practices generally tend to accumulate their wealth in cash. With the process of a cashless economy coming into effect, this accumulated cash will be useless due to the note ban. If people invest money in the bank, the government will question them about that particular income source.

Transparent System: Computerized payments will improve transparency and culpability. The progress of the economy with liabilities can solely take place in a cashless economy.

Limited Cash Fraud: Theft or fraudulent acts concerning cash will be reduced to the bare minimum. Following the note ban, nobody would dare to steal money, which will promptly hinder the theft since the banks won't accept that money anywhere.

Effortless Payment: The cashless transaction guarantees more manageable payment across the nation. For instance, people who desire to transfer money to areas across India can effortlessly do it via the NEFT procedure. With the initiation of digitization, every individual ought to receive digital literacy at some time, therefore easing their troubles in the transfer of money and make transactions more honest.

Easy International Pay: Exchange of currency is a monotonous job for many individuals who usually reach for international travel. Cashless payment is an excellent option for those people.

Disadvantages Of Cashless Economy

Low Literacy Rate: The low literacy rate is one of the top causes for multiple existing issues. Beginning a cashless economy in India or building a digitally literate India is not a simple task. Many places don't yet have electricity and water. So, computers and the internet are a far cry. A high number of the population is based in most of the rural areas, without these necessities. People in these underprivileged areas rely entirely on cash. They can be deceived if they must rely on someone for online activities.

Chances of corruption: Despite being one of the points for digitizing financial transactions, one can't guarantee crime to degenerate. A person exercising a bribe in money might necessitate it in kind instead of cash in the future, such as a mobile phone or a computer system (which is based solely on speculation).

Economic Disparity: If the standard payment technique gets changed into the cashless system completely, the chances are that purchasing smartphones or devices will become necessary. In a country like India, where many citizens endeavor to provide for their daily food and necessities, purchasing a smartphone is most definitely a luxury these poor sections cannot afford. If cashless acquisition becomes the standard rule, then inequality can be seen in society because not everyone can afford it.

Cyber Crime: India will have to toughen its cybersecurity because of hacking within banks and private accounts happening globally. Being at its nascent stage in the subject of cybersecurity, a country such as India might be extra vulnerable to very threats.

Overspending: There is no doubting the truth that cashless transactions are more straightforward to make simply by a mere click; people can execute payments. This advantage of transactions leads to an overspending tendency, particularly among the modern generation.

Identification Fraud: The risk of identity fraud is one of the significant disadvantages of the cashless economy in the Indian subcontinent. The rate of online fraud is growing with each departing day, expanding the perils of hacking. Not every person is perfectly tech-savvy or exceptionally aware of all the usage of technical gadgets. While attempting to make digital transactions, many people might end up dissipating their personal identity in the online forum of creepy lurkers.

Transformational Measures Taken By The Indian Government

Demonetization: On November 8, 2016, India went through demonetization by abolishing high-value currency overnight– a move that gave an unanticipated fillip to a cashless Indian economy. It nudged the cash-dependent Indians to go digital in unprecedented ways. PayTm for example, saw a surge in overall traffic (700% increase), value of money added to PayTm accounts (1000%) touching a record 5 million transactions a day. Fueled by the pandemic and the ensuing lockdown, the overall bank notes printing volume has reduced by 13% and the money circulation has declined by 23.3%1.

United Payment Interface (UPI): Being one of the largest contributors to cashless transactions, it is a popular choice among Indians for its convenience, speed and access. With no fringe accounts, no restrictions on minimum payment, and the advantage of a 24*7 real-time basis payments with zero service costs, the rate in increase in UPI transactions has been spectacular. It clocked an all-time high 3.2 billion transactions in July 2021 displaying a 10-11% jump in both value and volume month-on-month2. In fact, it has become a catalyst for a dramatic rise in several private players in India with several private players such as Google Pay, Amazon Pay, PayTm, PhonePe and even Whatsapp Pay.

Direct Benefit Transfer: Thanks to the leakage-free DBT, the end beneficiaries across various segments such as agriculture, fisheries etc., are able to receive direct benefits and subsidies of a plethora of social welfare schemes such as MGNREGA, LPG subsidy, and more.. This has enabled the government to not just weed out fake beneficiaries and arrest pilferages, but also helped the government save INR 1.78 lakh crores. This has been a significant contributor in the penetration of digital banking penetration into rural India leveraging the JAM trinity (Jan Dhan yojana, Aadhaar, Mobile Phone).

Financial Reforms: Before the introduction of GST, discreet tax systems with varied compliance and timeline requirements were functional at regional as well as central levels. The implementation of a nationwide one taxation system, GST, has bolstered a paperless, contactless and cashless transaction ecosystem. It brings the entire trading community – transporter, recipient, supplier – into one common portal, and empowers them with the e-way bill which has not just eliminated the state-specific way bills, but also radically enhanced the movement of goods in a seamless manner, turnaround times, country-wide logistics, convenience and tax compliance.

Way Forward

India must learn from other countries in the developing world, which have managed to reduce their dependence on cash even while bringing in more people in the folds of the formal banking system. Kenya has been a well-documented success story, where mobile money has spread much faster and deeper than in India. Kenyan households with access to mobile money were able to manage negative economic shocks (like job loss, death of livestock or problems with harvests) better than those without access to mobile money.

The path forward is clear:

Invest in building the required financial and digital infrastructure

A nationwide financial and digital literacy campaign accompanied by a medium-term strategy to improve access to, and awareness of, electronic payments. Targeted financial education programs can improve financial skills and credit management, and increase account ownership.

the government must undertake the herculean task of changing attitudes towards digital payments among customers and merchants

Put in place all necessary cybersecurity measures

Conclusion

For this cashless economy system to be well established there needs to be certain challenges that need to be overcome. Some of these include developing adequate infrastructure and making people more aware about such systems. So, even though there are certain demerits, the merits associated with the cashless economy outweigh those.

Refrences

https://timesofindia.indiatimes.com/blogs/voices/the-possibility-of-a-cashless-society-speeds-up-in-india/
https://www.aplustopper.com/advantages-and-disadvantages-of-cashless-economy/#Advantages_of_Cashless_Economy
http://cashlessindia.gov.in/
https://byjus.com/free-ias-prep/cashless-economy/
https://www.businesstoday.in/opinion/columns/story/how-india-can-become-a-cashless-economy-302210-2021-07-23

ISSN : 2278-9308
February, 2022

Hindu Goddesses: Symbols of Women Empowerment

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Hinduism incorporates polytheism wherein multiple gods and goddesses are worshipped instead of a presumed monolithic male identity. It is a religion which since time immemorial through its goddess-worship includes and gives importance and significance to women in religion. Every human being is a beautiful combination of masculinity and femininity which is depicted by the Hindu deities. Brahma, the creator is formless and genderless.The Ardhanarishvara, composite male-female figure of the Hindu god Shiva together with his consort Parvati is androgynous which signifies that the male and female principles are inseparable. The Goddesses are shown to be aggressive, participate in battles, have weapons in their hands slaying the evil, fighting against injustice. Along with their domestic roles they play an important role in decision making and action. The Gods and male mythological figures adorn jewelry and accessories, dance and sing- typical female traits. Some are gender fluid.

Hinduism is a diverse religion with innumerable retellings, interpretations, customs and practices that vary from era to era, region to region and community to community. Hindu gods and goddesses are exemplary modern-day feminist role models worth looking up to. With countless rampant problems for women in India such as dowry issues, female infanticide, rape, unequal pay and representation, it is perhaps high time that Hinduism is used and seen by its followers as a tool for inculcating and spreading feminist values. It doesn't make sense to worship many goddesses without practicing what they stand for. It doesn't make sense to pray to a female deity and treat women poorly. It is the need of the hour to encourage everyone to empower women, give them opportunities and treat them as equals in society.

Goddess Laxmi symbolizes wealth and fortune. Her mere presence brings prosperity hence in Hinduism women in households are compared to goddesses. Laxmi, Saraswati and Parvati form the holy trinity. They are companions of Vishnu, Brahma and Shiva. The Holy trinity is given equal importance and reverence in terms of worship and is not reduced to mere companions for the three most significant gods in Hinduism. Goddess Kali is the divine manifestation of the 'stri shakti' or women power. She fights the evils, the demons. She is the manifestation of feminist rage. Shakti is the divine feminine energy which is responsible for giving birth and bringing life into this world. Though with this, it does not limit the feminine energy to just procreation, womanhood also constitutes love, compassion, patience, perseverance, the capacity to bear, sacrifice etc. Femininity is not the sign of weak. Nature exists in duality and masculinity and femininity are complementary.

Let us understand the interpretation and meaning of our Goddesses in Hinduism.

A wife should be like Lakshmi, one who leads you to your goal. Lakshmi is both the wife and divine energy (shakti) of the Hindu god Vishnu, and assists him to create, protect and transform the universe.In the same way,the role of a wife in the family is very important. She gives birth to her children and has the duty to nurture them and inculcate in thema pursuit of ethical, moral life. She teaches the importance of pursuit of wealth which is means of sustaining life. A person should provide for and sustain himself and his family but there is a difference between greed and self-sufficiency. A wife, a mother, a sister is the connotation of true love, and emotional fulfillment. With Goddess Lakshmi as her role model, a woman with her diverse roles can inspire and motivate a person towards pursuit of self-knowledge and liberation.Lakshmi personifies wealth, riches, happiness, loveliness, grace, charm, and splendor. A home where a wife and a mother is respected and a daughter is loved, is surely to be blessed with wealth, riches, happiness etc as the family members have mental peace. They can focus their attention towards their course of life. A happy wife and happy women in the family is the key to success. Laxmi is also

Maya-illusion. One may feel he understands a woman completely but this is beyond his realization. A woman is not an object to possess. Laxmi signifying all forms of wealth will disappear if not taken care properly.

In the Vishnu Purana it is mentioned that Sri, loyal to Vishnu, is the mother of the world. Vishnu is the meaning, Sri is the speech. She is the conduct, he the behavior. Vishnu is knowledge, she the insight. He is dharma, she the virtuous action. She is the earth, the earth's upholder. She is contentment, he the satisfaction. She is wishes, he is the desire. Sri is the sky, Vishnu the Self of everything. He is the Sun, she the light of the Sun. He is the ocean, she is the shore. The relation between a man and a woman is indicated here. No one is inferior or superior but complementary to one another.

Saraswatiis the goddess of knowledge, music, art, speech, wisdom, learning,creative work and anything whose flow purifies the essence and self of a person.She helps realize the essence of self.Saraswati is the active energy and power of Brahma.Saraswati symbolizes light, knowledge and truth. She not only embodies knowledge but also the experience of the highest reality. Her four hands represent manas (mind, sense), buddhi (intellect, reasoning), citta (imagination, creativity), and ahamkāra (self consciousness, ego). Brahma represents the abstract, while she represents action and reality.The four hands hold items with symbolic meaning – a pustaka (book or script), a mālā (rosary, garland), a water pot and a musical instrument (vīnā). The book she holds symbolizes the Vedas representing the universal, divine, eternal, and true knowledge as well as all forms of learning. A mālā of crystals, representing the power of meditation, inner reflection, and spirituality. A pot of water represents the purifying power to separate right from wrong, the clean from the unclean, and essence from the inessential. The most famous feature on Saraswati is a musical instrument called a veena, represents all creative arts and sciences, and her holding it symbolizes expressing knowledge that creates harmony.Saraswati is also associated with anurāga, the love for and rhythm of music, which represents all emotions and feelings expressed in speech or music. A mother represents Goddess Saraswati and right from birth to childhood guides the child imparting knowledge and wisdom. She has the power to realize the full potential of the child. She provides insights, guiding the child to understand the right from the wrong. She moulds the child's mind and senses in the desired direction, develops his intellect and reasoning which leads to imagination and creativity. A mother symbolizes love, peace and harmony. She provides all the experiences which help the child understand happiness, value of harmony and love.

Parvati is the Goddess of power, nourishment, harmony, devotion, and motherhood.She is the divine energy between a man and a woman, like the energy of Shiva and Shakti. She is the recreative energy and power of Shiva, and she is the cause of a bond that connects all beings and a means of their spiritual release.Parvati is also the goddess of love and devotion, or Kamakshi; the goddess of fertility, abundance and food/nourishment, or Annapurna. She is also the ferocious Mahakali that wields a sword, wears a garland of severed heads, and protects her devotees and destroys all evil that plagues the world and its beings.Parvati is an active agent of the universe, the power of Shiva. She is expressed in nurturing and benevolent aspects, as well as destructive and ferocious aspects. She is the voice of encouragement, reason, freedom, and strength, as well as of resistance, power, action and retributive justice. This paradox symbolizes her willingness to realign to Pratima (reality) and adapts to the needs of circumstances in her role as the universal mother. Parvati inspires a person to embrace their human strengths and flaws, and utilize them to achieve their highest potential, to live life with their head held up high.

Parvati suggests that the duties of wife and mother are as follows – being of a good disposition, endued with sweet speech, sweet conduct, and sweet features. Her husband is her friend, refuge, and god. She finds happiness in the physical, emotional nourishment and development of her husband and her children. Their happiness is her happiness. She is positive and cheerful even when her husband or her children are angry, she's with them in adversity or sickness. She takes interest in worldly affairs, beyond her husband and family. She is cheerful and humble before family, friends, and relatives; helps them if she can. She welcomes guests, feeds them, and encourages righteous social life. Her family life and her home is her heaven. Parvati's numerous aspects reflect the Hindu belief that the feminine has a universal range of activities, and her gender is not a limiting condition.

A woman's love and affection are her strong points which are elixir for a person's life but in modern days these emotions are considered as her weakness. Her feminine qualities of sacrifice, her soft and graceful behavior are considered her weakness. In today's modern world she is required to prove herself. Femininity has its own essence. It cannot be substituted by Masculinity. Women should not emulate men. Both have their own significance. In the ancient olden days men proved themselves superior as physical strength and prowess put them in the driver's seat. But today in the age of technology, it is no more physical strength; it is mental, intellectual and spiritual strength which are proving their might. Most of the work is done by machines and women are going ahead in most of the coveted fields. Women now are educated and they have stepped out of the house to earn their bread and butter, thus helping the family with an additional income but the household work is not shared by her husband or the in-laws or other members of the house. Hence it is a tight rope walk for her to manage both the ends. Women have proved their mettle but it sometimes takes a toll on their physical and mental health. She cannot discuss her problems with anyone. She has to deal with her challenges single handedly. Many times even the patriarchal societal norms do not allow the woman to have her say. We pray to different Goddesses but when it comes to treating women at home she is given a second grade treatment.

On the other side some women in the metropolitan cities have gone a step ahead and they are misusing the freedom they have received. There individualism, their financial independence have made them forget their basic duty. The whole institution of marriage is dwindling. It is the need of the hour to strike a balance. The women no doubt should be given freedom, it is their fundamental right. It gives them moral, economical support to live a respectable life. Both the husband and wife should work amicably with understanding, sharing and helping one another to do their household chores, raising their children, parents etc.

The Hindu Gods and Goddesses serve as our role models. Every God and Goddess has his or her own sphere. The Gods and their consorts are always shown complementing each and other in their work. The Gods are dynamic and even the Goddesses are dynamic. One is not inferior or superior than the other. Same is with men and women and all living things. This shows the significance of each and every living thing in this universe.

References

https://medium.com/the-red-elephant-foundation/hindu-deities-as-feminist-role-models-1774501af142
https://en.wikipedia.org/wiki/Lakshmi
https://en.wikipedia.org/wiki/Saraswati
https://en.wikipedia.org/wiki/Parvati
https://www.jstor.org/stable/4407322?read-now=1&seq=2#page_scan_tab_contents
https://thediplomat.com/2016/05/in-india-religion-meets-feminism/

B.Aadhar' International Peer-Reviewed Indexed Research Journal

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

The Study Of Government Of India's Efforts For Environmental Protection And Sustainable Development In India

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Abstract:

Environmental protection and development are often considered to be different, even at times, opposites. But the truth is that without bringing them together it is very difficult to meet the current environmental and economic challenges. It is rarely seen that the potential environmental aspects of developmental projects are considered with sufficient sensitivity before they are passed. Environmental impact assessment has been adopted in India only in the year 2006. Along with this, the National Green Tribunal (NGT) and the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) are also in existence. Despite this, developmental projects are being taken up with a one-sided approach. Over the past few decades, many experts have drawn attention to the close relationship between the environment and development. In the indiscriminate race of industrial development, there has been a degradation of the environment on a large scale and there has been widespread destruction of the natural resources available to mankind. In his book, The Limits to Growth published in 1972, D. H. Meades, D. L. Meades, and R. Renders drew attention to the fact that many resources are non-renewable and their current utilization rate is so high that they may be exhausted after a few years or a few decades. Many other subsequent studies have also drawn attention to the dangers of environmental degradation. That's why now the emphasis is on 'environmental protection'. What is the relationship between environment and economic development? Why is environmental protection necessary for sustainable development? What are the efforts being made to protect the environment in India? An attempt has been made to find answers to these questions in the present research.

Keywords: Environmental Protection,Sustainable Development,Environmental andEconomic Challenges, National Green Tribunal

Data Collection Method Used for Research:

This research depends on secondary data like newspapers, books, magazines, reports, and websites.

The Objective of Research:

- To study the relationship between environment and economic development
- To know the reason for the increasing environmental and economic challenges
- To Find out why is environmental protection necessary for sustainable development
- To study the efforts being made to protect the environment in India

Introduction:

Sustainable development was first mentioned in 1980when the International Union for the Conservation of Nature and Natural Resources presented the World Conservation Strategy. In 1987**,** it was defined in the Wertland Report Our Common Future as follows: "Sustainable development means meeting the needs and aspirations of the people in the present in such a way that the ability of future generations to meet their own needs is not affected." There is a very close relationship between environmental protection and development. That is because perhaps our current pattern of development has caused a lot of damage to the environment. But in my view, the protection of the environment is also a new way of trapping us in the web of that aerial development, the real need is to protect the environment. Our priority should be to prevent that problem, not cure it. To understand its role in environmental protection and current development, we also need to understand the GDP-based model in

ISSN : 2278-9308
February, 2022

environmental, social, and economic models of sustainable development, which has been attempted to be explained in detail in subsequent sections. Before this, it is necessary to consider some facts based on environmental protection and development.

In various cities of India, where the problem of environmental pollution is increasing continuously, indiscriminate cutting of trees in the name of developmental activity seems to be a contradictory step. The truth is that the concept of sustainable development without a clean environment is dishonest. Trees are a primary component for proper development. The tree is the link that serves to connect the physical world and the natural world. It is very important for carbon sequestration, production of solar energy, providing a variety of materials for the physical world, as well as for the food chain and biodiversity. Therefore, for sustainable development, along with other components of the environment, the conservation of trees is also essential. The organizing principle to which sustainable development refers, emphasizes the strength of natural resources and ecosystems to provide their services to society and the economy. It encourages the strengthening of systems where human needs are met without affecting the integrity and sustainability of natural resources. Thus, sustainable development refers to such development under which the needs of the future generations are not compromised to meet the needs of the present generation. Apart from this, environmental protection also voluntarily enhances the sustainability of development to some degree or the other. Therefore, it is clear that environmental protection and sustainable development are not only complementary but separate concepts of both give a feeling of incompleteness.

According to the World Development Report 1992**,** environmental problems can hinder the achievement of development goals in two ways: "The first thing is the environmental quality - water that is clean and air that is clean." HO – is part of improving self-welfare which is the goal of development. If rising incomes are accompanied by harmful conditions for health and good life (e.g., by increasing pollution levels) then it is not considered development. Secondly, damage to the environment can hurt productivity in the future. Today, in the race to increase the level of income, there is a huge wastage of resources, which is rapidly reducing the fertility of the land, reducing the water resource reserves. and the environmental environment is degrading rapidly, can have a very bad impact on the income-generating capacity in the future." Therefore, it is necessary to include environmental protection in any comprehensive program of industrial development.

Government of India's Efforts for Environmental Protection and Sustainable Development in India:

As a result of human activities (and especially due to the rapid progress of industrialization), the environment is being severely damaged all over the world. Most of the damage is permanent and cannot be repaired. This is the reason why many questions are now being raised about the sustainability of indiscriminate economic progress. Although it is not possible to make quantitative and monetary estimates of environmental degradation and degeneration, in the last few years such estimates have been prepared for some countries. of Select Environmental Challenges, published in June 2013. This report has estimated that the environmental damage in India was Rs 3.75 lakh crore in 2009, which is equivalent to 5.7 percent of the GDP. In addition, India has also faced natural calamities (e.g., landslides, cyclones, storms, etc.), and the damage caused by these is not included in the figures expressed above. According to the report, India suffered an average loss of Rs 15,000 crore per year at 2009 prices as a result of natural calamities during 1953-2009. In this context, the statement of Jean Dreze and Amartya Sen is important: “We need to take serious note of the neglect of the environment in India and the consequences of that neglect because the economy being damaged by environmental pollution has a significant impact on the livelihood of the people. In fact, due to rapid economic progress in recent years, there has been severe and open plunder of the environment. Groundwater has been negligently extracted in excessive quantity, which has led to many areas in many areas. There has been a drastic fall in the water level of the land. Big and beautiful rivers have now become small sewers. Mining activities (which are often illegal) are spreading rapidly, causing deforestation and large numbers People are displaced in the U.S. Air pollution has increased to such an extent that India is now the most polluted of the 132 countries (for which comparable figures are available). India's natural wealth by value between 1990 and 2008 is 6 percent (more than 30 percent on a per capita basis) has declined. This is only a sign of the destruction to come. Many types of environmental 'shocks' may take more horrific forms in the future, of which we are not aware yet. For example, a plan to build several dams on the Ganges and its tributaries is taking shape, which can have very bad effects on the environment.

The first major Environment Act in India was the Water Conservation and Pollution Control Act passed in 1974. This was the first serious effort towards curbing water pollution. Under the new law, boards were set up at the central and state levels to prevent water pollution. These boards were empowered to take legal action against all those who cause water pollution by violating the law. The Water Cess Act was enacted in 1977 to meet the expenses of these boards, in which it was provided that industries should pay tax on their water consumption. The Central Pollution Control Board has set up 1019 stations nationwide for testing water quality in 27 states and 6 union territories. Testing is done on a monthly and quarterly basis for surface water and twice a year for groundwater. In the National Water Policy, 2002, emphasis was laid on integrated development and management of water resources so that proper use of surface water and groundwater can be ensured, a full-fledged information system can be created, water conservation and demand management can be done, water resources can be provided to the beneficiaries. To motivate, to provide education and training, and to make arrangements for the rehabilitation of the affected people as a result of various schemes. In 1981, a separate act 'The Air Protection and Control of Pollution Act was adopted to control air pollution. By adopting an integrated policy towards pollution, the government has also given this right to the water pollution boards, they can also take action on the issues related to air pollution. Central Pollution Control Board has detected 2,301 medium and large polluting industrial units under 17 highly polluting categories and necessary equipment is being provided to them for pollution control.

The Central Pollution Control Board conducts air quality tests in 28 states and 4 union territories with the help of 308 stations to get accurate air quality estimates based on appropriate parameters, air pollution on public health, and material quality. to prevent its effects; Appropriate conservation and remedial measures can be taken, and information about natural decontamination processes can be obtained. But, as stated by PuranMongia, the regulatory framework established to check water and air pollution proved to be ineffective. As far as the State Pollution Control Boards are concerned. They have always been short of resources. Nor did they have the necessary technical expertise to measure and test pollution. Many of them did not even have laboratory facilities to test water samples, their entire focus was only on the installation of pollution control equipment. If the unit under consideration had installed such a device, the Boards would have been satisfied with this only. He was not concerned with whether these devices were working or not. In addition, the political connections and financial power of the polluters were also impediments to the enforcement of the law12 the legal process often went on for a long time, and eventually, the polluters were let off by paying small fines. As a result of all this, the pollution levels continued to rise and their nature became more complex.

The Bhopal Gas Tragedy taught the government that big industrial establishments would continue to put thousands of lives at risk by the wrongful reckless use of hazardous substances if they were not compelled to exercise due caution in the use of hazardous chemicals and waste. . Keeping this in mind, the government announced the Hazardous Waste Management and Use Rules in 1989. In this regard, the government established the Department of Hazardous Elements Management, which provides for the safe management of hazardous chemicals and elements, plastics, and waste. The Bio-Medical Waste Management and Use Rules were issued in 1998 and amended in 2000 and 2003. Under EIA, such a project or program is assessed which harms the environment. Its objective is to include environmental issues in development activities to achieve sustainable development. In 1978-79 the process of EIA was

ISSN : 2278-9308
February, 2022

introduced in river valley plans and over time it has been expanded into 39 activities divided into eight sections. The environmental impacts are assessed under the BIA Notification 2006 and Coastal Regulation Zone Notification 1991. Worldwide, EIAs are considered essential to determine the desirability of projects on environmental parameters and can be instrumental in maintaining the sustainability of economic development. But industrialists in India see it as a hindrance and a hindrance and some economists also blame it for delays in projects.

Joint Forest Management was started on June 1, 1990, through a release issued by the Ministry of Environment and Forests, under which there was a provision for public participation in the conservation and management of forests, this system has gradually spread and is now 2 crore 20. There are 22.02 million hectares of forest area in 28 states through lakh partners, 1,06,479 societies. The National Afforestation and Eco-Development Board were set up in August 1992 to encourage activities like afforestation, tree plantation, and ecological restoration. NAEB is making special efforts for the rejuvenation of degraded forest areas and adjacent areas, national parks, animal habitat areas, other protected areas, and ecologically vulnerable areas like Western Himalaya, Aravalli, Western Ghats, etc. Habitat change or land-use change, land degradation, and pollution result in the loss of ecological goods and services available for human welfare. In the Biological Diversity Act passed in 2002 and the rules passed in 2004, provision has been made to make estimates of biological diversity and to form state boards and management committees for their sustainable use and conservation. Taxonomy is the science that collects information about living beings and prepares their description and classification. But taxonomy is not limited to this only. A strong taxonomic base is essential for maintaining and properly preserving biological diversity. Under the Biological Diversity Act 2002 and Rules 2004, there is a provision to encourage trained people in this field. The Ministry of Environment and Forests assisted 72 botanical industries during the Tenth Plan and assisted 11 coordination centers and two training centers in various institutions under the Gross India Integrated Project of Taxonomy.

In 1992, the government established the Central Animal School Authority. Since 1985, the Ministry of Environment and Forests has been providing assistance to promote environmental research. The objective of this scheme is to gather information to find out suitable tips, techniques, and methods for better management of the environment. Apart from this, efforts are on resource management, conservation of natural resources, and rejuvenation of degraded areas under this scheme.We now have 2 goals according to environmental protection to achieve sustainable development: the need to preserve the integrity of the ecosystem and the need to protect biodiversity. And everyone's participation is very important to achieve these goals. We are all attached to the delicate system of that earth. It is a matter of committing not only one society or district or state but the countries of the whole world. And both these goals are very different from the economist model.

Now when we look at this development by connecting it to the whole system, then we have to include the social point of view as well. Environmental damage is also increased by increasing poverty, or by harming the livelihood of villagers. The main reason for this is that the displaced family creates more pressure on the forests, animals, and marginal areas. It hurts women and consequently affects the physical and mental development of children. In such a situation, social justice becomes more important than social equity and gender equity- intergenerational equity because it is a question of our today more than yesterday. For sustainable development, it is not enough to understand or discuss only from the point of view of the economist model, ecologist model, and social model. It is completely dependent on our morality, spirit, our education system, and on a large scale administrative and political will also. We desperately need to ensure food security with the development of renewable energy and modifications in the agriculture sector. The protection of forests should be given priority and administrative efforts will also have to be made on the need to protect and connect small forests as a habitat of biodiversity. Technology should be used to minimize environmental impacts and cause minimum damage to resources. We have to empower small administrative institutions like Panchayat/Gram Sabha for the overall development of the villagers and there is no misuse or over-exploitation of resources.

Conclusion:

It is clear from the research that many laws have been passed in India for environmental protection. But, as acknowledged in the National Environment Policy, 2006 itself, "Any policy is only as good as its implementation."8 The biggest drawback concerning environmental laws is the laxity in their implementation. India has weak institutions, excessive corruption, and no well-developed social norms. In such an environment, it is difficult to formulate and implement policies that are against the vested interests of industries, administration, or politicians. Efforts to curb climate pollution in India have failed because the polluters with the help of their financial power and political reach have thwarted them. Almost the same was the case with other laws related to the environment as well.

References:

Books:

1) C. M. Lakshmana,Sustainable Development and Environmental Protection,Bookwell Publications (2016)
2) Sandhya Gihar, Manoj Saxena, Environmental Protection and Sustainable Development,A. Publisher (2015)
3) Natalia Ciecierska-Holmes, Kirsten Jörgensen, Lana Laura Ollier, Environmental Policy in India (Routledge Studies in Environmental Policy),Routeledge; 1st edition (2019)
4) Aalok Ranjan Chaurasia,Population and Sustainable Development in India,Springer; (2019)

Newspaper:*Lokmat, Times of India, Navbhart.*

Websites:

- https://msme.gov.in/sites/default/files/EnvironmentalSocialAssessmentRAMP.pdf
- https://en.unesco.org/sites/default/files/unsdf_india_*2018-2022*.pdf
- https://www.mse.ac.in/wp-content/uploads/*2016/09/*op_sankar.pdf
- https://www.mca.gov.in/Ministry/pdf/DraftNationalGuidelines*2018_20062018*.pdf
- https://www.toppr.com/guides/economics/environment-and-sustainable-development/environment-and-sustainable-development-in-india/
- https://www.jagranjosh.com/current-affairs/sustainable-development-and-india-*1503408725-1*
- http://bgc.ac.in/pdf/study-material/BSc-Geography-Hons-SEM*4*-NATIONAL-ENVIRONMENT-POLICY.pdf
- https://csd.iitgn.ac.in/resources/
- https://powermin.gov.in/en/content/protection-environment
- https://www.mygov.in/*48*months/articles/combining-sustainable-development-with-environmental-protection/index.html
- https://pib.gov.in/Pressreleaseshare.aspx?PRID=*1577014*
- https://www.careerlauncher.com/rbi-grade-b/sustainable-development-and-environmental-issues/

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

GST Benefits And Challenges In India

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Introduction

GST is known as the Goods and Services Tax .it is an Indirect tax which has replaced many Indirect taxes in India such as the excise duty, VAT, Services tax etc. The Goods and Service Tax Act was passed in the parliament on 29th March 2017 and came into effect on 1stJuly 2017 in other words, Goods and Service Tax (GST) is levied on the supply of goods and services. Goods and Services Tax Law in India is a comprehensive, Multi-Stage, destination –based tax that is levied on every value addition .GST is a single domestic Indirect law for the entire country GST is among the biggest reforms in the taxation system of India .it bring benefits to all the stakeholders viz .Industry, government and the citizens. It is expected to lower the cost of goods and services, boost the economy and make our products and services globally competitive .GST will make India a common national market with uniform tax rates and procedures and removes the economics barriers ,thereby paving the way for an integrated economy at the national level .By subsuming most of the central and state indirect taxes into a single tax and by allowing a set –off of prior –stage taxes for the transactions across the entire value chain .this paper study GST Structure ,benefits and challenges etc. .

Key ward – Tax Structure, GST, Benefits, challenges

Research Methodology: - The study mainly based on secondary data which is collected from different sources like journals, newspaper websites, reports of various agenciesetc.

Tax Structure in India: Taxation in India is majorly divided into central and state Government taxes

Direct Tax	Indirect Tax
Income tax, Capital Gains tax, Corporate Tax	Service Tax, Indian Excise Duty, Value AddedTax, CustomsDuty, SecuritiesTransaction tax, StampDuty, Entertainment Tax.

with two types of

Source: Canarahsbclife.com

This chart shows there are two types of taxes in India direct and indirect tax .the direct tax includes income tax, capital Gains tax, and corporate tax .while indirect tax includes value –added tax, service tax, customs duty etc.

India has got a well-structured and simplified taxation system, wherein an authoritative Segregation has been done among the Central Government, the different State Governments

As well as the Local Bodies.. But many disadvantages create in direct and indirect tax .incidents of double taxation and cascading effect, very high after tax prices for goods and services. This situation GST helpsto remove the complexity and hurdles towards participation in nationwide Markets for businesses. For the individuals GST made the goods and services cheaper, while making taxation transparent and easy for sellers.

GST Structure in India

The One Hundred and First Amendment of the Constitution of India, officially known as TheConstitution (One Hundred and First Amendment) Act, 2016, introduced a national Goodstand

Services Tax in India from 1 April 2017. The GST is a Value added Tax (VAT) and isProposedtobe a comprehensive indirect tax levy on manufacture, sale and consumption ofgoods as well as services at the national level. It will replace all indirect taxes.

Types of GST

Central GST	customs duty ,excise duty, central sales tax, service tax
State GST	Vat, luxury tax, purchase tax, entertainment tax, entry tax.
IGST	Between two different states or a states and a union territory ,inter sate movement
UGST	Stand for union territory GST

Source –bankbazaar.com

There are four types' namely integrated goods and services Tax. In India, almost 500+ services and Over 1300 Product fall under the 4 major GST Slabs. These comprise rates of 5 %, 12%,18% and 25% the GST Council periodically revises the items under each slab rate to adjust them according to industry demands and market trends .

Listof major items under the GST slab rate

5%	12%	18%	28%
Goods 1.Edibles like– Spices,oil,pizza bread,coffee,sugar,cashew nuts, frozen vegetables 2.Fuel like- coal, biogas 3.Fertilizers 4.Life –saving medicines and drugs 5.Handmade items like-Carpets, Gabba/Namda, Braids, ornaments 6.marble rubble Services 1.Aircraft 2. takeaway food 3.Crude and petroleum products transport 4.Economy Class fights tickets	Goods 1.Processed food-Frozen meat,sauces,ketchup, 2. Dairy Products 3. Dry fruits and nuts like almonds 4.packaged products 5.sewing machines 6. fixed speed diesel engines 7. containers 8.photographs 9.diagnostic kits Services 1.Business class flight tickets 2.movie tickets worth less than Rs100	Goods 1.Eatables – Mineral water,pasta,Biscuite,cornflakes,preserved vegetables, cocoa butter, ice cream,chocolate, 2.Capital goods- Plastic tarpaulin,Salt – Glazed stoneware pipes,jute,artificial plastic.Aluminium foil,ball bearing ,helments and helmet parts. 3.houseshed products Hair oil,shampoo,Toothpaste, detergent,room deodorisers,mattress,Furniture 4.perfume 5.cosmetic	Goods Without cess 1.Eatables -Aerated water,insant cofe, custard powder,sugar syrups,molasses 2.ATM vending machine 3. Air conditioners 4.yachts 5.Aircrafts 6.TV monitors over 32 inches With cess Caffeinated beverages,tobacco and tobacco products,pan

5.Newspaper printing 6.Tailoring 7.Restaurants –turnover 50 lakh	3. Mining and drilling of natural gas 4.chit fund services 5.Railway coaches,wagons, or rolling stock sans refund of ITC	preparations 6.Electrical and electronice appliances 7.dental wax 8.Stationary Services 1.Hotel accommodation bill equal to or above rs 7500 2.Telecom and IT Services 3.Outdoor catering 4.Performance arts 5.Party arrangements	masala and guthkha, Fual – Petrol,LPG,CNG, motorised vehicles. Services Five star hotel services, gambling,go-karting,ballet,racing club services, casinos, Entartainment services,sports events .

Source-https://www.godigst.com

GST Revenue - the gross GST revenue collected in month of December 2021 is RS 1,29,780 crore of which CGSTis Rs 22,578 crore ,SGST is Rs 28,658 crore ,IGSTis Rs 69,155 crore and cess is Rs 9,389 crore .the revenues for the month of December 2021 are 13% higher than the GST revenues in the same month last year and 26 % higher than the GSTrevenues in December 2019.

Benefits: GST is beneficial not only for the business and industry, but also for the government and consumers. Here, we bring the ten benefits of Goods and Service Tax (GST).

1.GST is a transparent tax and also reduces number of indirect taxes.

2.GST will not be a cost to registered retailers therefore there will be no hidden taxes and the cost of doing business will be lower.

3.Benefit people as prices will come down which in turn will help companies as consumption will increase.

4.GST will be imposed only at the end destination of consumption centered on VAT value and not at several point .it will help in removing economic falsifications and bring about increase of a common market.

5.GST will also help to build a clear and fraud free tax administration

Challenges: GST will be the biggest reform in Indianss taxation but various challenges has been estimated for its successful implementation.

1.The understanding og GST by regarding its provisions and its impact on their business is still at emerging stages ,and still many are finding the locations and places they need to be registered in.

2.Various provisions of GST are still ambiguous .classification of goods and services in various case is still not clear .provision anti profiting as well as the now deferred e-way bill, which tracks consignments across states are unclear.

3.Various businesses are not yet map the accounting software and IT system in concern with the new tax provisions, to create an invoices of GST, and abstract required reports.

4.Staff with perfect required skill with efficient GST knowledge and their training subject are not easily available.

5.GST has received criticism for being called a Disability Tax as it now taxes articles such as braille paper wheelchairs, hearing aid etc.

6.Petrol is not under on GST, which goes against the ideals of unification of commodities.

Conclusion:. GST will give a major boost to the Make in India Initiative of the government by making goods and services tax.GST willBring One Nation and One Tax market GST will be beneficial with more transparency, efficient compliance ramp up in GDP growth to the centre, states, industrialists, manufacturers, the common man and the country.

References:

1.Hitesh lakhmani, A study on implementation of goods and services tax (GST) in India: Prospectus and challenges,International Journal of Applied Research 2017; 3(1): 626-629

2. https://www.godigst.com

3. Dr.Chandu Ravi Kumar,GST in Indian Economy: Its Benefits and impact, International Journal of science and Research (IJSR) 2015, 2319-7064

4.Monika Sahrawat and Upasana dhanda, International Journal of Research Granthalaya 2015, 2394-3629

5.Amar ranjan dey, GST:Its impact on comman man in india InternationalJournal of Management 2020,vol .7 no 3 6-12

6.Dr Manish Shinde,A study of impact and challenges of GST on Various Constituents of Indian Economy ,www.ijrar.org 2019,vol.9,no1,2349-5138

7. bankbazaar.com

8. https://www.edupristine.com

9. http://www.plb.gov in /press release page.aspxPRID=1793877

Disaster Management:Risk Reduction and Preparedness planstudy

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Abstract:

Disaster management is how we deal with the human, material, economic or ecological impacts of disaster, it is the process of how we prepare for, respond to and learn from the effects of major failures. Though often caused by nature, disasters can have human origins. According to the International Federation of Red Cross & Red Crescent Societies a disaster occurs when a hazard impacts on vulnerable people. The United Nations Office for Disaster Risk Reduction characterizes Natural Disasters in relation to their magnitude or intensity, speed of onset, duration and area of extent e.g. earthquakes are of short duration and usually affect a relatively small region whereas droughts are slow to develop and fade away and often affect large regions.Any type of disasters can result from multiple hazards, or, more often, to a complex combination of both natural and man-made causes which involve a break-down of authority, prowling and attacks on strategic connections, including conflict situations. The current COVID 19 Pandemic that we are facing, affectswidespread human, material, economic or environmental. Conducted survey Observed thefrequencies of types of disasters, opinion about risk reduction and preparedness.

Keywords- Disaster Management, Disaster types Risk Reduction, Preparednessplan

Introduction

The Word Disaster's root is from astrology. This implies that when the stars are in a bad position a bad events will Happen. It is a sudden, calamities event bringing great damage, loss, destruction and devastation to life and property. The example is COVID 19that completely disrupts the normal day to day life, ill effects on human's healthand influencedon emotional, mental and social aspects. Disaster, as defined by the United Nations, is a serious disruption of the functioning of a community or society, which involves widespread human, material, economic or environmental impacts that exceed the ability of the affected community or society to cope using its own resource.Minimization of loss of life and damage to property through facilitation of effective disaster response and rehabilitation services when required. Preparedness is the main way of reducing the impact of disasters. Community-based preparedness and management should be a high priority in physical therapy practice management. Institutional arrangements for disaster response are the heart of disaster management. According to the report of UNDRC about 90% of the reported natural disaster occurs in developing countries and natural disaster do not know any political or economic boundary and consideratio

Reviews

1.According to the International Federation of Red Cross & Red Crescent Societies Natural Disasters are naturally occurring physical phenomena caused either by rapid or slow onset events that have immediate impacts on human health and secondary impacts causing further death and suffering.

2. According to ICRC, Disaster Preparedness refers to measures taken to prepare for and reduce the effects of disasters, be they natural or man-made. This is achieved through research and planning in order to try to predict areas or regions that may be at risk of disaster and where possible prevent these from occurring and/or reduce the impact those disasters on the vulnerable populations that may be affected so they can effectively cope.

3. Disaster preparedness activities embedded with risk reduction measures can prevent disaster situations and also result in saving maximum lives and livelihoods during any disaster situation, enabling the affected population to get back to normalcy within a short time period.

4. The provision of emergency services and public assistance during or immediately after a disaster in order to save lives reduces health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

5.According to ICRC these Complex Emergencies are typically characterized by Extensive Violence Displacements of Populations Loss of Life Widespread Damage to both Societies and Economies Need for Large-scale, Humanitarian Assistance across Multiple Agencies Political and Military Constraints which impact or prevent Humanitarian Assistance Increased Security Risks for Humanitarian Relief Workers Pandemic Emergencies."The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions

Objectives of the study-

- To read the types of Disaster
- To study strategy for disaster management
- To know preparedness plan for Disaster.Types of Disaster-Generally Disaster are two types-Natural and manmade. These are further classified into major and minor. Some are listed below-

Types of Disaster

Natural Disaster	**Manmade Disaster**
Flood	Setting of Fire
Cyclone	Epidemic
Drought	Deforestation
Earthquake	Pollution
	Wars
Minor	**Minor**
Cold waves	Accidents
Thunderstorms	Food poisoning
Heat waves	Industrial Disaster
Mud slides	Environmental Pollution
Storms	

Methodology-Considering the selected items,50 responses are recorded from the respondents age group among 30 to 55 about frequencies of types of disasters, Hazards of disasters, and preparedness plans of coming in future disasters. Obtained data are analyzed and arranged in tables and draw a results on it.

Table No 1

Distribution of frequencies of types of disasters

Types of disaster	In one year	After 2 year	After 3 year	After 5 year	Not know
Natural	12(24 %)	00	00	00	38(76%)
Manmade	00	00	00	00	50(100%)

Discussion-Above table number 1 and Fig-1 Graphical representation of frequencies of types of disasters reveals that only 24 percent responses recorded to natural disaster occurs in one year and 76percent responses recorded to not know options. With regards to manmade 100 percent responses recorded to not knowing or it occurs on any time.

Table No 2

Distribution of responses regarding to hazards of disasters

Hazards	**Natural**		**Manmade**	
	No	**Percent**	**No**	**Percent**
Environmental Degradation	47	94	49	98
Infrastructure Affected	41	82	11	22
Crop and food suppliers	49	98	09	18
Financial	44	88	27	54
Causality and Public health	48	96	36	72
Communication	43	86	21	42
Transport	36	72	11	22
Food shortage	47	94	13	26

Fig No 2: Graphical Distribution of responses regarding to hazards of disasters

Result and discussion:1.The table no 2 andGraphicaldistribution of responses regarding to hazards of disasters shows that above 90 % responses occurs to Environmental Degradation, Crop and food suppliers, Causality and Public health and Food shortage,above 80 % responses occurs toInfrastructure Affected,Financialand Communicationand above 70 percent responses recorded for transport with respect to natural disaster.

2. With respect to Manmade disaster, study shows that 98% responses occurs to Environmental Degradation, 72 % forCausality and Public health54 % forFinancial, 42 % for Communication, and low percent recorded to Infrastructure Affected, Crop and food suppliers, Food shortage, and transport that is 22%, 18%,22% and 22%.

Table No 3 –

Distribution of opinions and suggestions regarding preparedness plan of disasters

Opinions and Suggestions regarding preparedness plan	Distribution	
	No	Percent
Awareness from School Level	40	80
Education and Awareness	44	88
Information Pamphlet	22	44
Mitigation and Disaster	44	88
Management plan	49	98
Coordination	43	86
Capacity and Administrative plan	43	86
Training force	47	94
Notification Health and Economy	44	88
Cities readiness	50	100
Finance management and Accounting	40	80
Hospital Leadership	45	90
Alertness and strong communication	48	96
Food storage	44	88

Result and discussion: The table no 3 and Fig 3 Graphical distribution of responses regarding to preparedness plan shows that above 100 % responses occurs to cities readiness, 90 and above 90 % responses obtained to Hospital Leadership, Alertness and strong Training force communication and Management plan, 80 and above 80 % responses obtained to Awareness from School Level, Mitigation and Disaster, Coordination, Capacity and Administrative plan, Notification Health and Economy, and Food storage. Low percentage that is the 44 % obtained to Information Pamphlet response.

Conclusion-UNISDR views Disaster Prevention as the concept of engaging in activities which intend to prevent or avoid potential adverse impacts through action taken in advance, activities designed to provide protection from the occurrence of disasters. WCPT similarly highlight that while not all disasters can be prevented, good risk management, evacuation plans, environmental planning and design standards can reduce risk of loss of life and injury mitigation. The HYOGO Framework was one such Global Plan for natural Disaster Risk Reduction, which was adopted in 2005 as a 10 year Global Plan, signed by agreement with 168 Governments which offered guiding principles, priorities for action and practical means for achieving disaster resilience for vulnerable communities.

Recommendation-Coordination is to be multi-agency response will vital to stage of Disaster Management in order to reduce the impact of a disaster and its long-term results with relief activities including Save, Rearrangement, Supply of Food and Water, Emergency Health Care and

ISSN : 2278-9308
February, 2022

Rehabilitation, Vigorous Services e.g. Telecommunications, Transport, arrangement of temporary shelter, Rebuilding Infrastructure, etc. Rescue from immediate threat and maintenance of the physical and emotional condition of survivors is the primary aims of disaster /relief, which go hand in hand with the recovery and Works with the Media time to time. The present result show the same responses occurring by the respondents.

References

1. Bose B.C.(2007)Disaster Management in 21st century, Rajat publication Delhi.
2. International Federation of Red Cross and Red Crescent Societies. (Jan 2017)Types of Disasters. http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/definition-of-hazard/. Ac
3. Khupse M.S.(2015)Disaster Management-Issues and Challenge. Publish by Chandralok Prakashan.
4. https://publichealth.tulane.edu/blog/what-is-disaster-management/ ArticleSept2021What Is Disaster Management? Understanding Emergencies From Prevention to Mitigation

B.Aadhar' **International Peer-Reviewed Indexed Research Journal**

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

A Study on Status of Agriculture Sector in Modern India

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Abstract :

Agriculture is the backbone of Indian economy. Over 60 % of India's land area is arable making it the second largest country in terms of total arable land. Though, with the growth of other sectors, the overall share of agriculture on GDP of the country has decreased. Still, Agriculture continues to play a dominant part in the overall economic scenario of India, because agriculture is the basic occupation for majority of main-workers in India. A large number of rural women are also engaged in agriculture. Hence it is very needful to identify the profitable opportunities to this business and to take advantages of number of unidentified opportunities, a research is a dire need of our economy.

This research paper focuses to contribute to a broader understanding of the role of agriculture sector in modern India. It has become a requirement of our economy for countering various problems regarding particularly with a rural population.

Key Words : Agriculture, Indian economy.

A Study on Status of Agriculture Sector in Modern India

Introduction :

Agriculture is the most important occupation for most of the Indian families India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and fisheries accounted for 19.9 % of the GDP in 2020-21, about 50% of the total workforce. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. India is the world's largest producer of many fresh fruits and vegetables, milk, major spices, meats, select fibrous crops such as jute, millets and castor oil seed. India is the second largest producer of wheat and rice, the world's major food staples. India is also the world's second or third largest producer of several dry fruits, agriculture-based textile, raw materials, roots and tuber crops, pulses, farmed fish, eggs, coconut, sugarcane and numerous vegetables. India is also one of the world's five largest producers of livestock and poultry meat.

Objectives of Study :

The following are the objectives of study :

1. To study the agriculture sector of Indian economy.
2. To study the policies of government and agricultural productivity in India.
3. To suggest measures to promote the agriculture sector.

Research Methodology :

The research under study is exploratory in nature and the sources of data are secondary data (inclusive of qualitative and quantitative data) collected from research paper/case studies, published reports, newspapers, and related websites. Thus widespread secondary data sources had been used for this research of the recent period.

Agriculture Policy:

Since independence in 1947, India has made immense efforts towards food security. Indian population has almost quadrupled, and food-grain production increased up 5 fold in 65 years, thus it witnessed substantial increase in available food-grain per capita. Prior to the mid-1960s India relied on imports and food aid to meet domestic requirements. However, two years of severe drought in 1965 and

1966 convinced India to reform its agricultural policy, and that India could not rely on foreign aid and foreign imports for food security. India adopted significant policy name Green Revolution. It began with the decision to adopt superior yielding, disease resistant wheat varieties in combination with better farming knowledge to improve productivity. The initial increase in production was centered on the irrigated areas of the Indian states of Punjab, Haryana and western Uttar Pradesh. With both the farmers and the government officials focusing on farm productivity and knowledge transfer, India's total food grain production soared. A hectare of Indian wheat farms that produced an average of 0.8 tons in1948 produced 4.7 tons of wheat in 1975 from the same land. Such rapid growths in farm productivity enabled India to become self-sufficient by the 1970s. It also empowered the smallholder farmers to seek further means to increase food staples produced per hectare.

Since irrigation infrastructure was very poor, Indian farmer innovated with tube-wells, to harvest ground water. When gains from the new technology reached their limits in the states of initial adoption, the technology spread in the 1970s and 1980s to the states of eastern India — Bihar, Orissa and West Bengal. The lasting benefits of the improved seeds and new technology extended principally to the irrigated areas which account for about one-third of the harvested crop area. In the 1980s, Indian agriculture policy shifted to "evolution of a production pattern in line with the demand pattern" leading to a shift in emphasis to other agricultural commodities like oilseed, fruit and vegetables. Farmers began adopting improved methods to meet the diversified food needs of India's growing population.

Current Status of Agriculture Sector:

As per Economic Survey, in 2020-21, Indian agricultural sector, recorded about 20 percent of gross domestic product (GDP) for the first time in the last 17 years while the total agriculture commodities export was US $ 17.19 billion between March 2020 and February 2021, in the face of adversities agriculture is the only sector to have registered a positive growth of 3.4 per cent at constant prices in 2020-21, when other sectors slid. No doubt, the growth in agricultural exports, despite pandemic disruptions, has been driven by the government’s policy-level interventions as well as the expansion of products into new markets, It is noteworthy that the sector clocked 9.5 per cent GDP growth, after the severe drought of 2002 when the growth rate was negative. The agricultural sector is also important because in agriculture imports component (unlike the Service and Manufacturing), is negligible since basic resources such as sunlight, land, water, labour, etc are all available in the country.

In terms of agricultural land, India's arable land area of 159.7 million hectares (394.6 million acres) is the second largest in the world, after the United States. Its gross irrigated crop area of 82.6 million hectares (215.6 million acres) is the largest in the world. India has grown to become among the top three global producers of a broad range of crops, including wheat, rice, pulses, cotton, peanuts, fruits, and vegetables. Worldwide, as of 2011, India had the largest herds of buffalo and cattle, is the largest producer of milk, and has one of the largest and fastest growing poultry industries. Additionally, despite these gains in farm productivity, losses after harvest due to poor infrastructure and unorganized retail cause India to experience some of the highest food losses in the world.

Weaknesses of Agriculture Sector:

Indian agriculture includes a mix of traditional to modern farming techniques. India lacks cold storage facility, food packaging as well as safe and efficient rural transport system. This causes one of the world's highest food spoilage rates, particularly during Indian monsoons and other adverse weather conditions. Food travels to the Indian consumer through a slow and inefficient chain of traders. Indian consumers buy agricultural produce in suburban markets known as 'sabzi-mandi' such as one shown or from roadside vendors. Another fact is that the slow agricultural growth is a concern for policymakers as some two-thirds of India’s people depend on rural employment for a living. Current agricultural practices are neither economically nor environmentally sustainable and India's yields for many agricultural commodities are low. Poorly maintained irrigation systems and almost universal lack of good extension services are among the factors responsible. Farmers' access to markets is hampered by poor roads, rudimentary market infrastructure. etc.,

The another weakness in Indian agriculture is the low growth rates which constitute in part a response to inadequate returns to Indian farmers. India has very poor rural roads affecting timely supply of inputs and timely transfer of outputs from Indian farms, inadequate irrigation systems, crop failures in some parts of the country because of lack of water while in other parts because of regional floods, poor seed quality and inefficient farming practices in certain parts of India, lack of cold storage and harvest spoilage causing over 30% of farmer's produce going to waste. The Indian farmer receives just 10 to 23 percent of the price the Indian consumer pays for exactly the same produce, the difference going to losses, inefficiencies and middlemen traders. Farmers in developed economies of Europe and the United States, in contrast, receive 64 to 81 percent of the price the local consumer pays for exactly the same produce in their supermarkets.

Even though, India has shown remarkable progress in recent years and has attained self-sufficiency in food staples, the productivity of Indian farms for the same crop is very low compared to farms in Brazil, the United States, France and other nations. Indian wheat farms, for example, produce about a third of wheat per hectare per year in contrast with wheat farms in France. Indian total factor productivity growth remains below 2 percent per annum; in contrast, China has shown total factor productivity growths of about 6 percent per annum, even though China too has smallholding farmers. If India could adopt technologies and improve its infrastructure, several studies suggest India could eradicate hunger and malnutrition within India, and be a major source of food for the world. No single state of India is best in every crop. Indian states such as Tamil Nadu achieve highest yields in rice and sugarcane, Haryana enjoys the highest yields in wheat and coarse grains, Karnataka does well in cotton, while other states do well in horticulture, aquaculture, flower and fruit plantations. This difference in agricultural productivity within India is a function of local infrastructure, soil quality, micro-climates, local resources, farmer knowledge and innovations. However, one of the serious problems in India is the lack of rural road network, storage, logistics network, and efficient retail to allow free flow of farm produce from most productive but distant Indian farms to Indian consumers. Indian retail system is highly inefficient. Movement of agricultural produce within India is heavily and overly regulated, with inter-state and even inter-district restrictions on marketing and movement of agricultural goods.

Measures to Promote Agriculture Sector:

1. Promotion of agri-preneurship & agro-based industry should be accelerated.
2. Villages and farmlands should be linked with market through Transport Facilities.
3. Irrigation facilities should be developed.
4. Training for usage of technology in Agriculture.
5. Availability of timely institutional credit at cheap rates.
6. Provision of marketing infrastructure & price support policy.
7. Availability of high productive seeds.
8. Consolidation of cultivable land by applying methods of cooperative or contract farming.
9. Reduction in dependency of population on Agriculture.

Conclusion:

India is mainly an agricultural country, but the lasting benefits of agricultural policy now largely depends on whether modern India develops infrastructure such as irrigation network and reducing **excessive dependence on rain water for irrigation,** flood control systems, reliable electricity production capacity, all season rural and urban highways, cold storage and **adequate marketing infrastructure** to prevent food spoilage, modern retail, and competitive buyers of produce from the Indian farmer. Therefore Indian agricultural policy should best focus on improving rural infrastructure, availability of **training for adoption of technology in agriculture for balanced development of India.**

References :

1.Alagh, Y.K. (2006), "Indian Economic Strategies After Doha" in Radhakrishna, R, S.K. Rao, S.MahendraDev and K.Subbarao (2006 eds.), *India in a Globalising World: Some Aspects of Macroeconomy, Agriculture and Poverty*, Essays in honour of C.H. HanumanthaRao, Academic Foundation .

2.Bhalla, G.S. (1995), "Globalization and Agricultural Policy in India", *Indian Journal of Agricultural Economics*, Vol.50, No.1

3.Bhattacharya, B.B. (2003), "Trade Liberalization and Agricultural Price Policy in India Since Reforms", *Indian Journal of Agricultural Economics*, Vol.58, No.3

4.GOI (2008), *Expert Group on Financial Inclusion*, Chaired by Dr. C.Rangarajan, Government of India

5.Gulati, Ashok (2009), "Emerging Trends in Indian Agriculture: What can we learn from these?" 2nd Prof. DayanathJha Memorial Lecture, National Centre for Agricultural Economics and Policy Research, New Delhi.

6.Joshi P K and A. Gulati (2003), *'From Plate to Plough: Agricultural Diversification in India'*, Paper presented at the Dragon and Elephant: A Comparative Study of Economic and Agricultural Reforms in China and India", New Delhi, India, March 25-26.

7. Singh, Manmohan (1995), "Inaugural Address", *Indian Journal of Agricultural Economics*, Vol.50, No.1.

8.Swaminathan, M.S. (2007), *Agriculture Can not Wait: New Horizons in Indian Agriculture*, Academic Foundation, National Academy of Agricultural Sciences.

9. http://statisticstimes.com/economy/sectorwise-gdp

10.www.economicsdiscussion.net

11.https://www.weforum.org

12. https://www.downtoearth.org.in/news/agriculture/agri-share-in-gdp-hit-20-after-17-years-economic-survey-75271

13. https://www.ibef.org › Exports

14. https://www.business-standard.com/article/economy-policy/india-s-agriculture-exports-jump-17-34-to-41-25-billion-in-fy21-121061001623_1.html

ISSN : 2278-9308
February, 2022

Effect of Digitization on Indian Economy: An Employment Perspective

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Abstract –

In India, increasing internet penetration, rapid technology adoption and high sale of technical gadgets like smart phones, tablets, etc, have led to an attractive online customer base and unprecedented growth of Digitization. Digitization being a key economic driver in the present world it is important to integrate the economy by creating digital markets. Firms, prices and productivity are the three benefits derived by an economy. The use of internet in business showed profitability is increased by 9% on an average across countries. Internet related business contributes 4.2% towards Indian GDP. The paper discusses the different countries' digital contribution and the employment created with the digitization growth. The development of SMEs would be major source of employment and important contributor for internet business. Finally importance of execution and monitoring of digital growth has also been discussed. The Purpose of the paper is to study the impact of digitization on economic growth and its potential for creating employment opportunities. Due to COVID-19 period there is increase as well as rapid growth of digitalization on economic growth.

The basic plan of digitization is to form full use of ICT facilities for accessing worldwide resources and useful for society at identical time. As going digital is that the want of the hour, to stay surroundings healthy and safe. Varied organizations area unit concerned in digitizing their material as a result of they continue to be influenced of the enduring price of such resources for learning. Digitization additionally raises the name of the establishments as international users will grasp the institutional assortment and utilize these resources from distant locations. The main reasons to digitalize area unit to boost access and improve preservation. By digitizing their assortment, establishments will create data accessible that was antecedently solely accessible to a pick cluster of users. Digitization can even facilitate preserve materials creating high-quality digital pictures accessible electronically and will cut back wear and tear on brittle and fragile documents. The results of the developments within the technicalities of data and Communication Technology introduce the idea of digitization. The transformation from print to digital media for communication of data to the larger community is resulted from the expansion of the net and currently permits the tremendous quantity of data accessible to everybody. By the method of digitization, data to an ever larger quantity is being made, processed, communicated and preserved digitally. The social science associated with the idea of digitization is two-fold. Theprimary one, however economic is that the method of digitization and second, its impact on the economy of the country

1.1Literature Review -

Digitalization and its Impact on Economy Saima Khan, Dr.Shazia Khan, MohsinaAftab (2015). Digital conversion of print sources has improved speedily within the past few years. Conversion is that the social transformation started by the large adoption of digital technologies to come up with, process, share and manage digital info. Conversion is a comprehensive technique of preservation and access by that all the institution's assets are reworked into digital and making high-quality copies in digital format.
GDP, FDI. Digitization: It's Impact on Economic Development and Trade MoinakMaiti, ParthajitKayal (2018) the performance of the services sector improved considerably since 2000 ahead. Development in IT and ITES modify and automatic the business method. This resulted in overall improvement in each producing and services sectors. India's service sector and MSME phase have the high potential for future

growth with digitization. The comprehensive growth of each India's services sector and MSME phase will provides a boost to the degree of trade and India's share with the assistance of digitization.

Money Impact of Digitalization in Economy and the effects of Demonetization on. Dr.MansiShukla, Ms.Shilpi Bose (2016). The digitalization is not simply regarding concerning the business dealing from face to face to on-line, however it's concerning transformation of several sides of the business interactions and dealings and fragmented up into innovations too. Growing technology advances, larger purchaser power and increased competition mean all industries face the threat of development. India stands on the sting of growth in web and e-commerce activity. The digital economy has modified the operating of business in today's world.

Digital India, Financial Literacy, Impact of Digitalization on the Indian Economy and Requirement of Financial Literacy MrinaliniKaul,PurviMathur (2017) Impact of digitalization on a country may be assessed on the idea of its impact on the government on the economy and therefore the society. We have seen a significant amendment in each sector with the emergence of digitalization. The digitalization has created new job opportunities, have led to innovation in terribly sector and conjointly led to the expansion of the economy i.e. have helped within the gross domestic product growth of the country.

Emergence of digitization followed by proliferation of ecommerce has profound impact on the productivity and socio economic standard of the society. Evolution of technology and associated information and knowledge help establish society's production capacity and standard of living which are decisive to the economic growth of the nation. Being a global concept, digitization has prominent impact on economic growth and employment of any nation. In a study, digitization index have been linked to higher growth and employment with increasing returns to scale. Human capital is a key component to the impact of digitization. In order to take advantage of E-commerce business, there has to be a proper business model as well as other strategies so that the business is sustainable and provides economic growth. Domestic policies regarding telecommunication, financial services and distribution and delivery would provide inputs for E-commerce trade related negotiations. Researches show developing economies has more possibilities of gaining advantages of E-commerce than the developed economies as developing economies have wider scope of reducing inefficiencies and increase production. Indian economy has seen unprecedented growth of E-commerce in the last 5 years. Increasing internet penetration, rapid technology adoption and high sale of technical gadgets like smart phones, tablets, etc, have led to an attractive online customer base. Digitization has brought social transformation in the life of common Indians. The present government has taken up an initiative called "Digital India" for modernization of the society that will connect every corner of the country. However the effect of digitization at macro level in Indian economy is yet to be revealed. With the enormous benefits of digitization come political challenges for the policymakers to set the stage for seamless digitization. Studies reveal that use of internet by Indian SMEs would fetch 30% more revenue and 36% higher employment.

1.**2 Objective of the present study** -

The objective of the paper is to seek answers to how digitization is fostering economic growth of the nations, what is the contribution of internet and E-commerce towards the GDP of a country, what type of employment opportunities are created by digitization in particular and how these opportunities could be leveraged in India. Due to rapid growth of smart phone and internet each and every one is very aware about the digitalization.

1.**3 Research Methodology**-

The methodology is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identifies the methods to be used in it. These methods, described in the methodology, define the means or modes of data collection or, sometimes, how a specific result is to be calculated. Research methodology is the specific procedures or techniques used to identify, select,

ISSN : 2278-9308
February, 2022

process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. This study attempts to explain the How the empowering Indian citizen through technology in Digitalization Era. For this study researcher used descriptive type of research. The major purpose of descriptive research is description of the state of affairs as it exists at present. It is based on secondary data that is collected through different sources like various publication of the local, state and national level, E-governance Report, newspaper, Magazines, Periodicals, Internet, Government websites, journals E-literature and books etc

1.**4 Effect of Digitization** -

E-commerce boom and Employment opportunities. Both developed and developing economies are reaping benefits for digitization. Researchers say developed countries are trading higher economic benefits from digitization; although job creation is more in the developing countries. The developed countries have measurable effects of growth for digitization as they depend on domestic consumption making non tradable sectors important. However they outsource lower skilled work to emerging markets for cheaper labour. Developing countries, on the other hand, focuses more on exports and tradable sectors. Thus, for them gains come from the effect of digitization on employment rather than from its influence on growth. The millions of jobs that were created by the digitization effects were found to be from emerging economies.

According to the World Economic Forum (2019) a country which gains 10 digitization score, reduces unemployment by 1.02 per cent. Studies have shown that a complex set of interactive forces would determine the effect of E-commerce on employment and wages. E-commerce provides opportunity for direct and indirect employment on one hand and on other it is also responsible for job losses. ICT related jobs would be boosted as demands for computers andInformation System Managers, Computer System Analysts, Computer Engineers, Computer Support Specialists, Database Administrators, Computer Scientists and Computer Programmers would increase. In addition to this Artist and Commercial Artists, Designers and Writers and Editors would also be in demand.

With the growth of digital industries, the demand for digital skills would also increase. Companies would be looking out for coders, web developers, product managers and data scientists who would be steering the business to grow. There would also be requirement of online marketing managers, product developers and user-experience experts also. Continuous innovation and creative thinking would be required for facing the challenges of the digital business world

Small and Medium sized enterprises should be encouraged for digital participation. Financial help from the state would help them set up their business. Private sectors may collaborate with the public to provide digital services where public bodies can facilitate by stimulating demand or regulating the market. Thus government would need to play a crucial role of developer, financer and facilitator to help build the capacities for digital market. Basic facilities like high speed network coverage and safe and easy online payment system are pertinent to the success of ecommerce. State's support for vernacular content development, digital education, promotion of entrepreneurial development and development of digital workforce are primarily essential for strong foundation of digital market. However the government can only play these roles successfully when there is availability of capital, highly skilled thinking power and digital infrastructure. The most challenging part of this model is the jump-start and monitoring. With every rupee spent in the development of digital market it becomes highly essential to track and monitor the execution of the plan. Report says even developed countries are griped by extremely strict financial measures. Due to unavailability of any theoretical benchmarks or measure to judge digital growth, it is important for the policymakers to invest time and effort to make consistent matrices to cover all sectors for digitization. To ensure all stakeholders are able to function effectively, a strict governance mechanism is required.

1.**5Conclusion**-

The digitalization brings innovation, easy operating, new job opportunities and growth within the economy. It helps to bring transparency within the system and a lot of clear area unit the flow of funds within the economy less is that the downside of non-payment, parallel economy etc. However with of these advantages obtainable it additionally makes it necessary for the folks to own basic monetary information and a push towards the importance of the monetary attainment. Digitalization also plays a very important role in action this goal because it can have a larger reach to the folks. By this we are able to reach on a conclusion that the new technology has to controlled well and for this it's not solely the provision however additionally the information to use it and acquire advantages from it.

Digitization performance is steadily more helping Indian GDP to grow. Along with economic benefit, the indisputable practicability of Indian internet economy is also transforming the social life of the Indians whose benefits are challenging to quantify. It is also predicted that there is enormous opportunity to grow the SME sector through the e-commerce. According to a study, 4.6% contribute of GDP growth is expected in economic benefit in India by 2025. Due to digitization expected growth in job creation which is expected 20-25 lakhs by 2025 in India. As per the study SME is also one of the reasons for generating employment in country. Government spending in the infrastructure building and capacity building would also be a source of employment generation. The proposed idea of digital market would help India increase output and create jobs. The upcoming new technologies like virtual mirror and virtual wall would push Indian E-commerce in the next gear. With already 1189.62 million mobile subscribers, 58% rural internet users, over 748 million Smartphone sale and growing 4G subscribers. Indian economy is all set to jump for ideal digitization. Efficient planning and directive of digitization would help Indian economy to compete with the mature economies in the coming years.

1.6 Suggestions -

A. There is an urgent need of government investment in digitization infrastructure.

B. The boons and benefits of Digitization are required to be transferred to the rural and weaker sections of the society.

C. Spread of digitization is required to be associated with ICT Literacy, so that more and more sections of the society get benefited with digitization.

D. Due to digitalization we can increase the employment opportunity for the capable candidate.

Bibliography -

[1]Degeratu, A., Rangaswamy, A., & Wu. J. (1998). Consumer choice behavior in online and regular stores: the effects of brand name price and other search attributes. Marketing Science and the Internet, INFORM College on Marketing Mini-Conference. Massachusetts: Cambridge.

[2] Fink, D. (1998). Guidelines for the Successful Adoption of Information Technology in Small & Medium Enterprises. International Journal of Information Management..

(3) 243-253.[4] Goolsbee, A. (1998). In a world without borders: the impact of taxes on Internet commerce. Working Paper, University of Chicago.

[4] Jones, P., Beynon-Davies, P., & Muir, E. (2003). Business barriers to growth within the SME sector. Journal of Systems and Information Technology, 7 (1/2), 1-25.

[5] Katz, R., Koutroumpis,P.,&Callorda, F. M. (2014). Using a digitization index to measure the economic and social impact of digital agendas. Info, 16 (1), 32-44.

[6]M. Castells, s. e. (2000). The Rise of the Network Society (2nd Ed.). London, UK: Blackwell Publishers.

[7]Mafe, C. R., & Blas, S. S. (2006). Explaining Internet Dependency. Internet research, 16 (4), 380-397.

[8]McKinsey & Company. (2012). Online and upcoming: The Internet's impact on India. McKinsey & Company.

[9]McKinsey Global Institute. (2011). Internet Matters: the Net's sweeping impact on growth, jobs and prosperity. McKinsey Global Institute.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Make In India - Role Of Business And Commerce Governance Reforms And Development In India

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Abstract

India has always been viewed as an economic power house and now it is among the top five fastest improving economies in the world which clearly is the result of various reforms launched under the Make in India campaign. There has been a paradigm shift in the approach towards governance as the government has unveiled multitude of reforms aimed towards improving the business climate in India.

Both the policies seem to benefit the Indian economy in their respective ways. On one hand, Make in India will boost foreign investments in the economy and on the other, Business and Commerce will help the country being self-reliant in terms of manufacturing of products. Therefore, a logical route is needed to be adopted. India is expected to be the third largest consumer economy as its consumption may triple to US$ 4 trillion by 2025, owing to shift in consumer behavior and expenditure pattern, according to a Boston Consulting Group (BCG) report; and is estimated to surpass USA to become the second largest economy in terms of purchasing power parity (PPP) by the year 2040, according to a report by PricewaterhouseCoopers.

With this initiative, Mr. Modi is literally inviting the rich and semi-rich countries to step in India and invest their money for the future of India. It's like inviting the countries to set up their companies in India and manufactured in the territory of our country. **Sell everywhere but manufacture in India** sums it up all**.**

Keywords - Make in India, Business Process Management (BPM), Foreign Investors

Introduction

Make in India is an international marketing campaigning slogan coined by the Prime Minister Narendra Modi on 25th September 2014, to encourage the companies around the world to invest and manufacture their products in India. A favorable business environment is a pre-requisite for the growth of a nation. A country like India which is among the fastest developing countries in the world has the potential to surpass the leading countries in terms of business. He has launched this ambitious campaign with an objective to turn the country into a global manufacturing hub. To achieve a manufacturing led transformation, India would need to undertake a structured and planned approach in review manufacturing, gain global competitive advantage and gain global leadership. In order to succeed in this campaign, it was important to be open to capital and expertise from all over the globe and implementation of GST will make India one market and strengthen overall programme. Doing business in India today is much more difficult than elsewhere, but the government wants to change this. Several pressing issues prompted the launch of this campaign. First and foremost is India needs to reboot its economy. After several years of gross national product growth averaging 7.7%, between 2002 and 2011, this pace slowed down to around 5% in 2013 and 2014. Secondly India needs more jobs for its young people. Recently, on an average 5 million new jobs have been created each year, but around 12 million people join the workforce each year.

India's labour force is expected to grow to 600 million by 2022. Job creation will fight poverty and help divert people from agriculture, which has a low capacity to sustain their livelihood. Thirdly, India's economic development model has been quite peculiar, offering privileges to skilled labour often employed by foreign companies. That is why today manufacturing in China makes up 34% of gross domestic product. The Chinese have positioned themselves as the workshop of the world, accounting for

22.4% of global manufacturing while India accounts for only 2%. India's manufacturing sector is less productive compared to its competitors and accounts for only 15% of its GDP. The government has set a target of 25% of GDP by 2022.

India's progress towards jumping 30 spots in the rankings to 100 place out of 190 countries is a result of the government's consistent efforts over the past few years and India's endeavor to strengthen its position as a preferred place to do business (ease of doing business, business line, 2017) has boosted the confidence of the domestic and the foreign investors to invest in India. There are lots of factors which affect the ease of doing business in India though various initiatives have been promoted to smooth out the process still a lot needs to be done to achieve the ambitious target of being in the top 50 ranks in terms of doing business in the world.

Objectives Of The Study

1] To study the overview of Make in India campaign.
2] To study the Make in India campaign main focus areas.
3] To study the initiatives taken by companies and various growth cycles of Make in India.
4] To study the role of business and commerce governance reforms and development in India

Research Methodology

Data Collection

This is a descriptive research paper based on secondary data. Data have been collected through the Books, Magazines, Journals, Research Papers and Websites.

Four Pillars Of Make In India

The following new initiatives were carried out under Make in India:-

New Processes: The government is introducing several reforms to create possibilities for getting FDI and foster business partnerships. This reform is also aligned with parameters of World Bank's Ease of Doing Business index to improve India's ranking on it. Make in India recognizes ease of doing business as the single most important factor to promote entrepreneurship. A number of initiatives have already been undertaken to ease business environment.

New Infrastructure: The government intends to develop industrial corridors and build smart cities, create world class infrastructure with state of the art technology and high speed communication. Innovation and research activities are supported by a fast paced registration system and improved infrastructure for IPR registrations. Along with the development of infrastructure, the training for the skilled workforce for the sectors is also being implemented.

New Sectors: This campaign has identified 25 sectors to promote with the detailed information being shared through an interactive web portal. The government has allowed 100% FDI in Railway and removed restrictions in Construction. It has also increased the FDI to 100% in Defense and Pharmaceutical.

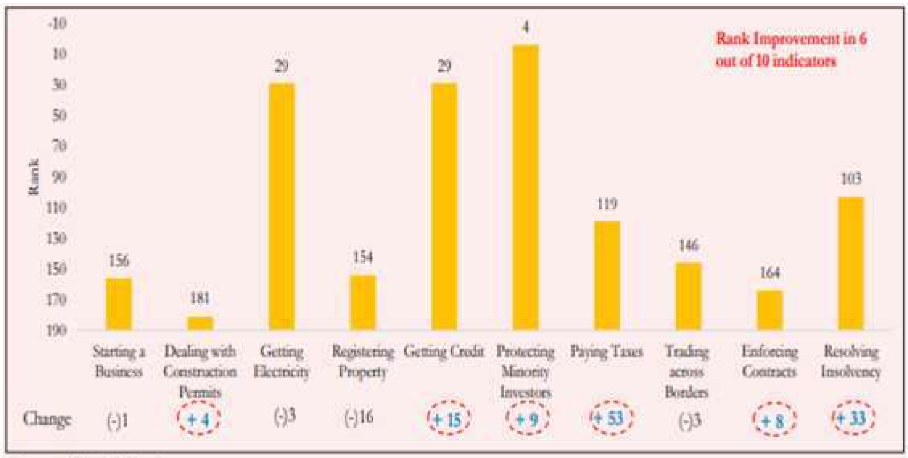
New Mindset: This initiative intends to change by bringing a paradigm shift in the way Government interacts with various industries. It will focus on acting as a partner in the economic development of the country along with development in corporate sector

The Overview Of Make In India Campaign

Make in India targets **25 sectors** of the economy which range from automobile to Information Technology (IT) & Business Process Management (BPM), the details of each can be viewed on the official site It also seeks to facilitate job creation, foster innovation, enhance skill development and protect intellectual property. The logo of 'Make in India' – a lion made of gear wheels – itself reflects the integral role of manufacturing in government's vision and national development.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

India ranked 100 among 190 countries assessed by the Doing Business Team in the Ease of Doing Business Report, 2018 with an improvement of 30 ranks over its rank of 130 in the Ease of Doing Business Report 2017. India saw an improvement in six out of ten indicators namely – Dealing with construction permits, getting credit, protecting minority investors, paying taxes, enforcing contracts and resolving insolvency



Source: World Bank

These improvements in rankings have been a result of various reform measures undertaken by the Government including Structural and deep-seated reforms such as Goods and Services Tax (GST) and Insolvency and Bankruptcy Code (IBC); reforms aimed at strengthening India's institutions – Demonetization, mechanism for inflation targeting via the Monetary Policy; progress in Aadhaar enrollment and use in targeted delivery of benefits; and announcement of the Government's decision for recapitalization of public sector banks.

Role of Business and Commerce Governance will be felt both domestically and internationally. The development of the manufacturing sector will create employment opportunities for the youth of the country, alleviate poverty, attract investments, create value for Indian goods and fix the rising trade deficit. Internationally, it will improve India's standing in the world and investors will look at India not merely as a market but as an opportunity. The interaction between domestic and international firms will, inevitably, help transform domestic firms into MNCs.

The government has backed this campaign by taking steps such as:

1. Setting up 'Invest India' (will act as the first reference point for assisting investors)
2. Setting up a dedicated web portal "http://www.makeinindia.com" to resolve all queries
3. Setting up of an expert panel to redress grievances and handle queries of global and domestic investors within 24 hours
4. Raising FDI caps in railways and defense production to 100% and 49% respectively
5. The environment of positivity created by this campaign has significantly improved the perception of the Indian economy.

India is expected to be the third largest consumer economy as its consumption may triple to US$ 4 trillion by 2025, owing to shift in consumer behavior and expenditure pattern, according to a Boston Consulting Group (BCG) report; and is estimated to surpass USA to become the second largest economy in terms of purchasing power parity (PPP) by the year 2040, according to a report by PricewaterhouseCoopers.

The new rankings are indeed a boost for the economy, but much more is needed to be done on the ground. For example, when it comes to starting business, the ranking has slipped by one notch to 156 from 155 from 2016. In this field, government needs to do much more if its wants 'Start Up' India programme to succeed. India also fared lower in the areas of registration of properties and enforcing of contracts. It reflects slow progress in land and labor reforms. Thus, the new rankings may give a motivational cheer to the government, but it still had to move miles ahead for full-fledged celebrations.

India's GDP is estimated to have increased 7.2 per cent in 2017-18 and 7 per cent in 2018-19. India has retained its position as the third largest startup base in the world with over 4,750 technology start-ups. India's labor force is expected to touch 160-170 million by 2020, based on rate of population growth, increased labor force participation, and higher education enrolment, among other factors, according to a study by ASSOCHAM and Thought Arbitrage Research Institute. India's foreign exchange reserves were US$ 405.64 billion in the week up to March 15, 2019, according to data from the RBI.

Conculsion

The Make in India campaign launched by the government of India shows a positive result. However there are certain challenges for make in India to become completely successful and the success to get reflected in the nation's GDP. A Nation can develop only if it meets the domestic demand of goods and services is catered on its own and the country exports on considerable amount. Business and Commerce Governance plays a very important and vital role for this purpose. But, for that sound policies and facilities for land procurement, labour laws, power tariffs, transport, and logistics etc. are the primary requirements. The implementation of GST system and demonetization created problems for the small scale sector. After the turbulence, the value of rupee decreased. It ultimately reduced the value of our exports. Government in between also levied long term Capital Gains Tax on Investment in India which was earlier exempt. All these issues reduce the confidence of private players, and there is a lack of investments. For the success of Make in India program, mere willingness to spend on infrastructure and attracting FDIs will not serve. The government needs to work on implementation. It should strive for better implementation of the decided policies. The problems on the grassroots level needs to be understood and addressed.

References

1.Dr. Puneet Aneja "Make in India: New Paradigm for Socio - Economic Growth in India", PARIPEX – Indian Journal of research, April, 2016.

2.Geetha, R. 2016. Make in India and Ease of Doing Business *International Journal of Science and Research,* **5**(1): 1649-1651

3.S. Soundhariya "Make in India - Scheme for transforming India" Global Journal for Research Analysis (GJRA), September, 2015.

4.Doing business in India www.nishithdesai.com.

5.Bhatia, R., & Agrawal, S. (2018). Make in India: A quantitative approach. International Journal of Applied Research, 152-156.

B.Aadhar' International Peer-Reviewed Indexed Research Journal

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308 February, 2022

A Study On Data Implementation Process With Different Data Mining Techniques

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Abstract:

Data Mining is a process of finding potentially useful patterns from huge data sets. It is a multi-disciplinary skill that uses machine learning, statistics, and AI to extract information to evaluate future events probability. The insights derived from Data Mining are used for marketing, fraud detection, scientific discovery, etc.

Data Mining is all about discovering hidden, unsuspected, and previously unknown yet valid relationships amongst the data. Data mining is also called Knowledge Discovery in Data (KDD), Knowledge extraction, data/pattern analysis, information harvesting, etc. This research work consist complete data implementation process as well as different data mining techniques are summarize.

Keywords: Classification, Prediction, Clustering

Introduction

Data mining is one of the most motivating and vital area of research with the aim of extracting information from tremendous amount of accumulated data sets. In present era, Data mining is becoming popular in prediction technique. Skills and knowledge are important requirement for achieving data mining task since the success and failure of data mining is greatly reliant on the person who managing the process due to unavailability of standard framework. Data mining is the computational process of exploring and uncovering patterns in large data sets a.k.a. Big Data. It's a subfield of computer science which blends many techniques from statistics, data science, database theory and machine learning.

1.1 Types of Data

Data mining can be performed on following types of data

- Relational databases
- Data warehouses
- Advanced DB and information repositories
- Object-oriented and object-relational databases
- Transactional and Spatial databases
- Heterogeneous and legacy databases
- Multimedia and streaming database
- Text databases
- Text mining and Web mining

Business understanding:

In this phase, business and data-mining goals are established.

First, you need to understand business and client objectives. You need to define what your client wants (which many times even they do not know themselves)

Take stock of the current data mining scenario. Factor in resources, assumption, constraints, and other significant factors into your assessment.

Using business objectives and current scenario, define your data mining goals.

A good data mining plan is very detailed and should be developed to accomplish both business and data mining goals.

Data understanding:

In this phase, sanity check on data is performed to check whether it's appropriate for the data mining goals.

First, data is collected from multiple data sources available in the organization.

These data sources may include multiple databases, flat filer or data cubes. There are issues like object matching and schema integration which can arise during Data Integration process. It is a quite complex and tricky process as data from various sources unlikely to match easily. For example, table A contains an entity named cust_no whereas another table B contains an entity named cust-id.

Therefore, it is quite difficult to ensure that both of these given objects refer to the same value or not. Here, Metadata should be used to reduce errors in the data integration process.

Next, the step is to search for properties of acquired data. A good way to explore the data is to answer the data mining questions (decided in business phase) using the query, reporting, and visualization tools.

Based on the results of query, the data quality should be ascertained. Missing data if any should be acquired.

Data preparation:

In this phase, data is made production ready.

The data preparation process consumes about 90% of the time of the project.

The data from different sources should be selected, cleaned, transformed, formatted, anonymized, and constructed (if required).

Data cleaning is a process to "clean" the data by smoothing noisy data and filling in missing values.

For example, for a customer demographics profile, age data is missing. The data is incomplete and should be filled. In some cases, there could be data outliers. For instance, age has a value 300. Data could be inconsistent. For instance, name of the customer is different in different tables.

Data transformation operations change the data to make it useful in data mining. Following transformation can be applied

Data transformation:

Data transformation operations would contribute toward the success of the mining process.

Smoothing: It helps to remove noise from the data.

Aggregation: Summary or aggregation operations are applied to the data. I.e., the weekly sales data is aggregated to calculate the monthly and yearly total.

Generalization: In this step, Low-level data is replaced by higher-level concepts with the help of concept hierarchies. For example, the city is replaced by the county.

Normalization: Normalization performed when the attribute data are scaled up o scaled down. Example: Data should fall in the range -2.0 to 2.0 post-normalization.

Attribute construction: these attributes are constructed and included the given set of attributes helpful for data mining.

The result of this process is a final data set that can be used in modeling.

Modeling

In this phase, mathematical models are used to determine data patterns.

• Based on the business objectives, suitable modeling techniques should be selected for the prepared dataset.

• Create a scenario to test check the quality and validity of the model.

• Run the model on the prepared dataset.

• Results should be assessed by all stakeholders to make sure that model can meet data mining objectives.

Evaluation:

In this phase, patterns identified are evaluated against the business objectives.

• or no- Results generated by the data mining model should be evaluated against the business objectives.

• Gaining business understanding is an iterative process. In fact, while understanding, new business requirements may be raised because of data mining.

• A go go decision is taken to move the model in the deployment phase.

Deployment:

In the deployment phase, you ship your data mining discoveries to everyday business operations.

• The knowledge or information discovered during data mining process should be made easy to understand for non-technical stakeholders.

• A detailed deployment plan, for shipping, maintenance, and monitoring of data mining discoveries is created.

• A final project report is created with lessons learned and key experiences during the project. This helps to improve the organization's business policy.

2. Data mining Techniques

3. 21 Classification:

This analysis is used to retrieve important and relevant information about data, and metadata. This data mining method helps to classify data in different classes.

2.2 Clustering:

Clustering analysis is a data mining technique to identify data that are like each other. This process helps to understand the differences and similarities between the data.

Regression analysis is the data mining method of identifying and analyzing the relationship between variables. It is used to identify the likelihood of a specific variable, given the presence of other variables.

4 Association Rules:

This data mining technique helps to find the association between two or more Items. It discovers a hidden pattern in the data set.

2.5 Outer detection:

This type of data mining technique refers to observation of data items in the dataset which do not match an expected pattern or expected behavior. This technique can be used in a variety of domains, such as intrusion, detection, fraud or fault detection, etc. Outer detection is also called Outlier Analysis or Outlier mining.

2.6 Sequential Patterns:

This data mining technique helps to discover or identify similar patterns or trends in transaction data for certain period.

2.7 Prediction:

Prediction has used a combination of the other techniques of data mining like trends, sequential patterns, clustering, classification, etc. It analyzes past events or instances in a right sequence for predicting a future event.

4.Recent Trends in Area of Research

• **Multimedia Data Mining** This is one of the latest methods which are catching up because of the growing ability to capture useful data accurately. It involves the extraction of data from different kinds of multimedia sources such as audio, text, hypertext, video, images, etc. and the data is converted into a numerical representation in different formats. This method can be used in clustering and classifications, performing similarity checks, and also to identify associations.

• **Ubiquitous Data Mining** This method involves the mining of data from mobile devices to get information about individuals. In spite of having several challenges in this type such as complexity, privacy, cost, etc. this method has a lot of opportunities to be enormous in various industries especially in studying human-computer interactions.

• **Distributed Data Mining** This type of data mining is gaining popularity as it involves the mining of huge amount of information stored in different company locations or at different organizations. Highly sophisticated algorithms are used to extract data from different locations and provide proper insights and reports based upon them.

• **Spatial and Geographic Data Mining** This is new trending type of data mining which includes extracting information from environmental, astronomical, and geographical data which also includes images taken from outer space. This type of data mining can reveal various aspects such as distance and topology which is mainly used in geographic information systems and other navigation applications.

Literature survey

1) Avisek Das et al (2016) [6] In this research they predict the winner of the Cricket World Cup by taking into consideration the various factors which plays an important role in deciding the final outcome of a game. Of the several factors, five has been taken into consideration. These are whether team wins the toss or not, whether the team bats first or not, whether the match is a day match or day/night match, whether the team is playing in its home ground or away from home and at what round of the tournament the match has been played. This research has used the method of Analytic Hierarchy Process (AHP) to compare the different parameters and come to the final conclusion.[1]

2) Pınar Tufekci (2015) [7] In this research, Researcher developed a model that predicts the results (HomeWin/Draw/Away Win) of the football matches played in the Turkish Super League, by using three machine learning classification methods, which are Support Vector Machines (SVMs), Bagging with REP Tree (BREP), and Random Forest (RF). The datasetused in this study includes the data of 70 features, which are composed of 69 input variables relating to statistical data of home and away teams, and a target variable in 1222 total football games in a 4-year period between 2009 and 2013. The most effective features of these input variables were determined as a reduced dataset by using some feature selection methods. The results showed that the match outcomes were predicted using the reduced dataset better than using the original dataset and the RF classifier produced the best result.[2]

3) M. Selvanayaki, (2016) [10], Cotton is the world's most important natural fiber used in Textile manufacturing. Cotton fiber is processed into yarn and fabric. Yarn strength depends extremely on the quality of cotton. The physical characteristics such as fiber length, length distribution, trash value, color grade, strength, shape, tenacity, density, moisture absorption, dimensional stability, resistance, thermal reaction, count, etc., contributes to the quality of cotton. Hence determining the quality of cotton accurately is an essential task to make better raw material choices in textile industry which in turn will support better buying and selling decisions. In this work, cotton quality prediction is modeled as classification task and implemented using supervised learning algorithms namely Multilayer Perception, Naive Bayes, J48 Decision tree, k-nearest neighbor in WEKA environment on the cotton quality assessment dataset. The classification models have been trained using the data collected from a spinning mill. The prediction accuracy of the classifiers is evaluated using 10-fold cross validation and the results

are compared. It is observed that the model based on decision tree classifier produces high predictive accuracy compared to other models.[3]

4) Viraj Phanse, (2011) [12], this research deals with the evaluation of the Duckworth Lewis method, identifying its limitation, and devising a modification to address these limitations. The Duckworth Lewis method, or D/L method, was created by Frank Duckworth and Tony Lewis. The International Cricket Council (ICC) adopted D/L method in 1999 to address the issue of delayed one-day cricket matches due to interruptions such as inclement weather conditions, poor light and floodlight failures, and crowd problems. We have attempted to identify the shortcomings in the existing Duckworth Lewis method using data mining algorithms such as Random Forests and C4.5. We have also shown that the p-values and other data mining techniques serve a dual purpose of not only evaluating whether systems such as D/L method have been exploited by taking advantage of their properties such as simplicity, but also devising alternate and robust approaches (or models). In the first part of this project, we have analyzed fifty one-day international (ODI) cricket matches, in which the Duckworth Lewis method has been applied, using tools such as WEKA and Microsoft Excel. We have observed that the Duckworth Lewis method has some limitations. As a result, using data mining methods we have shown that the Duckworth Lewis system has proven over time to be biased towards the team batting first and the team winning the toss--a toss refers to the coin-flip at the beginning of the match used to decide who bats or fields. Bias in the context of the report is defined as taking advantage of the properties of systems such as the Duckworth Lewis method. We also seek to show that such an “exploitation” of the system permits prediction of the match winner with outcomes that are better than just chance. Using the analyses described above, we propose a modification to the existing Duckworth Lewis method to reduce this bias by considering the “venue” of the game as an additional resource along with the two existing resources- over’s and wickets - to predict the target score. We have done a basic evaluation of the reduction in bias due to the proposed changes. The modification has helped not only to reduce the bias but also to alleviate the impact of factors such as toss and team batting first in predicting the target scores in limited-over’s cricket matches.[4]

5) Archana Gahlaut et al (2017) [15] Gaining as many good credit scores are beneficial for customers in numerous ways and it also allows banks to analyze their clients and to give credit loans to them accordingly. In this paper, we look whether data mining techniques are useful to predict and classify the customer’s credit score (good/bad) to overcome the future risks giving loans to clients who cannot repay. We use historical given dataset of a bank for our predictive modeling (general models), banks can use them for the better outcome of their overall credit system. For example, if a customer is assigned a bad credit score after applying these predictive classification models, then the bank will not allow giving that customer a future credit and will quickly analyze all risky credit.[5]

5.Challenges of Implementation of Data mining:

- Skilled Experts are needed to formulate the data mining queries.
- Over fitting: Due to small size training database, a model may not fit future states.
- Data mining needs large databases which sometimes are difficult to manage
- Business practices may need to be modified to determine to use the information uncovered.
- If the data set is not diverse, data mining results may not be accurate.
- Integration information needed from heterogeneous databases and global information systems could be complex

6.Benefits of Data Mining:

- Data mining technique helps companies to get knowledge-based information.
- Data mining helps organizations to make the profitable adjustments in operation and production.
- The data mining is a cost-effective and efficient solution compared to other statistical data applications.
- Data mining helps with the decision-making process.

- Facilitates automated prediction of trends and behaviors as well as automated discovery of hidden patterns.
- It can be implemented in new systems as well as existing platforms
- It is the speedy process which makes it easy for the users to analyze huge amount of data in less time.

7. **Conclusion**

- Data mining definition: Data Mining is all about explaining the past and predicting the future via Data analysis.
- Data mining helps to extract information from huge sets of data. It is the procedure of mining knowledge from data.
- Data mining process includes business understanding, Data Understanding, Data Preparation, Modeling, Evolution, and Deployment.
- Important Data mining techniques are Classification, clustering, Regression, Association rules, Outer detection, Sequential Patterns, and prediction
- R-language and Oracle Data mining are prominent data mining tools and techniques.
- Data mining technique helps companies to get knowledge-based information.
- The main drawback of data mining is that many analytics software is difficult to operate and requires advance training to work on.
- Data mining is used in diverse industries such as Communications, Insurance, Education, Manufacturing, Banking, Retail, Service providers, e-Commerce, Supermarkets Bioinformatics.

References :

1. M. Selvanayaki, M.S. Vijaya, K.S. Jamuna, and S. Karpagavalli, "Supervised Learning Approach for Predicting the Quality of Cotton Using WEKA", Communications in Computer and Information Science, vol. 70. Springer, Berlin, Heidelberg.(Aug 2009) Pg. 383-384. 7.
2. Prince Kansal, Pankaj Kumar, Himanshu Arya, Aditya Methaila, "Player valuation in Indian Premier League auction using Data mining Technique", 2014 International Conference on Contemporary Computing and Informatics (IC3I), IEEE(June 2014), Pg.197-203.
3. Training to Match Performance: A Predictive and Explanatory Study on Novel Tracking Data", IEEE 16th International Conference on Data Mining Workshops, IEEE (December 2016) Pg.136-143.
4. Ashish Bindra, Sreenivasulu Pokuri, Krishna Uppala, Ankur Teredesai, "Distributed Big Advertiser Data Mining", 12th International Conference on Data Mining Workshops, IEEE (Dec. 2012). Pg. 113-119.
5. Ibrahim M. M. Mitkees, Asist. Prof. Sherif M Badr, Dr. Ahmed Ibrahim Bahgat El Seddawy, "Customer Churn Prediction Model using Data Mining techniques", IEEE (Oct. 2017), Pg. 262-268.
6. https://www.guru99.com/data-mining-tutorial.html#4

Empirical Study On Data Mining Tools

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Abstract :-

The concept of Data Mining has emerged to meet the requirement of quick and accurate information support for decision making process. The idea is to extract the data from the database for the operational use. Data Mining is analysis of data to identify relationship between different data elements or entities. The process of data mining can also involve correlation or association between two or more data elements, entities or events. They allow organizations to make proactive, knowledge-driven decisions and answer questions that were previously too time-consuming to resolve. This review paper explores the data mining tools which have been developed to support knowledge management process. Data mining has become an essential factor in various fields including business, education, health care, finance, scientific etc because of the large amount of the data. To analyse this vast amount of data and depict the fruitful conclusions and inferences, it needs specific data mining tools. This paper discusses the knowledge discovery process, data mining, various open source tools in the field of data mining from past to the present and explores the future trends.

Keywords: Data mining; Data mining tools; Knowledge management

1. Introduction

The Data mining has a long history, with strong roots in statistics, artificial intelligence, machine learning, and database research. Data mining is a step in the knowledge discovery from databases (KDD) process that consists of applying data analysis and discovery algorithms to produce a particular enumeration of patterns (or models) across the data.

Data mining, or knowledge discovery, is the computer-assisted process of digging through and analyzing enormous sets of data and then extracting the meaning of the data.

The terms of KDD and data mining are different. KDD refers to the overall process of discovering useful knowledge from data. Data mining refers to discover new patterns from a wealth of data in databases by focusing on the algorithms to extract useful knowledge.

KDD process consists of iterative sequence methods as follows:

1. Selection: Selecting data relevant to the analysis task from the database
2. Preprocessing: Removing noise and inconsistent data; combining multiple data sources
3. Transformation: Transforming data into appropriate forms to perform data mining
4. Data mining: Choosing a data mining algorithm which is appropriate to pattern in the data; extracting data patterns
5. Interpretation/Evaluation: Interpreting the patterns into knowledge by removing redundant or irrelevant patterns; translating the useful patterns into terms that human understandable. [1]

Most Data Mining tools can be classified into one of three categories: traditional data mining tools, dashboards, and text-mining tools.

- **Traditional Data Mining Tool:-** Traditional data mining programs help companies establish data patterns and trends by using a number of complex algorithms and techniques. Some of these tools are installed on the desktop to monitor the data and highlight trends and others capture information residing outside a database. The majority are available in both Windows and UNIX versions, although some specialize in one operating system only. In addition, while some may concentrate on one database type, most will be able to handle any data using Online Analytical Processing or a similar technology.

• **Dashboards:-** Installed in computers to monitor information in a database, dashboards reflect data changes and updates onscreen often in the form of a chart or table enabling the user to see how the business is performing. Historical data also can be referenced, enabling the user to see where things have changed (e.g., increase in sales from the same period last year). This functionality makes dashboards easy to use and particularly appealing to managers who wish to have an overview of the company's performance.

• **Text-mining Tools:-** The third type of data mining tool sometimes is called a text-mining tool because of its ability to mine data from different kinds of text from Microsoft Word and Acrobat PDF documents to simple text files, for example. These tools scan content and convert the selected data into a format that is compatible with the tool's database, thus providing users with an easy and convenient way of accessing data without the need to open different applications. Scanned content can be unstructured (i.e., information is scattered almost randomly across the document, including e-mails, Internet pages, audio and video data) or structured (i.e., the data's form and purpose is known, such as content found in a database). Capturing these inputs can provide organizations with a wealth of information that can be mined to discover trends, concepts, and attitudes. [2]

Some Open Source Data Mining Tools

1.1. Orange

Orange is a component - based data mining and machine learning software suite, which features visual programming as a front-end for an explorative data analysis. It remembers the frequently used items sets and selects the best communication channel for the widget to be used. It is packed with various visualization methods such as bar charts, scatter plots to networks, dendrograms, python bindings and libraries for scripting. It includes a set of components for data preprocessing, feature scoring and filtering, modelling, model evaluation, and exploration techniques. It is implemented in C++ and Python. Its graphical user interface is built upon the cross-platform Qt framework. Orange is distributed free under the GPL [3].

1.2. Rapid Miner

RapidMiner is a software platform developed by the rapid miner company. It provides a unified background for machine learning, data mining, text mining, predictive analytics and business analytics. It is mainly used for business and industrial applications as well as for research, education, training, rapid prototyping, and application development and supports all the steps of the KDD including results such as visualization, validation and optimization.

It is formerly known as YALE (Yet Another Learning Environment). It uses a client/server model with the server as the Software as a Service (SAAS) or on a cloud infrastructure.[3]

1.3. Weka

Weka is the Waikato Environment for Knowledge Analysis. It is developed by the Machine Learning Group at the University of Waikato available under the GNU public license. It holds the name of a bird seen on the islands of New Zealand [4]. Its oldest version tool was basically designed to analyse the data for agricultural domain, but its new version was fully Javabased and is now used in various application areas, especially for educational purposes and research. Its algorithm can be directly applied to a data set or as a code written in java. It supports several data mining tasks, such as data preprocessing, clustering, classification, regression, visualization, and feature selection. It is specially designed for machine learning systems.

The techniques of Weka depends on the types of the data that are available as a flat file or a relative data that points to a fixed number of attributes. [4]. The user can interact through the Weka explorer or use command line with the same functionality or with the component-based knowledge flow face.

1.4. JHepWork

jHepWork is a framework developed as a trial to make a dataanalysis environment with a clear user interface to compete the viable suites. It is primarily designed for scientists, engineers and students. It focusses on interactive scientific plots in 2D and 3D and contains numerical scientific libraries implemented in Java for mathematical functions, random numbers, and other data mining algorithms [5]. jHepWork is based on a high-level programming language Jython, but also suits programs such as Java to call numerical and graphical libraries.

1.5. Knime

KNIME (Konstanz Information Miner) is a user friendly, knowledgeable and comprehensive data integration, processing, analysis, and exploration platform. It provides the users to create data flows or pipelines visually, users can selectively execute some or all analysis steps, study the results, prototypes, and collaborative interpretations. KNIME is written in Java, and based on Eclipse. [6]

1.6. Dbminer Tool

DBMiner,a data mining system for interactive mining of multiple-level knowledge in large relational databases, has been developed based on our years-of-research. The system implements a wide spectrum of data mining functions, including generalization, characterization, discrimination, association, classification, and prediction. By incorporation of several interesting data mining techniques, including attribute-oriented induction, progressive deepening for mining multiple-level rules, and meta-rule guided knowledge mining, the system provides a user-friendly, interactive data mining environment with good performance.[7]

1.7. Witness Miner Tool

WITNESS Miner is a graphical data mining tool comprising a collection of data structures and algorithms written specifically for the tasks required in knowledge discovery. Designed to be easy to use, it provides a visual method of constructing streams, containing data preparation and data mining tasks that form the knowledge discovery process. The key features of this tool are: decision trees, clustering , discretization , rule induction using modern heuristic techniques, the ability to handle missing values, host of standard data processing tools, HTML output and in the case of the decision tree, XML output options, feature subset selection. Today's organizations collect a large amount of operational data relating to all kinds of activities. If properly analyzed, this data can have a significant effect on a company's performance and profitability. WITNESS Miner provides both a useful tool and the project framework for such investigations. [7]

1.8. Tanagra Tool

TANAGRA is a free DATA MINING software for academic and research purposes. It proposes several data mining methods from exploratory data analysis, statistical learning, machine learning and databases area. This project is the successor of SIPINA which implements various supervised learning algorithms, especially an interactive and visual construction of decision trees. TANAGRA is more powerful, it contains some supervised learning but also other paradigms such as clustering, factorial analysis, parametric and nonparametric statistics, association rule, feature selection and construction algorithms. TANAGRA is an "open source project" as every researcher can access to the source code, and add his own algorithms, as far as he agrees and conforms to the software distribution license. [7]

1.9. Pspp

PSPP is a program for statistical analysis of sampled data. It has a graphical user interface and conventional command-line interface. It is written in C, uses GNU Scientific Library for its mathematical routines, and plotutils for generating graphs. It is a Free replacement for the proprietary program SPSS (from IBM) predict with confidence what will happen next so that you can make smarter decisions, solve problems and improve outcomes. [2]

1.10 **Knime**

KNIME is a user-friendly graphical workbench for the entire analysis process: data access, data transformation, initial investigation, powerful predictive analytics, visualisation and reporting. The open integration platform provides over 1000 modules (nodes). [2]

1.11 **Apache Mahout**

Apache Mahout is an Apache project to produce free implementations of distributed or otherwise scalable machine learning algorithms on the Hadoop platform. Currently Mahout supports mainly four use cases: Recommendation mining takes users' behavior and from that tries to find items users might like. Clustering takes e.g. text documents and groups them into groups of topically related documents. Classification learns from exisiting categorized documents what documents of a specific category look like and is able to assign unlabelled documents to the (hopefully) correct category. Frequent itemset mining takes a set of item groups (terms in a query session, shopping cart content) and identifies, which individual items usually appear together.[2]

1.12 **Rattle**

Rattle (the R Analytical Tool To Learn Easily) presents statistical and visual summaries of data, transforms data into forms that can be readily modelled, builds both unsupervised and supervised models from the data, presents the performance of models graphically, and scores new datasets. It is a free and open source data mining toolkit written in the statistical language R using the Gnome graphical interface. It runs under GNU/Linux, Macintosh OS X, and MS/Windows. Rattle is being used in business, government, research and for teaching data mining in Australia and internationally.[2]

2. Conclusion

In this paper we briefly reviewed the various data mining tools from its inception to the future.Though there are many open source tools available for data mining applications, these tools have profoundly led their way for the in-depth observations of various analysis and prediction. They also had a major impact on excellent decision making in some marketing firms

3. References

1.Heena Agrawal, Pratik Agrawal, "Review on Data Mining Tools", IJISET - International Journal of Innovative Science, Engineering & Technology,1,2,pp.52-56,APR,(2014).

2.Mrs. Parminder Kaur, Dr. Qamar Parvez Rana," Comparison of Various Tools for Data Mining", International Journal of Engineering Research & Technology (IJERT),3,10,pp.393-397,OCT,(2014).

3.http://orange.biolab.si/

4.G. Holmes; A. Donkin and I.H. Witten (1994). "Weka: A machine learning workbench". Proc Second Australia and New Zealand Conference on Intelligent Information Systems, Brisbane, Australia. Retrieved 2007-06-25.

5.S.Chekanov: jHepWork. HEP choices for data analysis. Jan 21, 2008.

6.K. Saravanapriya," A Study on Free Open Source Data mining Tools", International Journal Of Engineering And Computer Science,3,12,pp.9450-9452,DEC,(2014).

7.Pallavi Wankhade, Prof.R.R. Shelke," A Study of Data Mining Tools in Knowledge Discovery Process", International Journal for Research in Applied Science & Engineering Technology (IJRASET),4,3,pp.74-79,MAR,(2016).

B.Aadhar' **International Peer-Reviewed Indexed Research Journal**

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308 February, 2022

Pharmacognostic and Phytochemical investigation of *Aegel marmelos* (L.) Corr.

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Abstract:

***Aegel marmelos* (L.) Corr.** is a sparsely occurring tall tree on wastelands. All parts of the plant were used in ayurvedic medicine to relive hypertensive effect, to inhibit persistent fall in blood pressure and bronchi-constriction, used as a mild laxative, used to cure inflammation of the mucous membrane having a free discharge, recommended for the cure of asthma, reduces or eliminates fever, for intermittent fevers with melancholia or a depressed unhappy emotional state and heart palpitation, used for chronic diarrhea or dysentery and irritation of the alimentary tract, for indigestion, discomfort or pain in the stomach. The plant is also used in the treatment of ailments like constipation, stomachache, chest pain cough and asthma, dropsy and urine disorders. In the present investigation the pharmacognostic studies were carried out for the evaluation of drugs and to detect adulteration. The plant was also analyzed for its preliminary screening of phytocehmicals. Quantitative and qualitative measures were also established. The results of the study could be useful to provide requisite pharmacognostic details of the plant which may be useful in setting diagnostic indices for the identification and preparation of monograph of the plant.

Key Words: ***Aegel marmelos***, Pharmacognostic study, physicochemical analysis

Introduction

The herbal drug industry is considered to be a high growth industry of the late nineties. The growing demand of the herbal drugs will set to flourish in the next century. Along with developing countries the trend for the increasing popularity of medicinal herbs in developed countries like Australia, America, Germany also develop thirst to explore more plants for their drug potentials. The ancient Indian system of medicine is strongly believes in poly-herbal formulations and the modern scientists strictly ask for scientific validation of herbal remedies. The safety and efficacy of herbal products has proved its potential against most threatened diseases. The herbs are screened for their medicinal potentials and standardized for active constituent. Standardization means adjusting the herbal drug preparation to a defined content of the active constituent.

Medicinal plant materials are characterized on the basis of microscopic and macroscopic characteristics; they are standardized by using different techniques including the method of estimation of chief active constituent. A number of different criteria are used for morphological studies and natural variations, these characteristics play an important role for preliminary evaluation of crude drugs. The standardization if needed there are always differences in the same type or different types of plants as for as the cell characteristics are concerned.

Standardization profiles of herbal drugs are not available for most drugs. Present study is an attempt to establish the standardization parameters for pharmacognostic evaluation of ***Aegel marmelos* (L.) Corr.**

Morphology:

***Aegel marmelos* (L.) Corr.** Commonly known as *Bael* is tall tree, thinly distributed over all districts of Marathwada and rarely occurs in ranges of Kinwat. It occurs commonly near habitations as wild and near temples as cultivated tree.

Bael is a tall tree grows up to a height of 3 to 6 meters with long, stout thorns; young parts are pubescent. Leaves are usually 3-foliate rarely 2 to 5 foliate with long, 2-3 cm petioles; leaflets lanceolate to elliptic-lanceolate. 4.5 x 2.5 cm, crenate acuminate, glabrous; lateral leaflets subsessile, terminal one long petioluted.

Flowers bisexual, greenish – white, and have pleasant fragrance, produced in axillary, short panicles. Pedicels short pubescent. Sepals united to form short 4-5 lobed calyx. Lobes rounded, ciliolate. Petals 4, distinct greenish white, oblong, 10 – 12 mm long. Stamens numerous; filaments distinct or subfascicled. Ovary ovoid – oblong; disk elevated. Fruits globose, 5-10 cm in diameter, rind yellowish green; pulp sweet, orange coloured, the inner contents of the fruit is mucilaginous and faintly aromatic. Flowering occurs during April to May and fruiting during May to September. Leaves and fruit pulp is used in Ayurvedic medicine.

Materials and methods:

The plant and its various parts were collected in two different seasons from the Kinwat forest range Dist. Nanded (M.S.). The plant material was shed dried. The fleshy fruits were preserved in plastic bag and stored at ambient temperature until use. A herbarium was prepared and authentified and deposited in P.G. Department of Botany in D.S.M. College, Parbhani.

Extraction- Hot water extract of leaves, flowers, and fruits was prepared as described Chessbrough (2000). The extract was evaporated and dried. The dried powder was preserved in an airtight screw cap vessel for further investigation.

Anatomical Properties & Pharmacognostic analysis of plant parts:

1 Epidermal cell complex

1.1 Epidermal cells: The leaf let is amphistomatic, and unicostate. The epidermal cells on both the surfaces in the intercostals zone of the leaves are generally polygonal, uneven in shape with straight walls and smooth surfaces. Epidermal cells on the veins are generally elongated. The epidermal cell frequency of adaxial surface is 150-160 mm^2 and of abaxial surface is 130-140 $mm^{2.}$ (Photo plate:1).

Table 1 – Epidermal cell characteristics in *A. marmelos*

Sr. No.	Character	Surface	Observations
1	Shape	Adaxial	Polygonal
		Abaxial	Polygonal
2	Sides	Adaxial	Straight
		Abaxial	Straight
3	Surfaces	Adaxial	Smooth
		Abaxial	Smooth
4	ECF mm^2	Adaxial	150-160 mm^2
		Abaxial	130-140 mm^2

1.2 Stomatal complex: the stomata on both the surfaces are restricted to the inter costal region. The stomata are paracytic or rubaceous, anomocytic, occasionally anisocytic, contagious on leaf abaxial, subsidiaries 2-5, monocyclic, amphistomatic, stomata diffuse and variously oriented. (Photo plate:1)

Leaf adaxial = SF per mm2 -150-160; SI- 10.7-12.0

Leaf abaxial = SF per mm2- 130-140; SI- 15.0-17.6

1.3 Trichome complex: Trichomes are present on both the adaxial and abaxial surfaces of leaves. The trichomes of upper surface of leaf are unicellular with a basal cell and a tapered distal cell. The trichomes of lower surface are uniseriate to multicellular with a basal cell and upper body with 2-3 cells of which the distal cell is small straight or curved and tapering. The basal cell is generally thick-walled and bulged. The hairs are categorized as a) unicellular conical hairs- Foot consists of basal end of the hair embedded in the epidermis, contents are present, wall thick. The body representing the extension of foot, which is long, conical, curved apically pointed, cytoplasmic contents absent at maturity, thick walled with smooth surface often present on lower surface of the leaf. b) Multicellular, unbranched, uniseriate trichomes- Foot mostly simple, embedded in epidermis with cytoplasmic contents, body – long, 2-3 celled, straight to curved at tip, presence of content, walls thick, with smooth surface, tip pointed; present on both surfaces. No other special types of hairs were noticed in the observation. (Photo plate:1)

2. Anatomical analysis:

2.1 T.S. of stem: It is more or less circular in outline. Epidermis is single layered with a few unicellular hairs. A thick cork is present beneath the epidermis in the outer cortex and the patches of bast fibers towards inner cortex. Pericycle is sclerenchymatous. Secondary phloem is compressed and shows fibers with transverse partitions. Secondary xylem is well developed. Secondary xylem forms a continuous cylinder transversed by very long, 2 to 3 celled wide rays. The wood is diffuse porous, vessels are more or less equal diameter and they are uniformly distributed throughout the wood. Intraxylary patches of phloem are observed in the periphery of pith. Pith is conspicuous with intercellular spaces and ergastic materials in pith cells. (Photo: 2)

2.3. T.S. of leaf- Both the epidermis are unilayered, with presence of unicellular hairs on upper epidermis. The leaf is amphistomatic. Mesophyll is differentiated with well developed palisade towards adaxial side, while 2 to 3 layered spongy, chlorenchymatous mesophyll cells, with less frequent intercellular spaces, towards abaxial surface. Sclerenchymatous fibers are seen in midrib region. A single vascular bundle is seen in the midrib region. It is collateral, closed with xylem towards upper epidermis and phloem towards lower epidermis. The bundles are surrounded by a row of colorless parenchymatous bundle sheath. Collenchyma is present on inner and outer sides of the vascular bundle, which reach up to the both epidermal layers.(Photo: 2)

2.4. Vessels Elements:

a) Vessels elements of Stem: Length of the vessel element is 300 µm; diameter 40 µm; lateral wall thickening are spiral to scalariform; both end wall plates transverse; monoperforate. In 50 % of the vessels both end wall plates oblique and monoperforate. In 25 % of the vessels; both end wall plates oblique while scalariform in 20% of the vessels, numbers of bars 3-4. (Photo plate:2)

b) Vessels elements of root – Length of the vessel element is 150 µm and diameter 20 µm, lateral wall thickening is spiral, both end wall plates are oblique and monoperforate in 80 % of the vessels; where as one end wall plate is transverse monoperforate, and other oblique, monoperforate in 20 % of the vessels elements. (Photo plate:2)

2.5 Quantitative microscopy of leaves:

Table 2 - Quantitative microscopy of leaves of *A marmelos*

Sr. No.	Parameter	Surface	Range
1	Stomatal frequency	Upper	18-22
		Lower	24-30
2	Stomatal index	Upper	10.7-12.0
		Lower	15-17.6
3	Palisade ratio	-	4-6 (5)
4	Vein islet number	-	9-12
5	Vein let termination number	-	10-14

The quantitative microscopy of leaf reveals that the stomatal index for upper and lower surface were found to be 10.7 to 12.0 and 15.0 to 17.6 respectively. The palisade ratio, which indicates number of palisade cells beneath epidermal cell, was 4-6, for upper epidermis. Vein islet number was 9-12 and vein-let termination was 10-14 (Table-2).

3.1: Phytochemical analysis:

Table 3 - Histochemical tests for *A .marmelos*

Sr. No	Tests	Stem	Leaf	Fruit
1	Starch	+	+	+
2	Protein	+	+	+
3	Tannins	+	-	+

4	Saponnins	+	+	+
5	Fats	+	-	+
6	Glucosides	-	+	+
7	Alkaloids	+	+	+
8	Carbohydrates	+	+	++
9	Reducing sugars	+	+	+
10	Non-reducing sugars	-	-	+

The preliminary phytochemical analysis of stem, leaf and fruit showed the presence of starch, proteins and carbohydrates in all parts studied. The secondary metabolites like alkaloids and saponnins are also present in all parts in trace amount and absence of tannins and fats in the leaf. Reducing sugar is present in all parts while only fruit reveals the presence of non-reducing sugars.

3.2 Detection of inorganic constituents

Table 4 -Detection of Inorganic constituents for *A. marmelos*

Sr. No.	Test	Stem	Leaf	Fruit
1	Calcium	+	+	+
2	Magnesium	-	-	-
3	Sodium	+	+	+
4	Potassium	+	+	+
5	Iron	-	+	+

The phytochemical analysis of ash for detection of inorganic constituents (Table 4), revealed that the presence of calcium, sodium and potassium in stem, leaf and fruit. Iron is present in leaf and fruit, while absence of magnesium in stem leaf and fruit.

3.3 Physico-chemical analysis:

The Physico-chemical analysis of powdered drug of *A. marmelos* (Table:5) reveals the total moisture content was 1.4 %. The total ash was found to be 3.5% of the dry weight, of which 0.6 % of the total ash was the acid insoluble ash and 1.1 % of the total ash was the water-soluble ash. The extractive values were found to be 16.6 % of dry weight and 8.1 % of dry weight for water and alcohol respectively.

Table 5 - Physicochemical analysis of powdered drug in *A. marmelos*.

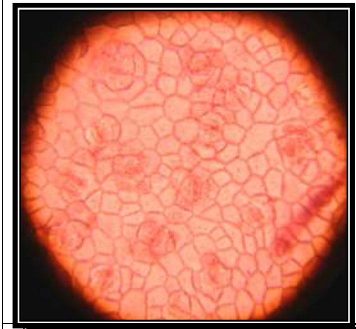
Sr. No.	Parameter	Result
1	Moisture contents	1.4 %
2	Total ash	3.5 % of dry wt.
3	Acid insoluble ash	0.6 % of total ash
4	Water soluble ash	1.1 % of total ash
5	Water soluble extractives	16.6 % of dry wt.
6	Alcohol soluble extractive	8.1 % of dry wt.

The Physico-chemical analysis of powdered drug of *A. marmelos* (Table: 5.5) reveals the total moisture content was 1.4 %. The total ash was found to be 3.5% of the dry weight, of which 0.6 % of the total ash was the acid insoluble ash and 1.1 % of the total ash was the water-soluble ash. The extractive values were found to be 16.6 % of dry weight and 8.1 % of dry weight for water and alcohol respectively.

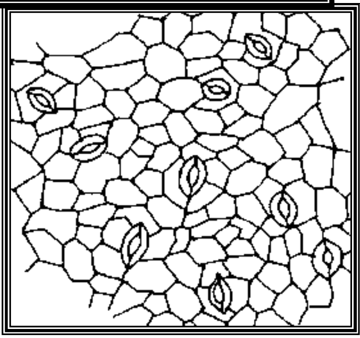
B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Photo Plate 1:

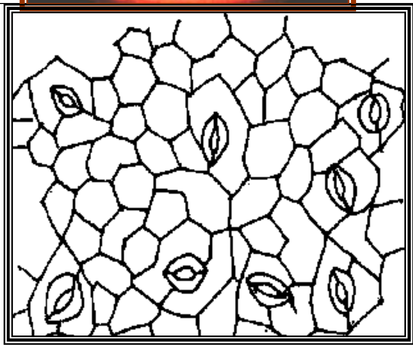
Stomata: Upper epidermis



stomata : Lower epidermis



Stomata: upper Epi–Camera Lucida figure



Stomata: Lower Epi –Camera Lucida figure

Photo Plate: 2

Photo: T.S Of stem of *Aegel Marmelos*

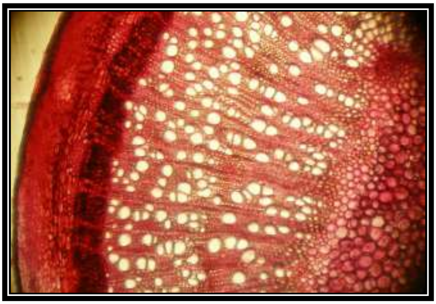
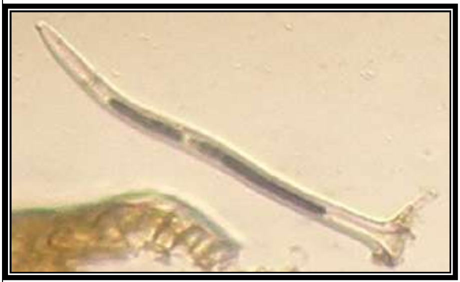
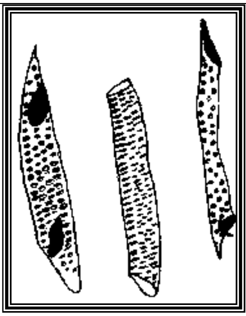
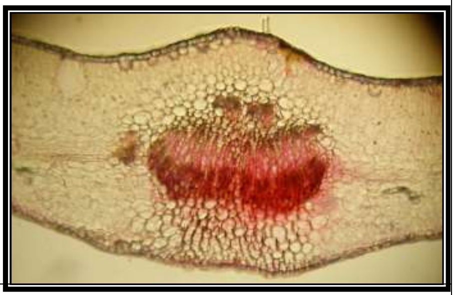
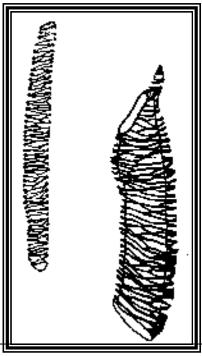
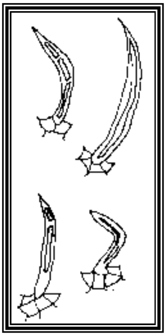


Photo: Vessels of stem	Photo: Trichomes
	
 Photo: T.S. of Leaf & Vessels of roots	
Fig: Vessels of stem 	Fig: Trichomes on leaves 

RESULT AND DISCUSSION:

The structural diversities of epidermal components provide most valuable criteria for the classification and identification of plants between species and family level (Barthlott, 1981).

Trichomes are the important diagnostic character helpful in the identification of drugs and detection of adulterants. Trichomes are tubular elongated or glandular outgrowth of epidermal cells. Trichome consists of two parts, the foot and the body; the former is mostly embedded in the epidermis, while the later constitute the emergent form (de Bary, 1884 and Haberlandt, 1914). Trichomes of *A. marmelos* normal type with foot and stalk, generally unicellular.

Anatomy of stem and leaf of selected plants provides important pharmacognostic parameters for determining medicinal values, identification of taxa and adulterations in drugs. This study reveals detail data about internal structure of stem and leaf. Anatomy of stem of *A. marmelos,* showed well developed secondary growth with scanty pith, thin to thick cork and well developed cortex. It confirms the arborescent habit of the plants.

Conclusion: The parmacognostic study of Aegel marmelos done in this study shows its typical characterestics that will help to identify the adulterations in the pure drugs obtained and produced from various parts of the plant.

Acknowledgements:

Author is thankful to Dr. S. D. Biradar, Research Guide, Dnyanopasak College, Parbhani for providing necessary facilities and encouragement. Author is also thankful to Dr. V.Y. Sonawane Principal B. Raghunath ACS College, Parbhani for his constant support.

References:

Barthlott, W., 1981. Epidermal and seed surface characters of plants. Systematic applicability and evolutionary aspects. *Nordic. J. Bot*. 1, 345-355.

Chessbrough M., 2000. Medical Lab. Manual for tropical countries, Linacre house, Jordan Hill Oxford.

de Boer, H.J. Kool, A., Broberg, A., Mziray, W.R., Hedberg, I.and Levenfors, J. 2005. Antifungal and antibacterial activity of some herbal remedies from Tanzania. *J. Ethbnopharmacol*. 96: 461-469.

de Bary, A., 1884. Comparative anatomy of the vegetative organs of the phanerogams and ferns. Clarendon Press, Oxford.

Haberlandt, G. 1914. Physiological plant anatomy. MacMillan, London.

Kokate, C.K., Purohit, A.P., Gokhale, S.B., 2008. Pharmacognosy, 42nd Edition, Nirali Prakashan Pune-2.

Ramayya, N., 1962. A study of structure, variation, development and distribution of trichomes in compositae. Ph. D. thesis, Osm. Uni. Hyd., India.

ISSN : 2278-9308
February, 2022

Antifungal And Antibacterial Analysis Of Organic Extracts Of Solanum Virginianum L.

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Abstract

Solanum virginianum L. is a common herbaceous procumbent plant occurs on wastelands. All the parts of plant were used in *ayurvedic* medicine to relive hypertension, reduce blood pressure and broncho-constriction. The plant is also used in the treatment of ailments like constipation, stomachache, chest pain cough and asthma, dropsy and urine disorders. In the present investigation the antimicrobial effect of *Solanum virginianum* fruit extract was evaluated on bacterial strains like *Escherichia coli*, *Staphylococcus aureus*, *S. paratyphi, S. dysentry* and fungal strains like *Candida albicans*, *Fusarium stionifer, F. oxysporum* and *Aspergillus niger.* The solvent used for the extraction of plants were distilled water, methanol, alcohol, chloroform and acetone. *Bascillus subtilis* is the most susceptible Gram positive bacterium while Gram negative bacterium was *Pseudomonas aeruginosa*. The leaf extract of acetone and methanol, showed least activity against test bacterial strains which were investigated. The *in vitro* antimicrobial activity of the active extract was compared with standard antibiotic Gentamycin. In case of fungi the *Candida albicans* shows significant activity. The MIC values of the extracts were also determined which ranged from 15 to 50 mg/ml the values obtained in the present study suggest that the fruit extract of *Solanum virginianum* can be used in treating diseases caused by the test organisms.

Key words: *Solanum virginianum ,* Antimicrobial assay

Introduction:

Successful prediction of botanical compounds from plant materials is largely dependent on the type of solvent used in the extraction procedure. The traditional healers or practitioners make use of water primarily as a solvent but present study showed that organic solvent and particularly methanol extracts of these plants were certainly much better and powerful. This may be due to better solubility of activity compound in organic solvent (de Boer *et. al.,* 2005).

Material and method:

Microbiological assay – To study efficacy of drug against micro flora related to human, the extracts of five plants were prepared in four different solvents of each using standard method (Chessbrough, 2000). The antibacterial assay was conducted by agar well diffusion method. (Perez, 1990). Antibacterial assay was performed using four different bacteria namely *Staphyllus aureus, Escherechia coli, Salmonella paratyphi, Shigella dysentery*. While antifungal assay was performed using four fungi namely *Aspergillus niger, Fusarium oxysporum, Candida albicans and Rhizopus stolonifer.*

Preparation of plant extracts - The plant materials were ground in a grinding machine in laboratory. 100 gm. of each paste was mixed with 1000 ml. of solvents like Chloroform, Methanol, Ethyl acetate and distilled water separately. The mixture kept for 24 h. in tightly sealed vessels at room temperature for maceration and stirred constantly on mechanical stirrer. The mixture was protected from sunlight to prevent loss of active components. This mixture was filtered through Whatmann No. 1 filter paper. The extracted liquid was subjected to evaporation in order to remove solvent. The semisolid extract produced was stored in an airtight container at 4^0C in refrigerator for further use. All the dried extracts were exposed U.V. rays (200-400 nm) for 24h and checked frequently for sterility on nutrient agar plates (Chessbrough, 2000).

Anti bacterial assay- The antibacterial assay was conducted by agar well diffusion method (Perez, 1990). Sterile molten Nutrient Medium was inoculated with 0.5 ml of inoculums. A well of 6 mm diameter were punched in Nutrient agar and filled with 50 μl solvent extracts. Plates were kept in refrigerator for 20 min for proper diffusion of extracts. Later on the plates were incubated at 37^0 C for 24 h. Microbial growth was determined by measuring diameter of zone of inhibition. For each bacterial strain control were maintained where pure solvents were used instead of the extract. The experiment was conducted three times and means values were considered. The results were compared with a standard antibiotic gentamycin (10 μg/m disc).

Antifungal assay – The assay was conducted by agar well diffusion method. The fungal strains grown of Potato Dextrose Agar (PDA) at 37^0 C for 24 h. were suspended in saline solution (0.85 % NaCl). Using Neubergh chamber microbial spores were adjusted to be uniform in each 10 ml of sample. The suspension was used to inoculate 90 mm diameter Petri dish containing 15 ml of PDA. Well of 6 mm diameter were punched in PDA agar and filled with 50 μl extracts. The control plates were also prepared with all solvents including distilled water. Plates were incubated at 37^0 C for 24 h. Antifungal activities were evaluated by measuring inhibition zone diameters. The experiment was conducted thrice.

RESULTS & DISCUSSION:

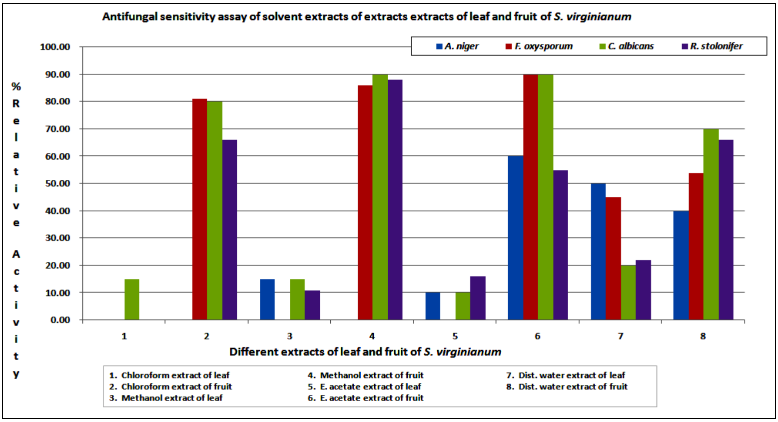
Table1-Antifungal sensitivity assay of *S. virginianum*

Sr. No	Different extracts of *S. virginianum*	Diameter of Inhibitory zone (mm)			
		A. niger	***F. oxysporum***	***C. albicans***	***R. stolonifer***
1	Chloroform extract of Leaf	00	00	03 / 15	00
2	Chloroform extract of fruit	00	18 / 81	16 / 80	12 / 66
3	Methanol extract of Leaf	03 / 15	00	03 / 15	02 / 11
4	Methanol extract of fruit	00	19 / 86	18 / 90	16 / 88
5	E. acetate extract of Leaf	02 / 10	00	02 / 10	03 / 16
6	E. acetate extract of fruit	12 / 60	20 / 90	18 / 90	10 / 55
7	Dist. water extract of Leaf	10 / 50	10 / 45	04 / 20	04 / 22
8	Dist. Water extract of fruit	08 / 40	12 / 54	14 / 70	12 / 66
9	Griseofulvin (5 mg/ml)	20	22	20	18

Table 1 and graph 1 showed antifungal sensitivity assay of four solvents extracts of leaf and fruit of *S. virginianum* against test fungi. (Photo Plate -1)

The chloroform extract of fruit showed maximum zone of inhibition against *F. oxysporum and C. albicans* (81, 80%), and moderate against *R. stolonifer* (66%), while *A. niger* was resistant and showed no zone of inhibition. The methanolic extract of fruit was most effective against *C. albicans* (90%), moderate against *F. oxysporum and R. stolonifer* (86,88%), while it was non-effective against *A. niger*. Ethyl acetate extract of fruit showed maximum activity against *C. albicans and F. oxysporum* (90%) while moderate against *A. niger* (60%) and *R. stolonifer* (55%). Aqueous extract of fruit showed maximum zone of inhibition against *C. albicans* (70%), moderate against *R. stolonifer* (66%), and *F. oxysporum* (54%), while least activity against *A. niger* (40%). In all the fruit extracts were most effective against *C. albicans* and very least effective against *A. niger.* The organic extracts showed more activity than aqueous extracts.

Graph 1- Antifungal sensitivity assay *S. virginianum*



The chloroform extract of leaf was sensitive to only *C. albicans* (15%), while completely non-inhibitory against rest of fungi. The methanolic extract of leaf showed very meager activity against *C. albicans and A. niger* (15%) and very less against *R. stolonifer* (11%). Ethyl acetate extract of leaf was ineffective against *F. oxysporum* and moderate against rest of fungi showing zone of inhibition between 10-16%. Aqueous extract of leaf, however showed better activity against all test fungi, with maximum inhibition against *A. niger* (45%), moderate against *F. oxysporum* (45%), and less against *C. albicans and R. stolonifer* (20,22%). All the extracts showed most activity against *C. albicans*, while *A. niger* showed less sensitivity. The fruits extracts were most effective against all fungi the leaf extract shoed less activity. Thus *A. niger* showed higher degree of resistance against the extracts. The aqueous extracts of fruit and leaves showed maximum inhibition against all test fungi. (Photo plate 1).

Table 2 - Antibacterial sensitivity assays *S. virginianum*

Sr. No	Different extracts of *S. virginianum*	Dia. of Inhibitory zone (mm) & % inhibition			
		S. aureus	*E. coli*	*S. paratyphi*	*S. dysentery*
1	Chloroform extract of Leaf	2 / 10	0 / 0	3 / 13.6	0 / 0
2	Chloroform extract of Fruit	12 / 60	16 / 66.6	18 / 81.8	17 / 85
3	Methanol extract of Leaf	3 / 15	3 / 12.5	3 / 13.6	6 / 30
4	Methanol extract of fruit	15 / 75	20 / 83.3	20 / 90	18 / 90
5	E. acetate extract of leaf	3 / 15	2 / 8.3	2 / 9.0	7 / 35
6	E. acetate extract of fruit	18 / 90	18 / 75	20 / 90	16 / 80
7	Dist. water extract of leaf	2 / 10	2 / 8.3	1 / 4.5	2 / 10
8	Dist. Water extract of fruit	8 / 40	12 / 50	11 / 50	7 / 35
9	Gentamycin	20	24	22	20

The antibacterial sensitivity assay of four solvent extracts of leaf and fruit of *S. virginianum* showed following results as shown in Table 2. **Photo plate:2**

The chloroform extract of fruit showed maximum zone of inhibition against *S. dysentery* (85%), moderate against *S. paratyphi* (81%), and least against *E. coli and S. aureus* (66,60%). The methanolic extract of fruit showed highest activity against all four strains of bacteria. The maximum activity was shown against *S. paratyphi and S. dysentery* (90%), moderate against *E. coli* (83%) and least against *S. aureus* (75%). Ethyl acetate extract of fruit also showed higher activity than other extracts. However,

ISSN : 2278-9308
February, 2022

the most activity was against Gram-positive bacteria *S. aureus* (90%), and against *S. paratyphi* (90%), moderate against *E. coli* and *S. dysentery* (75,80%). The aqueous extract of fruit showed moderate activity against Gram-negative bacteria *E. coli and S. dysentery* (35,40%). (Photo plate:2)

The chloroform extract of leaf was found to be least effective against *E. coli* and *S. dysentery* and showed moderate activity against *S. paratyphi* (13%), and *S. aureus* (10%). The methanolic extract of leaf was moderate sensitive against all forms and showed zone of inhibition between 12.5 – 30 %. Ethyl acetate extract of leaf showed moderate sensitivity against *S. dysentery* (35%), and least against all other three forms. Aqueous extract of leaf also showed moderate activity against all four forms and showed zone of inhibition between 10-14.5 %. Thus extracts of *S. virginianum* were found to be most effective against *S. dysentery and S. paratyphi* and moderate against *E. coli* and *S. aureus.* Moreover, organic solvent extracts of fruit were more effective than aqueous extracts. The fruit extracts were found to be most effective. As all parts of *S. virginianum* are reported to have medicinal value. The leaf extracts and fruit extracts showed activity against all four strains.

Graph 2 - Antibacterial sensitivity assays of *S. virginianum*

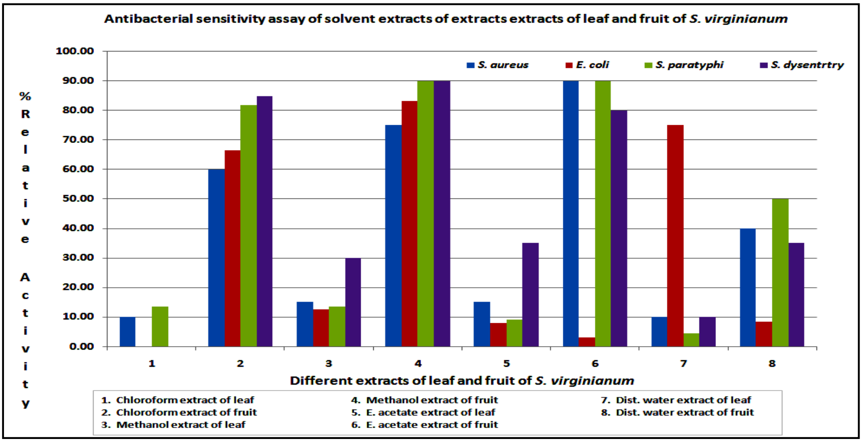


Photo plate 1: Photographs of Antifungal activity of *S. virginianum*

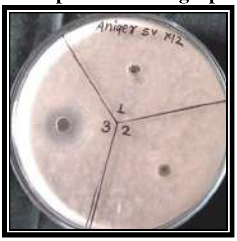
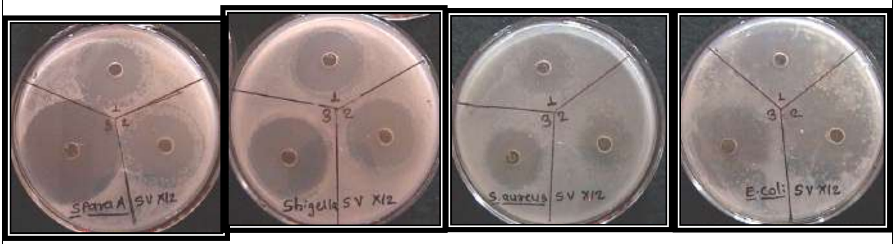


Photo plate 2: Photographs of Antibacterial activity of *S. virginianum*

ISSN : 2278-9308
February, 2022



Conclusion: The chloroformic and methanolic extract of fruit of *S. virginianum* exhibits pronounced antibacterial efficacy against all fungi whereas organic solvent extracts shows antifungal activity against *F. oxysporum, C. albicans* and *R. stolonifer*. The organic solvent extracts of fruit of *S. virginianum* have remarkable antimicrobial efficacy.

S. virginianum have significant effective actions against the Gram-negative bacteria, which usually are found to be less effective against crude extracts. Gram-positive bacteria are more susceptible than Gram negative due to the difference in their cell wall structures. Gram-negative bacteria are resistant due to their outer membrane acting as barrier to many environmental substances including antibiotics. However, the results from this study reveals that the crude methanol extracts of all plants contain certain constituents like tannins with significant antibacterial property which enable the extract to overcome the barriers in Gram negative cell wall.

Acknowledgements:

Author is thankful to Dr. S. D. Biradar, Research Guide, Dnyanopasak College, Parbhani for providing necessary facilities and encouragement. Author is also thankful to Dr. V.Y. Sonawane Principal B. Raghunath ACS College, Parbhani for his constant cooperation.

References:

Barthlott, W., 1981. Epidermal and seed surface characters of plants. Systematic applicability and evolutionary aspects. *Nordic. J. Bot*. 1, 345-355.

Chessbrough M., 2000. Medical Lab. Manual for tropical countries, Linacre house, Jordan Hill Oxford.

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Haberlandt, G. 1914. Physiological plant anatomy. MacMillan, London.

Kokate, C.K., Purohit, A.P., Gokhale, S.B., 2008. Pharmacognosy, 42nd Edition, Nirali Prakashan Pune-2.

Ramayya, N., 1962. A study of structure, variation, development and distribution of trichomes in compositae. Ph. D. thesis, Osm. Uni. Hyd., India.

Innovations And Challenges In Commerce, Humanities, Science And Technology : World Economy And Trade Relations

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Abstrat

We went through a difficult period of Covid-19. It affected the economy not only of India but the world economies. It was challengeable as well as put forward many opportunities to bring the economies up and ability to last in the competition. Commerce has become easy and flexible that we can perform our commerce activities smartly. Technology has made possible to work from home . Commerce has been changed completely. Similarly, humanities are the stories, the ideas and the words that help us to make sense of our lives and our world. Efforts are being taken to innovate humanities by bringing new trends in the branch. In the age of science it is again a challenge to make it make more developed. Science and technology is being more powerful and result giving. We can't live without science and technology. A lots of innovations and behind innovations new challenges are coming forward. Everywhere, there is the improvement and development just because of technology. Every field, every sector is modernized using technology. We can't ignore technology in the world of competition.

The economies in the world are trying to rebuild the economy using advanced technologies and available talent. Economists in the world are suggesting some measures to bring the economy up. It's a challenge not only for the poor economy but for the strongest economy also. The Global Competitiveness Report 2019 has published its learning about the factors of future productivity. This paper discusses about world economy and its trade relations and why trade is important internationally.

KEYWORDS : Economy ,competitiveness ,world, global, humanities, science, technology

INTRODUCTION

Technology has brought a lot of changes. Every sector like education, commerce or other have been occupied with technological innovations and made them easier and smarter. A lots of things or studies we can do just from home. Technology has revealed the secrets of this mysterious world and life has changed

The entire world is going through weak economy. It's a challenge for each and every country to maintain economy and to re-establish the lost heritage. The most burning problem created by the epidemic is unemployment, it's a challenge for countries of the world to promote employment. Global trade refer to current issues of the global economy which are shaping our future in the upcoming months or years. . Global trade is maintained by organizations, governments to make strategies for better economic efficiency and market condition. Global trade pertain to forward looking minded executives who are interested in extrapolating rather than predicting. World economies try to reach the highest scoring systematized by Global Competitiveness Report .Each indicator ranges from 0-100. Country rankings are volatile and changing. Japan used to be among the top three most competitive countries in the late 1980s and fell to the bottom half of our WCC results five years ago. The digital economy is changing daily life in emerging and advanced economies alike India and Canada are no exception. While both nations face their own unique challenges and rapid technological advancement. Their shared values create a unique opportunity for collaboration. The Canada- India track 1.5 Dialogue on Innovation, Growth and Prosperity-a three-year partnership between the Centre for International Governance Innovation (CIGI) and Gateway House-was created to explore those opportunities. Modi, the prime minister of India is trying to maintain healthy economic relation globally for enhancing economy of India. This paper talks about global trade and economic trends.

INNOVATIONS AND CHALLENGES IN ICHST

TOP COMMERCE INNOVATIONS

1.Super fast delivery and instant pick-up counters
2.Real time location based mobile selling
3. Voice powered shopping
4.AI powered personalization
5.Shopping using AR technology
6.Blockcain
7.single-click checkout
8.Chatbots to handle customer queries
9.Social commerce
10.Digital storefronts

The task is challenging too. They have to go through a tough path while implementing new innovations.

CHALLENGES BEFORE HUMANITIES

Right now the principal challenges to the humanities in our universities fall

1.Money-Humanities don't have proper the assistance. Facilities as science are not made available. It needs support to sustain and flourish.

2.A conflict-There is always seen a conflict among views of humanists. They don't agree on the same theme. It is a challenge for humanities.

3.Communication-Lack of communications among professors and administrators actually create the radical splits that divide discipline. Communication is must to solve the crisis.

WORLD ECONOMY

World economy or the global economy is the economy of all humans of the world, referring to the global economic system which includes all economic activities which are conducted both within and between nations, including production, consumption, economic management, work in general, exchange of financial values and trade of goods and services.

KEY POINTS TO REMEMBER

1.International trade is the exchange of goods and services between countries.

2.Trading globally gives consumers in their own countries the opportunity to be exposed to goods and services not available in their own countries or more expensive domestically.

IMPORTS AND EXPORTS

A product that is sold to the global market is called export, and the product that is bought from the global market is an import. Imports and exports are accounted for in the current account section in a country's balance of payments.

OTHER POSSIBLE BENEFITS OF TRADING GLOBALLY

It encourages the opportunity for foreign direct investment, it also increases efficiency and allows countries to participate in global economy. Economies can grow more efficiently and become competitive economic participants more easily.

For the receiving government, FDI is a means by which foreign currency and expertise can enter the country. It raises employment levels and, theoretically, leads to a growth in the gross domestic product (GDP). For the investors, FDI offers company expansion and growth, which means higher revenues.

TOP FIVE TRENDS IN THE GLOBAL BU8IESS AS REVEALED BY THE GLOBAL COMPETITIVENESS INDEX 4.0 IN 2019

1.It is the observation of last 10 years that global leaders take rapid action to make it less severe the worst of the financial crisis, but it alone has not proved sufficient to boost productivity growth

Since the great recession, policymakers have kept the global economy afloat primarily through ultra-loose and unconventional monetary policy. But despite the huge injection of liquidity –the world's four major central banks of UK, US, EU, and Japan alone injected $ 10 trillion between 2008 and 2017-prpoductivity growth has continued to stagnate over the past decade.

Over believe on monetary policy may have role in reducing productivity growth by encouraging capital mis-allocation, less interest of banks in leading businesses, favoring firms with poor credit, and prioritizing fee-generating and trading activities instead. Each and every country can- not escape from 12 levels of competitiveness. Countries must pursue all 12 avenues but create their own sequencing strategy to balance and focus efforts, with the help cheaper capital and technology. As the adage goes, "fix the roof while the sun is shining." and the policymakers have a narrowing window before a predicted slowdown.

2. **Policymakers must revisit their tooklit to include a range of fiscal policy tools, reforms and public incentives.**

Excessive belief in monetary policy also means fiscal policy has been miss-used. Public investment has reduced globally. If hysteresis has permanently lowered the growth path, then investment led stimulus could be strong action to revive growth in stagnating advanced economies, specially, fiscal policy that gives priority to investment in infrastructure, R and D green procurement , human capital. It will prove a great help in enabling responsible and inclusive businesses. Government public investment is on decline globally in the sectors like schools, hospitals and R&D.

3. Developing skills must be invested with ICT adoption and promoting technology to provide opportunity for all in the era of the Fourth Industrial Revolution

It is the era of forth industrial revolution. It will be critical finding a balance between technology integration, human capital investments and the innovation ecosystem for enhancing productivity in the next decade. Right skills and training workers become smart worker and more contribute in productivity. Smart worker is an essential factor in this era. Scientific publications, patent applications, R&D expenditure and research institutions are all well -established aspects of developing innovative capability. But these are not enough.

A number of softer factors are equally important for business. Ability of companies to embrace disruptive ideas, the attitude toward entrepreneurial risk-US is 2nd with 75.9 while France is 55th with 52.9 points, diversity of workforce and flat hierarchical structures in companies are some softer factors for commercialization.

4. Speed, direction and quality of growth must be looked after by the policy makers.

Sustained economic growth remains a critical pathway out of poverty and core driver of human development and living standards. It's not enough. We have two greatest challenges for the next decade first is, building shared prosperity and second is managing the transition to a green economy. We just have to look for the solutions of the two. Data in the report shows a marked rise in market concentration in advanced and emerging economies –business leaders assessment of market competition over the past 10 years decreased by 15% in the US and 12% in Germany. There is inequality in income growth, for example, ,the share of income of top decline over the past 10 years grew from 43% to 47% in the US , from 36 to 41% in china and from 32 to 35 % in Germany.

There is need of time to focus not just the speed of growth but also its direction and quality.

5.More visionary leadership is necessary to place all economies on such a win-win trajectory.

Policymakers, business leaders and international multilateral systems have to work together to set new direction and must now make bold and visionary choices to lead us to a win-win trajectory for growth , shared prosperity and sustainability.

The ups and downs in the trade, social and environmental factors may emerge from short term and narrow view of growth but can be overcome by adopting a holistic and longer term approach to growth. Some economies such as Denmark , Sweden and Finland are technologically advanced , innovative, dynamic ,and are providing better living conditions to the people of their country. These countries are more sustainable than their peers at a similar level of competitiveness. It has been possible just because of visionary leadership and far sighted view.

10 trends that will shape the global business over the next decade :

The bank's global research outlined 10 megatrends that are likely to shape the global economy over the next decade. Those are-

Peak globalization, recession, quantitative failure, demographies, climate change, robots and automation, splinternet, moral capitalism, smart everything and space.

Conclusion

World economy is a broad term. It is inseparable from the geography and ecology of planet Earth. World economy is judged in monetary terms, even in cases in which there is no efficient market to help valuate certain goods or services, or in cases in which a lack of independent research, genuine data or government cooperation makes establishing figures difficult. Global business trends should be applied properly.

These trends could shape a new era of fiscal, monetary and competition policy, as well as bigger government. International trade help to fight with any dire situation together. We can cite the example of Covid-19, International coordination is key to resolving global challenges such as vaccine manufacturing and distribution. Except pandemic, China's economy continues to outperform. China's industrial production is up. It's just because government's farsightedness and government –inspired investment infrastructure. What matters in the nation's development is government's policy. Lesson should be learnt from china.

Above mentioned trends could be helpful for the economic growth of nation and prosperity. Still it depends on the government's policy and its implementation. We have a lot of example of poor countries progressing and developing despite unavailability of enough resources. China is one of them. What needed is implementation and proper utilization of labor.

Reference-

www.imd.org. ,
www.cigionline.org/economy-2019
,info.ceicdata.com/world-trend/plus-database, https://www.pwc.com., www.imf.org

ISSN : 2278-9308
February, 2022

Indian Higher Education System: Challenges And Suggestions

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ABSTRACT:

Higher education system plays an important role for the country's overall development which includes industrial, social, economic etc. Indian higher education system is third largest in the world. The role of Indian higher educational institutes such as colleges and universities in the present time is to provide quality based education in the field of education, research etc to empower youth for self sustainability. This paper includes the key challenges that India is currently facing in higher education and also includes some initiatives taken by the government to meet those challenges.

Introduction

Higher education means different things to different people. If we talk about higher education in terms of level, it means to gain higher educational qualification by the teaching-learning process in the higher educational institutes such as colleges and universities. Moreover higher education imparts knowledge, develops the student's ability and also give him/her a wider perspective of the world around. Higher education becomes input to the growth and development of industry and also seen as an opportunity to participate in the development process of the individual through a flexible education mode

Higher Education in India:

Next to China and United States India has the third largest higher education system in the world in terms of size and its diversity and largest in the world in terms of number of educational institutions. After independence Indian higher education attain a massive growth. In the Indian system, higher (tertiary) education starts after the 10+2 (i.e. ten years of primary and secondary education flowered by two years of senior secondary education). Framework of higher education in India is very complex. It includes various type of institutions like universities, colleges, institutes of national importance, polytechnics etc. Universities are also of different types like central universities which are formed by government of India, by an act of parliament which are responsible for arranging and distributing resources required by university grant commission(UGC), State universities, Deemed universities (aided and unaided) .

Issues and Challenges in Higher Education

1. Teaching Quality

The first issue that higher education in India is facing is decreasing teaching quality. Teachers are not well trained and qualified for the job they are assigned to some colleges recruit young graduates as professors who have no experience or knowledge. So this is a big problem. Higher Education has to face is the teaching of English in the multilingual context. Language has been accepted as a major vehicle for conveying thoughts and feelings and there by storing our experiences and establishing relationship in the society yet, the teaching of languages in general and the teaching of languages of instruction in particular is taken for granted which is unacceptable in the multi lingual milieu of globalized world.

2. No Proper Value Education

Value education is not offered in the schools and colleges. If offered, religion and hatred are spread in the name of value education. Many of the doctors, lawyers, CAs, politicians and Govt. servants who are supposed to be the saviors of the society, suffer from serious charges of corruption. Old-age homes are increasing. Suicides are increasing. The meaning of love is eventually changing. The education-led technology, inventions and innovations are being misused.

3. Poor Women's Education

Women have a much lower literacy rate than men. Conservative cultural attitudes prevent girls fromattending schools. Despite Government's attempts to provide incentives viz. midday meals, free books and uniforms, girls' attendance is poor. Though the minimum age for marriage is eighteen, many girls get married muchearlier. Therefore, at the secondary level, female drop-out rate is high.

4. Political Factor

Political influence is also a bad thing and an issue with higher education. Governing bodies do not want any political influence or interference in their affairs. The dominant political leaders, now playing key role in governing bodies of the Universities, as they own most of the Institutions, imparting education (Aided-non-aided). They have established their own youth cells and encourage students' organization on political basis. They exploit the students' energy for their political purposes. The students for get their own objectives and begin to develop their careers in politics.

5. Moral Issues

Younger generation is not interested in serving their country and they are more interested in just taking up a job and a hefty pay package. Rapid growth of science and technology and subsequent industrialization has caused a great and danger to our old moral and values. The younger generation's dissatisfaction and revolt is the out-come of a decaying system of values.

6. Corruption in Education

Corruption in Indian education system has been eroding the quality of education. It is one of the major contributors to domestic black money. Payment to Management at dark rooms and seeking admissions is increasing. 'Get full salary in the account, pay back part to Management by blank signed cheques' is also a practice in some private schools.

7. Economic Difficulties

Is one of the most troublesome changes that the present higher education system has imposed on the communities? The numbers of students are coming from the ordinary classes; many of the mare unable to provide the minimum necessities of life for themselves. Economic miseries have grown due to the rising prizes, habits of was ting money on luxuries, increasing population, short age of food supply, corruption, selfish etc. students hold part time jobs in order to pay for the their educational expenses and must divide their attention between a job and College/University education. Near about seventy- five percent of the total students community today, have been facing the financial problems. Earn while learn scheme cannot adequately support student to face economic challenges.

8. Curriculum issues

There are many different curriculum systems that confuse the students who wish to achieve the same objective such as Engineering, Medical and Business Administration. At the higher education level, there is no uniformity in the syllabuses taught for the same programmer. Syllabus revision is done quite often without considering the contemporary requirements of industries. There is lack of diversity in the subjects one can take in colleges. Flexibility to cross over streams is also lacking.

9. Wrong societal outlook

For Governments, more scoring is success. English is becoming the measure of intellect. Hence, parents of today take least interest in vernacular medium of education. Due to the perceived notion of inferior quality, Govt schools are becoming the last choice for many. Education-seeking migration has become a matter of pride for many families. Most of the school students spend majority of their learning time in preparing for competitive exams. Coaching classes too flourish due to this unwarranted competition, leading to a class-divide.

10. Our heterogeneous education system

Based on geographical, rural-urban, rich-poorest up has posed in great challenge for the educational institutions. Varieties of colleges, universities, technical institutions have produced and different types and quality of Education. Some of the mare really imparting qualitative education while a few others are doing the dirtiest job. Thanks to UGC, for publishing the list of such a fake Universities and Institutions indulging in educational malpractices.

11. Financing

Financing is also an issue with higher education in India. Yes India is already spending very much on higher education and it can't spend more. However if the quality of higher education has to be improved then more financing is needed.

12. Privatization

Privatization is also a big problem that higher education faces. Privatization of higher education is the way to go. However just privatization is not going to solve the problem. You need to foster the culture of creativity, imagination and learning new skills in young students.

13. Quota System

Debating quota system is very controversial. But if you are being honest then I must tell you quota is not good for the quality of higher education. Talent and merit is more important than your identity. However quota system is still a challenge.

Suggestions for Improving the System of Higher Education:

- There is a need to implement innovative and transformational approach form primary to higher education level to make Indian educational system globally more relevant and competitive.
- In higher educational institutes Industrial co-operation must be their for the development of curriculum, organizing expert lectures, internships, live projects, career counseling and placements.
- Higher educational institutes need to improve quality, reputation and establish credibility through student exchange, faculty exchange programs, and other collaborations with high- quality national and international higher educational institutes.
- Government must promote collaboration between Indian higher education institutes and top International institutes and also generates linkage between national research laboratories and research centers of top institutions for better quality and collaborative research.
- There is a need to focus on the graduate students by providing them such courses in which they can achieve excellence, gain deeper knowledge of subject so that they will get jobs after recruitment in the companies which would reduce unnecessary rush to the higher education.

Conclusion

In this paper we have presented the present situation of India in higher education sector. We also identify the challenges like demand-supply gap, lack of quality research, problem of infrastructure and basic facilities, shortage of faculty etc in the higher education. The implementation framework for twelfth plan aims to focus on improving quality of state institutions, to revamp financial aid programs, to interlink expansion, equity and excellence. To improve the higher education system we need to improve teaching pedagogy, build synergies between research and teaching, facilitate alliance of higher institutions among themselves, research centers and industries. This is necessary not only to take care of economic growth, but it is also essential for social cohesion and to empower the country's youth.

References:

1. Barnett ,R.(1992).Improving Higher Education: Total Quality Core, Buckingham: SRHE & OU.
2. Agarwal, P. (2006). "Higher Education in India: The Need for Change." ICRIER Working Paper, Indian Council for Research on International Economic Relations: No. 180.
3. PWC report on "India-Higher education system: Opportunities for Private Participation, 2012.
4. Sanat Kaul, "Higher Education in India: seizing the opportunity", Working paper no. 179, 2006.
5. British Council, Understanding India: The Future of higher education and opportunities for international cooperation, 2014.
6. University News- Dec.26, 2005, Jan.01, 2006.
7. Powar, K. B. (2002). Indian Higher Education: A Conglomerate of Concept, facts, and practices, Concept publication company, New Delhi.
8. Mishra Sharda, (2006). UGC and Higher Education System in India. Book Enclave, Jaipur.302006
9. University News. Vol. 49. No. 31, August- 11-2011.
10. University News. Vol. 49. No. 35, August- 29, September 04, 2011.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

A Study Of Government Schemes For Women Empowerment In India

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1. INTRODUCTION

Women empowerment term is all about right, or the authority embarked on women allocation indistinguishable rights. This term refers to the freeing of women from socio-economic limits of belief. Women comprise near about fifty percent of the country's population, and a majority of them stays economically dependent on each other without employment. In the age of feminism, a small portion of women in India are unrestricted and can employ their free will and are allowed to fashion out their lives the way they want. But there is a significant division of the women in this nation who needpositive support. In most Indian villages and semi-urban cities, women are still deprived of fundamental education and are never authorized to continue higher education despite amassing the understanding required. Women are known for providingmany roles smoothly per day, and thus, they are considered the pillar of every society. Living in male-dominating societies, women play a comprehensive range of roles, such as caring mothers, loving daughters, and capable colleagues. The best part is that they fit the bill perfectly in every role. However, they have also put up ignored bunch of society in different parts of the world.

2. OBJECTIVES OF THE STUDY

i. To study the Central Government schemes for women empowerment.
ii. To examine the objectives of Government schemes of women empowerment.

3. REVIEW OF LITERATURE

Prof. Seema Singh and Dr. Antra Singh (2020), in the research 'Women Empowerment in India: A Critical Analysis' paper Women Empowerment is not merely a slogan but a prerequisite for an optimal capacity for overall development of a family, society, nation and a sustainable world. The paper has covered about affirmative legislation, plans and programmes initiated by the Government, NGOs and Corporate sector through their Corporate Social Responsibility over a very large spectrum starting from the Indian constitution to development in the recent years.

Dr.Reena Singh and Sakshi Singh (2021), they explain in research paper'Walfare Schemes in India for Women Empowerment: A Study'. The government and other private institutions are supportive women in the headship in open sector. Leadership of women in the public sector is the key of development in the nation.

4. RESEARCH METHODOLOGY

The study of the paper is descriptive in nature. The secondary data relating to the study was gathered from the records published by different journals, internet sources, published research papers, Govt. website and magazine and articles.

SCHEMES FOR WOMEN EMPOWERMENT IN INDIA

Sr. No.	Name of Scheme
1	BetiBachaoBetiPadhao Scheme
2	One Stop Centre Scheme
3	Women Helpline Scheme

4	UJJAWALA : A Comprehensive Scheme for Prevention of trafficking and Rescue, Rehabilitation and Re-integration of Victims of Trafficking and Commercial Sexual Exploitation
5	Working Women Hostel
6	Ministry approves new projects under Ujjawala Scheme and continues existing projects
7	SWADHAR Greh (A Scheme for Women in Difficult Circumstances)
8	NARI SHAKTI PURASKAR
9	Awardees of Stree Shakti Puruskar, 2014 & Awardees of Nari Shakti Puruskar
10	Awardees of RajyaMahilaSamman&ZilaMahilaSamman
11	Mahila police Volunteers
12	Mahila Shakti Kendras (MSK)
13	NIRBHAYA

BetiBachaoBetiPadhao Scheme : The trend of decline in the Child Sex Ratio (CSR), defined as number of girls per 1000 of boys between 0-6 years of age, has been unabated since 1961. The decline from 945 in 1991 to 927 in 2001 and further to 918 in 2011 is alarming. The decline in the CSR is a major indicator of women disempowerment. CSR reflects both, pre-birth discrimination manifested through gender biased sex selection, and post birth discrimination against girls. Social construct discriminating against girls on the one hand, easy availability, affordability and subsequent misuse of diagnostic tools on the other hand, have been critical in increasing Sex Selective Elimination of girls leading to low Child Sex Ratio. Since coordinated and convergent efforts are needed to ensure survival, protection and empowerment of the girl child, Government has announced BetiBachaoBetiPadhao initiative. The main objectives of this scheme are a) Prevention of gender biased sex selective elimination b) Ensuring survival & protection of the girl child c) Ensuring education and participation of the girl child.

One Stop Centre Scheme : One Stop Centers (OSCs) are intended to support women affected by violence, in private and public spaces, within the family, community and at the workplace. Women facing physical, sexual, emotional, psychological and economic abuse, irrespective of age, class, caste, education status, marital status, race and culture will be facilitated with support and redressal. Aggrieved women facing any kind of violence due to attempted sexual harassment, sexual assault, domestic violence, trafficking, honor related crimes, acid attacks or witch-hunting who have reached out or been referred to the OSC will be provided with specialized services. 1.2 Under this Scheme, in the first phase, one OSC envisaged to be established in each State/UT to facilitate access to an integrated range of services including medical, legal, and psychological support. Further, 150 additional Centers are taken up in second phase during 2016-17 in addition to 36 Centers in the first phase. Now, 50 additional One Stop Centers each shall be established during the years 2017-18, 2018-19 and 2019-2020. The objectives of the Scheme are: (i) To provide integrated support and assistance to women affected by violence, both in private and public spaces under one roof. (ii) To facilitate immediate, emergency and non-emergency access to a range of services including medical, legal, psychological and counselling support under one roof to fight against any forms of violence against women.

Women Helpline Scheme : The scheme of Universalization of Women Helpline is exclusively designed to support women affected by violence, both in private and public spaces, including in the family, community, workplace etc. Women who are victims of physical, sexual, emotional, psychological and economic abuse, irrespective of age, class, caste, education status, marital status, race, culture, and geography will be provided support. This is specifically with reference to married women/ women in consensual sexual relationships who are raped by their intimate partners, sex workers and transgender who might be sexually assaulted but are refused treatment due to patriarchal mindsets and prejudices. The Women Helplinewill provide 24 hour emergency response to all women affected by violence both in public and private sphere. All the existing emergency services such as Police (100), Fire (101), women helpline (1091), hospital/Ambulance (102), Emergency Response Services (108), NALSA Helpline for Free Legal Service (15100) and Child helpline (1098) would be integrated with this women helpline. The proposed Women Helpline will utilize the infrastructure of existing Chief Minister Helpline functioning in some States through 181 as well as that of 108 services. It will be established in every State/ UT. Following are some of the significant objectives of the Women's Helpline: Provide toll-free 24-hours telecom service to women affected by violence seeking support and information. Facilitate crisis intervention through referral to police/ Hospital/ Ambulance services Provide information about the appropriate support services available to the woman affected by violence, in her particular situation within the local area in which she resides or is employed. Creation and maintenance of a comprehensive referral database by the Helpline within its local area.

UJJAWALA: A Comprehensive Scheme for Prevention of Trafficking and Rescue, Rehabilitation and Re-integration of Victims of Trafficking for Commercial Sexual Exploitation A. Background 1. Trafficking of women and children for commercial sexual exploitation is an organized crime that violates basic human rights. India has emerged as a source, destination and transit for both in-country and cross border trafficking. The problem of trafficking of women and children for commercial sexual exploitation is especially challenging due to its myriad complexities and variation. Poverty, low status of women, lack of a protective environment etc. are some of the causes for trafficking. 2. A multi sectorial approach is needed which will undertake preventive measures to arrest trafficking especially in vulnerable areas and sections of population; and to enable rescue, rehabilitation and reintegration of the trafficked victims. B. objective of the scheme to prevent trafficking of women and children for commercial sexual exploitation through social mobilization and involvement of local communities, awareness generation programmes, generate public discourse through workshops/seminars and such events and any other innovative activity. To facilitate rescue of victims from the place of their exploitation and place them in safe custody. To provide rehabilitation services both immediate and long-term to the victims by providing basic amenities/needs such as shelter, food, clothing, medical treatment including counselling, legal aid and guidance and vocational training. To facilitate reintegration of the victims into the family and society at large to facilitate repatriation of cross-border victims to their country of origin. C. Target Group/Beneficiaries - Women and children who are vulnerable to trafficking for commercial sexual exploitation. Women and children who are victims of trafficking for commercial sexual exploitation.

Working Women Hostel : Introduction With the progressive change in the socio-economic fabric of the country more and more women are leaving their homes in search of employment in big cities as well as urban and rural industrial clusters. One of the main difficulties faced by such women is lack of safe and conveniently located accommodation. The Government of India being concerned about the difficulties faced by such working women, introduced a scheme in 1972-73 of grant-in- aid for construction of new/ expansion of existing buildings for providing hostel facilities to working women in cities, smaller towns and also in rural areas where employment opportunities for women exist. The scheme is assisting projects for construction of new hostel buildings, expansion of existing hostel buildings and hostel buildings in rented premises. The working women's hostel projects being assisted under this scheme shall be made available to all working women without any distinction with respect to caste, religion, marital status etc., subject to norms prescribed under the scheme. While the projects assisted under this scheme are meant for working women, women under training for job may also be accommodated in such hostels subject to the condition that taken together, such trainees should not occupy more than 30% of the total capacity the hostel and they may be accommodated in the hostels only when adequate numbers of working women are not available.

SWADHAR GREH: A. Introduction: Since 1969, the Government of India has had various schemes to provide shelter for women in need. Recognizing the need for transitional shelter, the Swadhar Greh Scheme is run by the Ministry of Women & Child Development in order to provide temporary accommodation, maintenance and rehabilitative services to women and girls rendered homeless due to a range of difficult circumstances. An assessment of the performance of the functioning of Swadhar Greh was submitted in 2018 by Midstream Marketing & Research Pvt. Limited. In the assessment report, several practical recommendations were proposed. The norms for recurring and non-recurring grants have been revised keeping in view the outcome of this assessment as well as the inputs received from the States/UTs Government during implementation of the scheme. In addition to this, there has been an endeavor to strengthen the scheme guidelines to address the on-ground situation. B. Vision: The Scheme envisions transitional shelter to women in need by creating an institutional framework that enables their empowerment and provides necessary access to support services. It envisages that shelter, food, clothing, and health needs as well as economic and social security are assured for such women. C. Objectives: Under the Scheme, Swadhar Greh will be set up in every district with capacity of 30 women with the following objectives: a) To cater to the primary need of shelter, food, clothing, medical treatment and care of women in distress and those who are without any social and economic support. b) To enable them to regain their emotional strength that gets hampered due to their encounter with unfortunate circumstances. c) To provide them with legal aid and guidance to enable them to take steps for their readjustment in family/society. d) To rehabilitate them economically and emotionally. e) To act as a support system that understands and meets various requirements of women in distress.

NARI SHAKTI PURUSKARS: National Award for Women-Guidelines. The year 1975, was celebrated as the International Women's Year, but the United Nations began to celebrate 8th March as the Internal Women's Day every year. It is a day that provides an opportunity to acknowledge the achievements of women for the nation and recognize their contributions to the society. The Ministry of Women & Child Development, celebrates International Women's Day every year on 8th March as it is the nodal Ministry for the issues related to women. Taking th0069s as an opportune moment to acknowledge Women's achievements, it has been decided by the Ministry in the year 2015, to confer Nari Shakti Puruskars to eminent women and institutions in recognition of their service towards the cause of women empowerment. 2. Now, therefore, the Ministry of Women and Child Development, in order to recognize the efforts made by women & institutions in rendering distinguished services for the cause of women, especially vulnerable and marginalized women, hereby announce national level awards for conferring on eminent women, organisations and institutions. These awards may be called "Nari Shakti Puruskars". The award shall be applicable to institutions and individuals who have rendered distinguished services to the cause of women. 3. Objectives: 3.1 In the last decade, there has been concerted effort by the Government to recognise and encourage women as reflected through a National Policy for Empowerment of Women in 2001.

MAHILA SHAKTI KENDRA SCHEME: The budget speech (2017-18) of the Finance minister announced setting up of "Mahila Shakti Kendra" at village level in 14 lakh ICDS AnganwadiCentres with an allocation of Rs. 500 crore. This is meant to provide " one stop convergent support services for empowering rural women with opportunities for skill development, employment, digital literacy, health and nutrition". Objectives of this scheme, with a view to create an environment in which women realize their full potential, convergent support is being proposed for equal access to healthcare, quality education, career and vocational guidance, employment, health and safety, social security and digital literacy at Gram Panchayat level in selected district across the country.

CONCLUSION

The Central and State government has initiated some really respectable schemes for Women Empowerment in India. These schemes and its objectiveswill reach each and every corner of India, then our emerging country will arise as a developed nation. The government has introduced many schemes for empowerment of women essential capable environment. Women can take their own exact decisions in every partof themselves, family, society or country. The government and NGO's are supporting women in the leading points in community.

REFERENCES

1.https://hindrise.org/resources/women-empowerment-in-india-and-its-importance/

2.Prof. Seema Singh and Dr. Antra Singh 'Women Empowerment in India: A Critical Analysis' Tathapi (UGC Care Journal) ISSN:2320-0693 Vol-19-Issue-44-June-2020, PP 227-253.

3.Dr.Reena Singh and Sakshi Singh 'Walfare Schemes in India for Women Empowerment: A Study' Quest Journals Journal of Research in Humanities and Social Science Volume 9 Issue 3 (2021) pp: 61-65 ISSN(Online):2321-9467.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

A Conceptual Study Of WorklifeBalance And Stress Management

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ABSTRACT

Having approximately a year and a half of work experience in corporate field, stress is something that we easily see around in the environment. Stress is a day to day substancethat every employee undergoes. Stress, in corporate can be due to work pressure, mental stress, competition between co-workers and individuals' personal commitments. Stress begins for an individual after the training period, once the real side of the work is seen. The management plays a vital role as being a reason for inducement of stress as well as reducethe stress of an employee. The management being as a reason is because in general all the companies work for profit motives and are not employee centric, As a result companies takes in lot of projects and get deadlines from the clients of which all this is enforced on the low-level employees. Statistically speaking middle level and lower level employees face lotof stress compared to the top management. Employees are given heavy loads of work and close deadlines giving them both physical and mental trouble. Many companies force employees with over times i.e., work extra hours after day to day shift and work on weekends and day offs. Though there are many programmes conducted by Human Resource team like fun Fridays, DJ nights and other events for the employees, unfortunately none of these helps in reducing the stress. The stress can also affect the individual's family life as they exert the stress faced in office at home leading to problems in relationships.

Work Life Balance and Stress Management

1. INTRODUCTION

One of the essential factors in successfully managing work–life balance is theability to reduce and control stress. Stressis undoubtedly one of the biggest problems faced by the modern workforce. It is also becoming an increasingly worrying problem for employers. In this article we review stress in the workplace, the current legal attitude, and what individuals and employers can do to minimise stress and its damaging consequences. In work life balance, women's are more stressed and depressed compared to men, with increasing positive awareness and great spending power even women's wants to spend qualitytime doing things in which they can attain their passion and needs. Most of the women's out there in the work area are also, mothers, who wants to be distinct from a random housewife. Though they struggle with their work phase women's also know to handle their work through which they can satisfy their requirements and can attain self-satisfaction of being independent.

2. WORK-LIFE BALANCE

People's out there shouldn't be like, just they are in need of money and space so theyshould mould them as an employee or a staff. They should plan according considering their family situation. Decide what's important, try to keep things organized, try to know the priorities, set time, concentrate on your work and personal life and mainly respect your private or personaltime. Knowing the peaks and troughs one can actually handle both the work life and personallife in an efficient and structured manner.

Why People Migrate in Search of Work?

A person moves from one place to another in order to find a good and standardized job , all they wanted is job satisfaction and the company should respect their education standard and pay them accordingly and also they should find a suitable stay place so it will be convenient forthem to travel for work. In bank sectors women's has given preference in selecting job location as they can get their postings nearby based on their concerns. A women working in a specific location wants to get relocated because of her life change, seeking promotion, improving work- life balance, job security, salary, personal situations etc.

3. BALANCING WORK-LIFE AND PRIVATE LIFE

Women have joined the workforce in large numbers and now performing as a breadwinner and homemakers. We are live in a changing society where men in fact, helping out the women's to work and wanted them to be independent and confident enough. Most of the father's want their daughter to be independent. But still women's face too may conflicts of what is expected of them and what they assume. Women's strive to be super wives, super moms, and super career women. With work on one side and family on other side women's try to balance both the work- life and private life. Having a work-life balance is so important in women's life as it should bekept in the first place as a priority if a women can't make it as herown priority then somethingis missing in her.

Common Stress Faced by Individuals in Work Environment

- Being unhappy in the job
- Having a heavy workload or many responsibility
- Working long hours
- Having poor management, unclear expectations of your work, or no say in the decision-making process
- Working under dangerous conditions
- Being insecure about your chance for advancement or risk of termination
- Having to give speeches in front of colleagues
- Facing discrimination or harassment at work, especially if your company isn't supportive

Measures to Overcome Stress in Work Environment

- Keep a positive attitude.
- Accept that there are events that you cannot control.
- Be assertive instead of aggressive. Assert your feelings, opinions, or beliefs instead ofbecoming angry, defensive, or passive.
- Learn and practice relaxation techniques; try meditation, yoga, or tai-chi for stressmanagement.
- Exercise regularly. Your body can fight stress better when it is fit.
- Eat healthy, well-balanced meals.
- Learn to manage your time more effectively.
- Set limits appropriately and learn to say no to requests that would create excessivestress inyour life.
- Make time for hobbies, interests, and relaxation.
- Get enough rest and sleep. Your body needs time to recover from stressful events.
- Don't rely on alcohol, drugs, or compulsive behaviours to reduce stress.
- Seek out social support. Spend enough time with those you enjoy.

4. Positive and negative stress

However, stress can also be a positive force. It can stimulate you to work harder and increase your focus for short periods of time. However, negative stress is more common and can adversely affect your health and performance. The key then is to find a balance between having enough stress to improve performance and ensuring that the level of stress does not impact negatively on performance and well-being. There is therefore an optimal point on a stress curve as shown in the following diagram.

ISSN : 2278-9308

February, 2022

wing diagram.

We can further our understanding by breaking stress into its four most common types:

1.Survival stress: This may occur in cases where your survival or health is threatened, where you are put under pressure, or where you experience some unpleasant or challenging event. Here adrenaline is released in your body and you experience all the symptoms of your body preparing for 'fight or flight'.

2.Internally generated stress: This can come from worrying about events beyond your control, from a tense, hurried approach to life, or from relationship problems caused by yourown behaviour.

3.Environmental and job stress: Here your living or working environment causes the stress. It may come from noise, crowding, pollution, untidiness, dirt or other distractions. Alternatively, stress can come from events and pressures at work.

4.Fatigue and overwork: Here stress builds up over a long period of time. This can occur where you try to achieve too much in too little time, or where you are not using effectivetime management strategies.

CONCLUSION

We should think work-life balance just as a task, which helps them to sort out both the work stress and personal stress. When the worries are taken care of, when the life is spent proportionately, and when they realize their full potential can confidently create a bridgebetween the work-life and private life. Identifying the causes of stress in the workplaceis not difficult. It takes some effort. Understanding the causes of stress in the workplace lets you identify them before they become problems. As you can see that the workplace is a great source of stress. It's up to us to identify our stressors and find healthy ways to cope and remove these stresses.

REFERENCES

[1] Upadhya, C. and A.R. Vasavi, Work, Culture and Sociality in the Indian IT Industry: A Sociological Study (Report submitted to Indo- Dutch Programme for Alternatives in Development), 2006

[2] Upadhyay, G.R. and Havalappanavar, N.B, "Stress among Single Parent Families of Mentally Retarded Children" Journal of the Indian Academy of Applied Psychology, Vol. 33, No.1, 47-51, January 2007.

[3] V Kandaswamy Sharma, Dr. Beulah Suresh and Dr. S Uma Mageswari, A Conceptual Analysis on Work Life Balance. Journal of Management, 5(4), pp. 97–100. 2018

[4] Van Zyl, V and Van Eden, Job Insecurity and the emotional and behavioural consequences thereof. South Africa Journal of Business Management 2013, 44(1). 2013

[5] Dr. S. Jayaraman, Dr. J. Suhashini, U. Geetha and E. Manju, A Study on Impact of Job Related Factors on work Life Balance of Automobile Sector Workers in Dindigul District, International Journal of Mechanical Engineering and Technology, 9(11), pp. 1732–1740. 2018

[6] VV Raghavan, T Sakaguchi, RC Mahaney, "An empirical investigation of stress factors in information gtechnology professionals" - IGI Global, USA, 2010.

[7] Raghavendra H K and Raghunandan M V, Women Engineers and Work Life Balance A case study of Women working in Manufacturing Industries in Mysuru City, International Journal of Mechanical Engineering and Technology 9(1). pp. 752–755. 2018

[8] William A, W and Christophe, F, The Impact of time congruity on sales person's role stress: A person-job Fit approach. Journal of Personal Selling & Sales Management, Vol XXX, No 1 (Winter) pp 73-90, 2010

[9] Wood Field, pointed out that strain among team members is worst at the time of apprised, especially during the annual appraised that determines promotion, 2000

[10] Dr. V. Antony Joe Raja and V. Vijayakumar, A Study on Stress Management among the Different Type of Working Employees of Banking Sector with Skill Development Orientation Solution in India. International Journal of Marketing and Human Resource Management, 8(1), pp. 13–17. 2017

[11] Working conditions and health among employees at information technology - enabled services: A review of current evidence" Kesavachandran, C; Rastogi, S; Das, Mohan;
Khan, Asif. Indian Journal of Medical Sciences; Mumbai Vol. 60, Iss. 7, 300-7. 2006

[12] Yong Wah Goh, et.al, The Revised Transactional Model (RTM) of Occupational Stress and Coping: An Improved Process Approach, Australian and New Zealand Journal of Organizational Psychology, Vol.3, Issue 1, 2010

[13] Dr. V. Antony Joe Raja and V. Vijayakumar. A Study on Stress Management and Coping Strategies Analyzing Process of IT and ITEs Sector with the Special sample of different Age Group in Indian Based working Employees in the Different Categories of IT and ITEs Originations in India. Journal of Management, 4(1), pp. 01–11. 2017

[14] Zahid A .C, Gender Discrimination in workforce and its Impact on the employees. Pak. Journal of Commerce, Social Science, 5(1), 177-191, 2011

Pandemic Driven Trade And Commerce Of Finance And Information Technology Sectors

Rajat P. Ghorpade

Abstract

The outbreak of COVID-19 virus and the subsequent pandemic situation has impacted the blue-chip industries' NIFTY 50 stock market. The pandemic followed by inevitable political lockdown declarations, has caused instability in global business operations. The author of the present study has studied two major sectors viz. pharmaceuticals and consumer products based industries in earlier very ambitious study and thought to enhance the scope of the study covering yet another two very major sectors of NIFTY 50 i.e. financial services and information technology sectors. In earlier study the results showed that the two sectors – pharmaceutical and consumer products sectors have sustained minor effects. The researcher in the present study enhanced the scope of the study by laying focus on financial services and information technology sector industries of NIFTY 50. For analysis, the researcher used three alternative models of event study methods: constant return, market, and market-adjusted models. The results showed that outcomes are diverse, and the industries have a big influence on them. Although all industries were temporarily harmed, the financial sector took the brunt of the impact. However, the information technology sector industries had though positive yet sustained only minor effects. The causes of such impact have also been discussed and the study concluded that the results and the findings of both of these studies should assist investors in protecting their equity portfolios against unanticipated shocks and in making more informed investment decisions to avoid large, unplanned losses.

Keywords: Financial Service Sector, Information Technology Sector, Pandemic, Constant Return Model, Market-adjusted Model

Introduction

The stock market in India is a vital component of the Indian financial system. India's economy is categorized as developing. It has an open economy policy and is one of the largest recipients of FDI (foreign direct investment) in major industries. Over the previous two decades, the Indian stock market has developed considerably in terms of turnover, market capitalization, and the number of listed companies. Globalization, on the other hand, exposes the country to a number of international risks. For example, recent asset market advancements are reliant on foreign capital flows. As a result, any interruption in these flows has a detrimental impact on future capital formation and asset prices.

According to the World Bank's Global Risk Report, governments and entrepreneurs, particularly in emerging economies, are not well equipped to endure substantial economic or financial turmoil. As a result, determining the impact of major events on developing economies like India is crucial. Any potential threats are immediately correlated with stock market. Asset prices, macro instabilities, external costs, correlated exposures, information disruptions, and contagions, among other systemic occurrences, commonly spread hazards to existing economic and financial markets via a variety of routes. Stock market investors are widely regarded as poor Bayesian decision-makers, with evidence indicating that they overreact to recent facts.

The NIFTY has lost 40 percent of its market value since the beginning of the year. The quick collapse in the indices hurt individual investors' portfolios. On the other hand, active retail investors saw this as an opportunity to time the market, invest, and profit handsomely. In 2020, a total of 10 million new demat accounts were created, owing to cheap trade costs and an industry- wide shift to internet trading. According to sources, the MSCI World Index, which includes companies from 23 developed countries and 24 emerging markets, lost 10.7% of its value between January 23 and March 6, 2020.COVID-19 devastated businesses all across the world, especially in India. The outbreak sparked a global shock, causing financial markets to become more volatile. The global economy collapsed, unemployment rose, and oil prices plunged at first before skyrocketing later. COVID-19's impact on the Indian stock market is crucial that's because the Indian stock market is well-integrated and reacts to global developments.

Literature Review

The effect of the COVID-19 pandemic on various stock markets and financial assets was assessed using a variety of methods in various studies (Maiti et al. 2020; Maiti 2021; Vukovic et al. 2021).

Cepoi (2020) employed panel quartile regression to analyze the effects, while Bora and Basistha (2021) used a modified auto regressive heteroscedasticity model to do so. The use of event research to measure the impact of the once event is common.

Few studies have looked into the influence of COVID-19 just on Indian stock market using event study approaches. As a result, the purpose of this study is to contribute to the growing body of knowledge by developing three models: the constant return model, the market index model, and the market model.

Some studies explored at how the pandemic impacted various aspects of international equity markets (Ramelli and Wagner 2020; He et al. 2020; Albuquerque et al. 2020).

The Indian stock market, on the other hand, has a scarcity of data. This article attempts to fill that hole by evaluating the effects of pandemic just on a couple of very important sectors of the NIFTY50 index with specific focus on financial services and information technology sectors industries. The overall purpose of the paper is to examine if the beginning of the pandemic kind of situation resulted in abnormal returns by applying event study methodologies and three models viz. alternative models of event study methods: constant return, market, and market- adjusted models.

Objectives

The purpose of this research is

•The noteworthy features and the objective of the study is set to present the view point duly examining the pandemic's influence on the NIFTY50 index's major constituent industries—financial services and information technology sectors industries

Methodology

The purpose of the present research was to see how the COVID-19 outbreak had impacted the Indian share market in March 2020. The NIFTY50 index is a market-capitalization-weighted float-adjusted index that contains 50 blue-chip stocks and represents approximately 65 percent of a NSE's glide market capitalization. The NIFTY50 index was chosen as a measure of market returns.The elements of the NIFTY50 index were investigated.

The impact of an event is instantly reflected in the stock price, unlike other productivity-related variables that require months of observation. Calculating anomalous returns determines the impact of an occurrence. The incident research methodology assists in making whether unexpected events resulted in out-of-the-ordinary returns. An abnormal return is defined as the discrepancy between both the real ex-post security's yield over the time horizon and the predicted normal refund (Mackinlay 1997). Three models were used to calculate the abnormal returns: the stable mean return model, the market index model, and the market model.

Step 1: Define the event window as well as the estimation window

The first step in an incident analysis is to define the occasion and the incident window. The Indian government imposed a statewide lockdown on the evening of March 24, 2020. The stock market's reaction to such a remark is realised the very next day, therefore the date of significance was March 25, 2020. The event window refers to the time period during which a specific incident has an effect on securities pricing. The event window is divided into two parts: the expectation period and the modification window. The day of the occurrence, or the day of the effect, is Day 0. The anticipation window closes 15 days before the event, and the correction window closes 15 days after the event.The normal technique of selecting a 10-day interval for prediction and modification was not followed in this study.

A 15-day event window is essential for recording investor behavior because the infection continues to frighten people on a daily basis and is constantly being discovered around the world. Following that, the estimation window must be defined. The estimation period is a length of time set aside prior to the occurrence of an event. In comparison to a short window period (at most 1 month previous and 1 month after), a long timeframe (at most 1 month prior and 1 month after) diminishes the power of test statistics, (ii) creates potential confusion, and (iii) leads to inaccurate conclusions (McWilliams and Siegel 1997). The reliability of the outcomes declines over time since incident assessment focuses on anticipating. Any other event affecting the price of the stock and causing noise has a much higher likelihood of happening in the long run. As a consequently, the analysis was restricted to a small time frame.The researcher selected a 15-day event frame to get a more complete understanding of the COVID-19 pandemic's effect because it was not a single-day occurrence. Rather, the incident was spread out over several days as the number of COVID-19 patients increased day by day. As a result, in order to acquire a better picture, the researcher expanded the event window by 5 days (usually 10 days before and after the window are considered for a single-day event).

Step 2: Calculate the unexpected returns

The financial market's response to fresh information is represented by abnormal returns (McWilliams and Siegel 1997). As indicated below, the asset returns are anticipated to be iid (independently and identically distributed). The three main models used it to identify abnormal returns are listed below.

Constant Mean Return Model

The most basic model is the constant mean return model, which delivers the same results as more complicated models (Brown and Warner 1980, 1985). It just takes into account the stock's average annual return and ignores index returns. As a result, this process produces aberrant returns that are exaggerated. The constant mean, return model produces an abnormal return, as seen in the equation below (1).

$$\xi i,t = Ri,t - E(Ri,t|Xt)$$

where $\xi i,t$ is the abnormal return with $E[\xi i,t] = 0$ and $Var[\xi i,t] = \sigma\xi,i^2$, Ri,tis the actual return on stock i on each day t of the estimation period, Xt is the conditioning information at time t, and $E(Ri,t|Xt) = \mu i$ is the average return of the stock in the estimation window.

Market Model

By separating the effect of market-related elements, the market mechanism controls systematic risk. As a benchmark model, it is used to determine normal return. This model is preferred over the constant relative return model because it reduces abnormal return variance by eliminating excess returns due to the market return volatility (Mackinlay 1997). The expected return/normal return from the market system is shown in the equation below (2).

$$E(Ri,t) = \alpha i + \beta i \times Rm,t$$

where Ri,t represents the actual return on stock i on each of the estimating period's days t. Rm,t, on the other hand, is the market return on each day t. The estimation period provides the expected alpha and beta. The ordinary least square approach is used to estimate αi and βi over a period of 120 estimation days.

The abnormal return for a market model is characterised in Equation (3).

$$\xi i,t = Ri,t- E(Ri,t) \quad (3)$$

ISSN : 2278-9308

The expected return (Equation (2)) is $E(R_{i,t})$. The difference between the actual daily return of stock I and the estimated normal return of stock i on day t is the abnormal return ($\xi_{i,t}$) with $E[\xi_{i,t}] = 0$ and $Var[\xi_{i,t}] = \sigma_{\xi,i}^2$.

Market Adjusted Model

The constrained market model with $\alpha_i = 0$ and $\beta_i = 1$ is known as the market adjusted model (Mackinlay 1997). The index results are factored into the market adjusted model. As a result, this model produces no exaggerated abnormal returns. The market-adjusted model's abnormal returns are calculated using Equation (4).

$$\xi_{i,t} = R_{i,t} - RI_{i,t} \quad (4)$$

where Rit is the actual return on stock i on each day t of the estimation period and RIi,tis the actual return of the index on each day t of the estimation period.

Step 3: Calculate average abnormal returns

The daily average abnormal return (AAR) is given by:

$$AAR = \sum_{i=1}^{N} \xi_{i,t}/N$$

where N is the number of firms for which the average abnormal returns are being calculated. The t-test is employed to test the significance:

$$t = \sum_{t=t1}^{t2} AAR_{i,t}/SD_{i,t}$$

Significance is tested for the 3 models in the event period.

Step 4: State the hypothesis

The null and alternative hypotheses are:

Null Hypothesis (H0): Average abnormal returns are not statistically significant in respect of financial and information technology sectors.

Alternate Hypothesis (H1): Average abnormal returns are statistically significant in respect of financial and information technology sectors.

Results and Discussions

NIFTY50 Index Components' Average Abnormal Returns

This study focused on the early stages of the pandemic. The average anomalous returns for the 50 stocks that make up the NIFTY50 index were calculated using the constant return model, the marketplace model, and the market index model. A 5% significance criterion was utilized to test the relevance. The findings of the AAR computation for a 30-day event window are shown in Tables 1 and 2.Table 1 shows the results of the constant return model. It reveals that on the day of the occurrence, i.e., day 0, there was a significant negative mean unusual return of 12.8 percent. The median AAR on the day of the incident was -12.9 percent. Two days prior and after the incidence, the AAR was significantly different from 0. Table 2 shows the results of the market model and the market index model. It demonstrates that on the day of the event, neither model's AARs were statistically significant.The null hypothesis cannot be ruled out, and the out- of-the-ordinary return on the day of the occurrence was not statically important. However, two days before and after the occurrence, a large negative anomalous return was noted. On the day of the incident, the excess return for each sector was evaluated and see if there were anymore positive abnormal returns.

Tables 1 and 2 demonstrated that a large number of AARs were logged on several days following the initial event. Firms with a high degree of operating leverage and a low degree of customization suffered the most. Corporations with low operating leverage, flexible operations, and flexibility suffered less market value loss since the NIFTY50 is thought up of blue-chip companies. As a result, the AARs calculated using the economic model and market index model throughout the 30 days of the event window only ranged from -1.69 to 1.70 and -1.72 to 1.69, respectively. However, a breakdown of the different sectors can help determine which ones are most affected.

Constant Re hair Mortel

D *Y	SSR	p-Value	?vledian
—t5	—3.9075	0.0003	—3.7883
—14	—0.9435	0.34til	—0.8636
—13	2.5322	0.0138	1.9477
—IZ	—U.31W	0.7499	—0.3821
—11	0.1801	0.9567	0.0?40
—10	—2.3608	I).fT21 2	—2.14 f)5
9	4 3327	0.0001	42044
—3	—LL88Rd	0.3*4-2	—0.79r
7	8.4030	0.0000	61830
—G	.35Z2	0.L8D14	3.4589
	6 9487	0.0C00	E.81?4
—4	—2.012é	0.L678	—J.8290
3	5 4523	0.0tXI0	5.0853
—2	—3.4991	0.LB	—3.5z0'9
1	7786	0.0tXI0	5.9S&8
0	—1i80• Z	0.L*D00	—12.9117
	2.1457	0.01fi1	1.6780
2		0.0D00	3.6616
3		0.0004	2.7J4?
4		0.58G6	—02112
6	3.55o4	0.0008	3.R330
7	'.4117	n.nn12	3.5644
8	— 1.5693	0.1202	—1.8574
9	8.7'"0?	0.0000	S. B821
10	0.0P95	0.920	—0.2617
t1	4 1 T	0.0001	2.72S0
12	—0.6202	0.5346	—0.92 4-
t8	0.2874	0.7 "32	0.0819
14	0.9406	0.347o	1.2790
15	2.f19 6	I).fT3V7	1.3115

Table 2. AAR frc'rn the market adjusted model and the i•tiarket xriodeL

Murket Adj usted M od el				Market Mad e l		
Day	AAR	p-Val ue	Med ion	AAR	p-Value	Med lari
15	0.1293	0.6178	0.0564	0.1388	0.5922	0.0822
—14	—0.2589	0.3197	—0.1646	—0.2764	0.2883	—0.3256
—13	1.0688	0.0001	0.4584	1.0458	0.0002	0.5044
—12	0.2134	0.4113	0.0782	0.1955	0.4514	0.2275
11	0.0887	0.7320	0.0540	0.0692	0.7893	0.0144
—10	0.1885	0.4675	0.4055	0.1758	0.4979	0.1528
—9	0.631	0.0178	0.P591	O.625D	0.0189	1.0219
—8	—0.8871	0.0012	—£L 745D	— 0.9064	0.00€9	—0.8152
—S	O./320	€8.0066	0.6211	O.z32t	0.0065	0.WZ1
—4	.5606	0.0343	0.7200	0.5479	0.03P4	0.6191
—3	O.1729	0.5054	0.578*	0.168O	0.51 2	—0.5460
0	0.2424	0.3511	0.17T2	O.2565	0.3235	0.0706
1	U.25Gd	U.Z675	t16U13	U.3144	U.?27	U. 162
	—0.0*ss	0.s*s	—amze	—0.0s"u	0.8*s	—0.scoo
	—0.7660	0.0045	—D1W9	—0.7857	0.0037	—0.4052
	1.7059	0.0fiC0	1.7648	1.6981	0.00DD	t.7452
6	(L3*0*T7	().4417	f).fi)24	().22h7	(t.B7NK	i).EU()
7	ObA3	t0141	05035	0.6466	0.014	I99?0
8	0.5EO0	0.0345	0.2276	0.59G2	0.0390	0J145
9	0.0757	0.77O1	0.2106	O.0339	0.8957	0.'5737
IU	U.6623	U.U122	U.Z425	U.S4< 11	U.U157	1i *?
1'T	t9.'1 4 T4	t3tifiD4	—Il4fi.WF	Al£lnTfi	lb.7354	—€1.Zb94
12	0.7440 1.11sz	0.0057 0.00h	0.4535 0.zW0i	0.7282 1.10n	0.0068 0.0001	0W87 0.a61s
14	0.2.52'D	().E3f1R	£).2#1	f).2'3]'1	f1..D?2Z	i).UU."'0
15	—0.88J1	0.00]2	—1.6177		0.00E9	—1.7540/

Impact of the Pandemic on financial services and information technology sector

The NIFTY 50 index is made up of automobiles, cement and concrete products, building, consumer products, pesticides and fertilizers, financial sectors, IT, metals, petroleum & gas, pharmaceuticals, power, and services. The aggregate abnormal returns from four event windows are depicted in Figures 1 and 2 which depict the financial services and information technology sectors. These industries were included in the study so because finance sector had the highest weighted in the index (22 percent), and the information technology sector has virtually recorded a boost and remained highly unaffected.

As is evidential, the finance sector, which accounts for 22% of the stock's value, was hit the worst. The anticipation of a growth in non-assets (NPAs) in the future affected this industry. As a consequence of the national lockdown, the companies' sales were likely to suffer. Investors predicted failures in the personal lending market as well. Investors started selling shares in this sector as a result of the expected increase in credit risk amongst corporate and retail clients, resulting in negative sentiment. The unfavorable AAR the day of the incident further demonstrated this (see Figure 1).

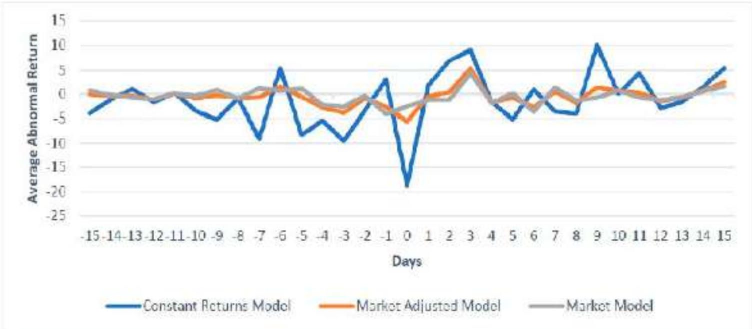

Figure 1: AAR for the financial services sector for the event period (source: the authors).

The IT sector had a severe negative AAR in the period leading up to the crash, as shown in Figure 2. Due to the market's concern about stock performance, a massive FII (foreign institutional investor) trading occurred before to the event. The INR, on either hand, declined in value following the occurrence. The information technology industry is a services exporter.

Because the majority of their clientele were based outside of India, Indian IT firms were expected to make more money. Investors were excited about this business, and numerous IT stocks even rose the day of the event. The IT sector was also very stable due to several advantages of work-from-home work environment that commenced as a result of lock-downs.

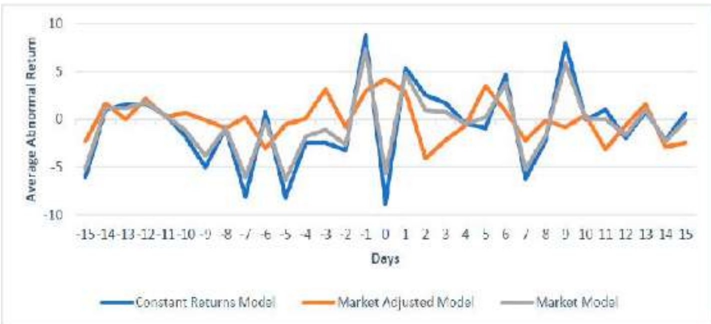

Figure 2: AAR for the IT sector during the event period (source: the authors).

The automobile sector, in addition to such industries, has suffered setbacks. Automobile demand was dropped due to decreasing disposable income and slow economic activity. China makes up the majority of the raw materials and finished goods utilized in the electronics industry. The negative effect on the Chinese economy interrupted the distribution network, and demand for household items such as electronics plunged as a result of the ongoing uncertainty in growth. A lack of demand has a detrimental effect on all industries, regardless of their economic structure. Capital-intensive businesses, according to the data, were more exposed to the shocks.

Companies with more sensitive supply chains, on either hand, did not suffer a significant drop in market value. The sickness had an impact on other businesses as well, with travel and property investment being one of the hardest hit. The telecoms company, on the other hand, gained from lockdowns and social distancing tactics. Confusion reigned supreme, with a slant toward the negative. As a consequence, the stock market in India has plunged. According to the findings of the market adjusted and market models, relying just on constant return model could lead to inaccurate conclusions, as the latter produces exaggerated profits when compared to the former

Conclusions

As per the envisaged title of the study, the Indian equity market was explored looking for abnormal returns at the start of the pandemic. The researcher employed three event study approaches for analysis. For several days before and after the occurrence, abnormal returns were detected. All of the models had consistently favorable AARs for the most of the days following the proclamation of complete lockdown. In addition, to better realize the effects the researcher conducted sectoral analysis.COVID-19, in general, increased stock market risk, according to the study. The results, on the other hand, are blended and influenced heavily by the type of the industries. All industries were temporarily harmed, but the financial sector took the brunt of the damage. Pharmaceuticals, consumer goods, and information technology all had favorable or minor impacts. The findings are comparable to those of people who were drawn to the pharmaceutical industry throughout this period of pandemic worrying for the stability of health.

Overall, the findings show that a COVID-19-like shock would cause a sudden and significant decline in stock returns, posing an existential threat to the financial system due to the likelihood of disastrous stock price drops. Since the financial sector is so vital to economic stability, procedures to avoid mass panic in the case of a pandemic should be devised. Given the relationship among investment fear and financial industry, regulators should have strong safeguards in place to deal to sudden extreme pessimism in the market. Moreover, governments and banks should communicate effectively and swiftly to help reduce the influence of the financial markets. Financial market volatility is affected by the speed with which exceptional fiscal initiatives are taken to reduce pandemic consequences. As a result, allocating more resources to the healthcare system may assist to lessen financial instability. Furthermore, investors can gain from such a catastrophe by applying effective hedge or safe-haven tactics to safeguard stocks portfolio from unexpected shocks and make wiser investment decisions and avoid large, unanticipated losses.

References

- Alam, Mohammad Noor, MdShabbirAlam, and KavitaChavali. 2020. Stock market response during COVID-19 lockdown period in India: An event study. The Journal of Asian Finance, Economics, and Business 7: 131–37.
- Albuquerque, Rui, Yrjo Koskinen, Shuai Yang, and Chendi Zhang. 2020. Resiliency of environmental and social stocks: An analysis of the exogenous COVID-19 market crash. The Review of Corporate Finance Studies 9: 593–621.
- Baker, Scott R., Nicholas Bloom, Steven J Davis, Kyle Kost, Marco Sammon, and TasaneeyaViratyosin. 2020. The unprecedented stock market reaction to COVID-19. The Review of

Asset Pricing Studies 10: 742–58.

• Bora, Debakshi, and Daisy Basistha. 2021. The outbreak of COVID-19 pandemic and its impact on stock market volatility: Evidence from a worst-affected economy. Journal of Public Affairs, e2623.

• Cepoi, Cosmin-Octavian. 2020. Asymmetric dependence between stock market returns and news during COVID-19 financial turmoil. Finance Research Letters 36: 101658.

• De Bandt, Werner F. M., and Richard H. Thaler. 1987. Further evidence on investor overreaction and stockmarket sensitivity. Journal of Finance 42: 557–81.

• Liu, H., Aqsa Manzoor, CangYuWang, Lei Zhang, and ZairaManzoor. 2020. The COVID-19 outbreak and affected countries stock markets response. International Journal of Environmental Research and Public Health 17: 2800.

• Mackinlay, A. Craig. 1997. Event studies in economics and finance. Journal of Economic Literature 35: 13–39.

• Maiti, Moinak, DarkoVukovi´c, Amrit Mukherjee, Pavan D. Paikarao, and Janardan Krishna Yadav. 2021. Advanced data integration in banking, financial, and insurance software in the age of COVID-19. Software: Practice and Experience.

• Ramelli, Stefano, and Alexander F. Wagner. 2020. Feverish stock price reactions to COVID-19. The Review of Corporate Finance Studies 9: 622–55.

• Shankar, Rishika, and Priti Dubey. 2021. Indian Stock Market during the COVID-19 Pandemic: Vulnerable or Resilient?: Sectoral analysis. Organizations and Markets in Emerging Economies 12: 131–59.

• Verma, Rakesh Kumar, Abhishek Kumar, and Rohit Bansal. 2021. Impact of COVID-19 on Different Sectors of the Economy Using Event Study Method: An Indian Perspective. Journal of Asia-Pacific Business 22: 109–20.

• Zhang, Dayong, Min Hu, and Qiang Ji. 2020. Financial markets under the global pandemic of COVID-19. Finance Research Letters 36: 101528.

Cashless Economy In India – Present Scenario

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Abstract –

A cashless transaction in India is an practices to move towards a cashless economy by reducing the use of physical cash. The main objective of the study is to present the current status of India in usage of digital currency in distinguish to other countries and find the challenges and opportunities which are associated with the cashless transaction in India. The information of different countries which are related to usage of digital currencies has been collected. Information is gathered of it. The collection of the information revealed that the introduction of cashless economy in India can be seen as a step in the right direction of economy growth and development. It has been conducted to reveal the challenges and opportunities of cashless economy by promoting electronic money instruments, developing electronic financial infrastructures and spreading digital transaction habits among people. The announcement was made in (2016) for the revolutionary move towards the cashless economy in India. The study recommends that more and more people of India should start using digital payment methods which will serve a cashless economy or less cash economy.

Keywords: Cashless Economy, Digital Currency, Global Economy, Economy Development, Economic Freedom, Internet Banking , Modern Digitalization.

I. Introduction

Transformation into a cashless economy is an international problem and many of the countries have almost become cashless economy. A cashless economy is where financial transactions are not being done in the terms of currency notes, coins or physical cash money. It was in trend when barter age of cashless transaction was there and then other methods of exchange e.g food crops or other goods where used. However, the new concepts of cashless transactions in cashless economy are made with the help of digital currencies where legal money is exchanged and recorded only in the electronic digital form. So many challenges and opportunities are associated with the effects of digital transactions in today's world. Indian population where 98 per cent of total population is still doing economic transactions through cash. Many of the cash transactions being done in the country are small for the exchange for goods or services. As Millions of people still do not have a bank account, internet network and connection is not proper, lack of knowledge to use online payment methods. Also they have fear of losing their money vis internet. These are some of the challenges are there in the front of the country especially in small towns, rural areas and untapped markets in urban India, need to be resolved and people make assure that to adopt digitalisation in their payment system. It is a big task in front of the government of India and their policy maker to transform their society into a cashless economy or less cash economy with the India's fast growing population. The introduction of cashless transaction has made the government of India to move towards cashless economy.

India was the world's fastest growing major economy in the last quarter. India has topped the World Bank's growth outlook for 2015-16 for the first time with the economy rate having grown 7.6% in 2015- 16 and also expected to grow 8.0%+ in 2016-17. It is seen that growth of the Indian economy in the future is positive. India has already introduced some of the option of payment methods such as Ola money and Phone Pay accounts to pay rents via internet banking, Indian government has taken a decision of demonetisation (2016) by discontinuation of all 500 and 1000 banknotes, as it would no longer be recognised as legal tender. This move has been executed with the aim to curb the circulation of "black money" in the country and associated problems. India is going towards cashless economy very fast but it may be a long process for years to be come complete cashless economy or less cash economy.

II. Review Of Literature

Review of literature gives way for a clear understanding in the areas of research already undertaken and throws a light on the potential areas which are yet to be covered. Here an attempt has been made to make a brief survey of the work undertaken on the field of Cashless economy in Indian in the present scenario. The reviews of some of the important studies are presented below. Cashless economy if we see is not the complete absence of cash, it is an economic setting in which goods and services are bought and paid for through electronic media Eg: PayTM, Google Pay, Phone Pay.

According to Woodford (2003), Cashless economy is defined as one in which there are assumed to be no transactions frictions that can be reduced through the use of money balances, and that accordingly provide a reason for holding such balances even when they earn rate of return. In a cashless economy, how much cash in your wallet is practically irrelevant. You can pay for your purchases by any one of the credit cards or bank transfer. As it has been observed that developed countries of the world, to a large extent, are moving away from paper payment instruments toward electronic ones, especially payment cards. Some aspects of the functioning of the cashless economy are enhanced by e finance, e-money, e-brokering and e-exchanges. These all is referred to how transactions and payments are effected in a cashless economy .

Marco and Bandiera argue that increased usage of cashless banking instruments strengthens monetary policy effectiveness and that the current level of e-money usage does not pose a threat to the stability of the financial system. However, it does conclude that central banks can lose control over monetary policy if the government does not run a responsible fiscal policy. Even for people with access to banking, the ability to use their debit or credit card is limited because there are only about 1.46 million points of sale which accept payments through cards. A study as shown that wallet users have already surpassed the number of mobile banking users and are three times the number of credit card users.

Digital payments methods became well established in countries across the world by 2010's. There are some of the countries (Table-1) have adopted different mode of digital payment that encouraged the public to opt for cashless transaction options.

Table-1 Mode of Digital Payment and use in Percentage of different Countries in

Name of Country	Mode of Digital Payment	Digital Transaction
United Kingdom	Paym a Mobile Payment System	89%
USA	e-Banking, Mobile Banking and Card Payments	45%
Australia	Internet Banking, NAB a Mobile Banking app and Card Payments	35%
Germany	Online banking and EC-Karte a Debit Card	33%
Japan	Online banking, Mobile Banking and Card Payments	14%

China	Internet Banking and CUP Cards	10%
India	Electronic Banking, Credit and Debit Card Payments	2%

III. Objectives of the Study

The main objective of the study is to examine that the importance of cashless policies in the economy of a country and how it affects to their economic growth. Specifically the objective of this study includes:

a) To find out the Present scenario of India in comparison of other countries in terms of cashless economy.

b) To find out various threat and opportunity connected with the application of the cashless policies in India.

c) To find out solutions against threat associated with the application of the cashless policies in India

IV. Scope of the study

Work on the cashless economy is scarce, so scope of study is more. Researchers further need to understand the mechanism of cashless policies effecting cashless payments and their effect on the Indian economy.

Opportunities of Cashless Economy

The main advantage of cashless transactions is that a proper record of all economic transactions is possible to keep. It is remedy to remove black market or underground economies that often prove damaging national economies. Since, cash is the primary mode of transactions in money laundering and terrorism financing, a cashless economy discourages such activities. Central government also get benefit from such cashless transactions as it allows central control of money supply and it is easier to monitor income tax paid by an individual. Cashless transactions are helpful in the context of negative global inflation and quantitative easing. Going cashless is also reducing the levels of corruption prevalent in the country.

Some more benefits of cashless economy are as follows:

a) Real estate prices will reduce because of curbs on black money as most of black money is invested in Real estate.

b) There is greater efficiency in welfare programmes as money is wired directly into the accounts of recipients with great transparency.

c) There are efficiency gains as transaction costs will also come down by using methods of digital payments.

V. Conclusions:

The objective of this study is to find the threat and opportunities of cashless economy. Cashless economy can be gained by acceptance of proper methods and techniques of digital payments. It only requires full proved new financial policies, centralised administrative control, regular monitory attention on the bankers, government agencies and other private service. Safe and secured services like immediate certification of payments , clear statement of their accounts, no hidden charges, full control on money, shorten process of transaction by fulfil of mandatory information . As an overall review, most of the major developed countries in the world are moving in a very excellent way of cashless economy. A history of delayed in development in India is too long. Now the time, India should progress in full steam ahead and create a new legacy. This is time to embrace the cashless economy like other developed countries and we must make the most of it.

ACKNOWLEDGMENT

I would like to thank Shankarlal Khandelwal Arts, Science & Commerce college, Akola for giving the opportunity to present my research paper in the national conference. I also would also like to thanks SNBP college of ACS & Management studies, Pimpri, Pune for giving all the support.

References:

1.] Jun, M. & Cai, S. (2001). The key determinants of Internet banking service quality: a content analysis. International Journal Of Bank Marketing, 19(7), 276-291.http://dx.doi.org/10.1108/026523201104 09825

2.] Khosla, S. (2017). India is far away from being a cashless economy. Here's why. http://www.hindustantimes. com/. Retrieved 14 March 2017, from http://www. hindustantimes.com/analysis/india-is-far-awayfrom- being-a-cashless-economy-here-s-why/storyybFui5M53JPFyD1MGvHigJ. Html

3]http://www.hindustantimes.com/analysis/india-is-faraway-from-being-a-cashless-economy-here-swhy/storyybFui5M53JPFyD1MGvHigJ.html

http://hh.divaportal.org/smash/get/diva2:1079619/ FULL TEXT01.pdf

5]https://usa.visa.com/dam/VCOM/download/corporate/media/moodys-economy-white-paper-feb-2013.pdf

ISSN : 2278-9308
February, 2022

Study On Relation Between Management & Employee

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Abstract

The purpose of research paper is study relation between management and employee relation, it also focuses on how to strengthen the relation of employer and employee, in modern business era HRM Plying vital role to achieve organizations goal and objectives, and maintaining employee relation is element of HRM. As point of human resource, employer and manager should motivate, communicate and inculcate value in employee in such way that achieve organizational goal.

This research highlights on the elements which are responsible for maintaining relation ,elements like .respect & trust, fair wages & salary, communication ,coordination,problem solving .

This study mainly focus on the following points.

1.The relation between employer & employee
2.The relation between manager & employee
3.The relation between employee and employee.

Key words: Employee relation, motivation ,communication ,management, goals and objectives,

Introduction

In current competitive era the success of an organization depends on the caliber of itshuman resources. It is the quality of the people that determines the continued survival andgrowth of the organization. As the organization grows, thought must be given for managingthe relationships with the employees as success of an organization largely depends on thesound relationship among employer – employee.

The relationship between employer-employees grows more complex and more critical every year.The Employer/ Employee Relations Unit serves as the equality aim of the Agency byestablishing and maintaining a fair and impartial labor relations program. The Unit isresponsible for conducting inquiries into grievances filed by staff. In conjunction with maintaining and tracking workplace injuries, Employer/Employee Relations coordinates and
monitors personnel health care coverage, retirement

A good relationship is a relationship where there is a reciprocal exchange of valuebetween two parties. Both parties must want to be part of that relationship and contribute tothe relationship to work. We believe that Employee Relationship Management will improve productivity byimproving:

-Employeemorale
-Employeeloyalty
-Employeeturnaround
-Employeecommunication
- Employee change readiness

The problem with a relationship is that it is much like an iceberg. The visible part of the relationship is only the tip of the iceberg that is visible above the water level. Most of the factors that determine the quality of a relationship is beneath the water. All these are done with the aim of improving productivity

OBJECTIVES OF THE STUDY

❖ To study the relationship between management and employee.
❖ To find out the various reason which help to maintain good relationship between management and employee.
❖ To know employees expectation from the management.

Scope of the study

1) study covers all levels of Employees and various aspects of Employees like: Identifying Employees attitudes towards various attributes at work place.
This study gives us an insight of how Employees see and perceive about Organization Interpersonal relations,
2) The scope of the study covers employees of various departments in order to understand their expectation.

3) The study covers what is the problem of employee & management relationship.

Review of literature

Management and employee relation

Mentally, relationships grow out of communication, and the functioning and survival of organizations is based onCommunication is one of the most dominant and important activities in organizations Fundraised on effective relationships among individuals and groups. In addition, organizational capabilities are developed and enacted through "intensely social and communicative processes" (Communication helps individuals and groups coordinate activities to achieve goals, and it's vital in socialization, decision-making, problem-solving and change-management processes.

Internal Communication Matters

Internal communication also provides employees with important information about their jobs, organization, environment and each other. Communication can help motivate, build trust, create shared identity and spur engagement; it provides a way for individuals to express emotions, share hopes and ambitions and celebrate and remember accomplishments. Communication is the basis for individuals and groups to make sense of their organization, what it is and what it means.

Create a Trusting Environment

Without trust in the workplace, communication and teamwork will erode. Additionally, morale will decrease while turnover will rise. However, by using these three strategies, you can build your employees' trust in management, thereby making their workplace an environment filled with innovation, creativity and ultimately higher profits for all.

RESEARCH METHODOLOGY

INTRODUCTION

Research is an art of scientific investigation through search for new facts in any branch of Knowledge. It is a moment from known to unknown.

- Research always starts with a question or a problem.
- Its purpose is to find answers to questions through the application of the scientific method.
- It is a systematic and intensive study directed towards a more complete knowledge of the subject studied.

As marketing does not address itself to basic or fundamental question, it does not qualify as basic research. On the contrary, it tackles problems, which seem to have immediate commercial potential. In view of the major consideration, marketing research should be regarded as applied research. We may also say that marketing research is of both types problem solving and problem oriented.

Marketing research is as systematic and objectives study of the problems pertaining to the marketing of the goods and services. It may be emphasized that it is not restricted to any particular area of marketing, but is applied to all the phases and aspects.

Research Methodology:-

"Research Methodology is way to systematically solve the search problem. It understood as a science of studying how research is done scientifically".

Research methods falling in the above stated last two groups are generally taken as the analytical tools of research. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is necessary for the researcher to know not only the research methods/techniques but also the methodology. Researchers not only need to know how to develop certain indices or tests, how to calculate the mean, the mode, the median or the standard deviation or chi-square, how to apply particular research techniques, but they also need to know which of these methods or techniques, are relevant and which are not, and what would they mean and indicate and why. Researchers also need to understand the assumptions underlying various techniques and they need to know the criteria by which they can decide that certain techniques and procedures will be applicable to certain problems and others will not. All this means that it is necessary for the researcher to design his methodology for his problem as the same may differ from problem to problem. For example, an architect, who designs a building, has to consciously evaluate the basis of his decisions, i.e., he has to evaluate why and on what basis he selects particular size, number and location of doors, windows and ventilators, uses particular materials and not others and the like. Similarly, in research the scientist has to expose the research decisions to evaluation before they are implemented. He has to specify very clearly and precisely what decisions he selects and why he selects them so that they can be evaluated by others also.

From what has been stated above, we can say that research methodology has many dimensions and research methods do constitute a part of the research methodology. The scope of research methodology is wider than that of research methods. Thus, when we talk of research methodology we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others. Why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis has been formulated, what data have been collected and what particular method has been adopted, why particular technique of analysing data has been used and a host of similar other questions are usually answered when we talk of research methodology concerning a research problem or study.

Research design:

Research design is plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance.

Research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern or framework of the project that indicates what information is to be collected, from which sources and by which procedures.

Sampling:-

Sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population

Sample Area: Kopargaon

Sample size:100

Sampling Methods:-

A) Probability Sampling:-

A **probability sample** is a sample in which every unit in the population has a chance (greater than zero) of being selected in the sample, and this probability can be accurately determined. The combination of these traits makes it possible to produce unbiased estimates of population totals, by weighting sampled units according to their probability of selection.

Research design method used:

Descriptive Research design:

Descriptive research designs are well structured. This type of research designs are undertaken in various circumstances. This research design is very useful to know the characteristics of certain group such as age, sex, educational level, occupation or income.

The basic objective of descriptive research design is to find the answers the questions relating to, "who, what, when, where and how" of the subject under investigation, Descriptive research design are not always factual and simple, they can be complex also, demanding a high degree of scientific skill on the part of the researcher. Descriptive research design study can be d

Primary data:

- This data is collected through primary sources from which the researcher directly collects the data that has been not available previously.
- I have collected information through interview, questionnaire, observation , discussion.

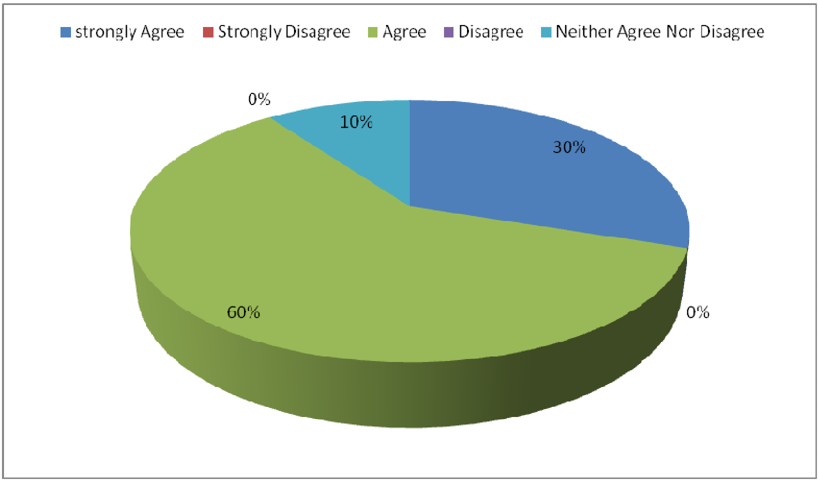
Secondary data:

- Secondary data are secondary hand data which is already available & can be used for study such as web searching, newspaper, books, magazines etc.
- For this project I have use internet, books.

DATA ANALYSIS AND INTERPRITATION

1. Do you feel manager or supervisor think employee problem as their own problem?

Sr. no	Option	No of respondents	Percentage
1	Strongly Agree	6	30%
2	Agree	12	60%
3	Neither agree nor disagree	2	10%
4	Disagree	0	0%
5	Strongly disagree	0	0%
Total		20	100%



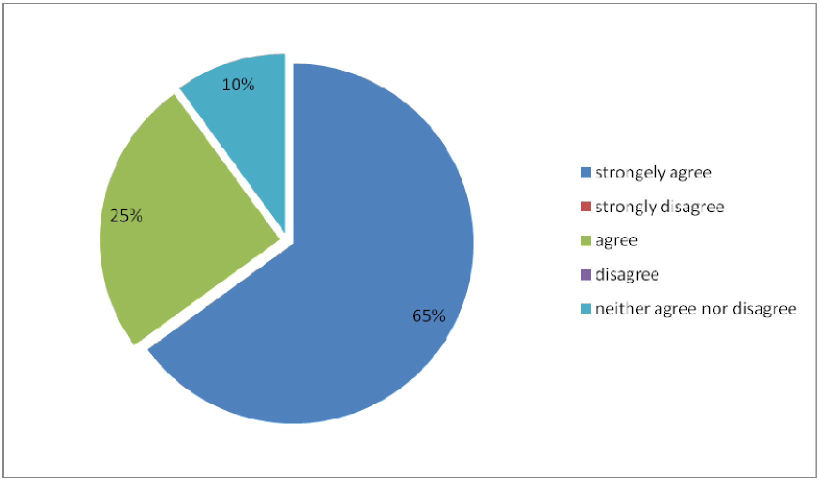
Interpretation

The above graph shows that 60% respondent agree & 30%strongly agree for manager or supervisor think employee problem as their own problem

Q2-Do you feel your manager coaches you on improving your performance?

Sr. No.	Option	No of respondents	Percentage
1	Strongly Agree	13	65%
2	Agree	5	25%
3	Neither agree nor disagree	2	10%
4	Disagree	0	0%
5	Strongly disagree	0	0%

ISSN : 2278-9308
February, 2022

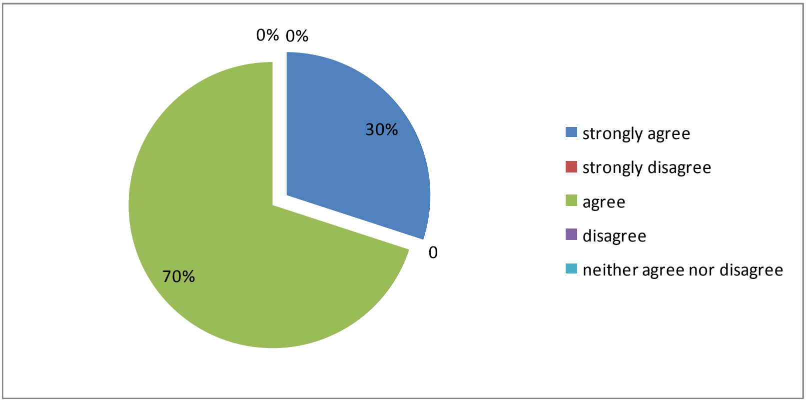


Interpretation

The above graph shows that 65% people strongly agree& 25%strongly agree for that manager coaches improving employees performance

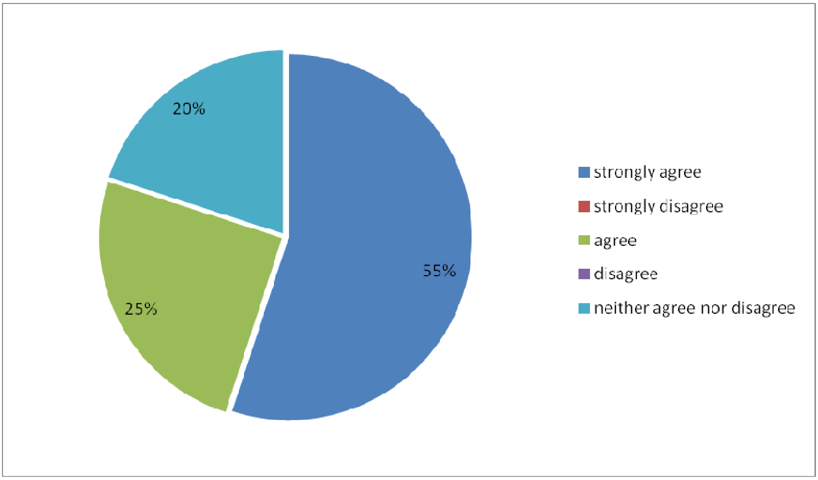
Q3- Do you feel that manager Motivate you within.

Sr.No	Option	No of respondents	Percentage
1	Strongly Agree	6	30%
2	Agree	14	70%
3	Neither agree nor disagree	0	0%
4	Disagree	0	0%
5	Strongly disagree	0	0%
Total		20	100%



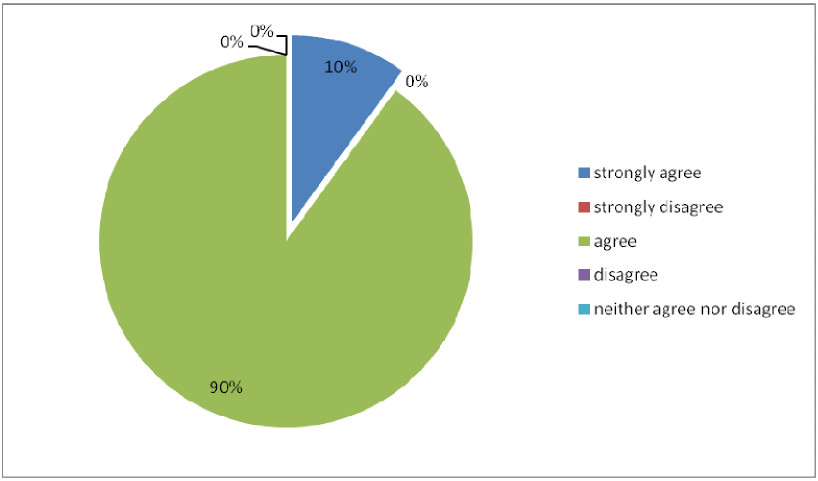
Interpretation
The above graph shows that 70agree &30% agree respondent completely get motivated by manager
Q.4 Do you feel that your ideas are implementation in your organization?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	11	55%
2	Agree	5	25%
3	Neither agree nor disagree	4	20%
4	Disagree	0	0%
5	Strongly Disagree	0	0%
Total		20	100%



Interpretation
The above graph shows that 55% people strongly agree &25% agree & 20% neither agree nor disagree for their idea implementation in organization.
Q5 Do you feel management treats to all employee at equal level ?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	2	10%
2	Agree	18	90%
3	Neither agree nor disagree	0	0%
4	Disagree	0	0%
5	Strongly Disagree	0	0%
Total		20	100%

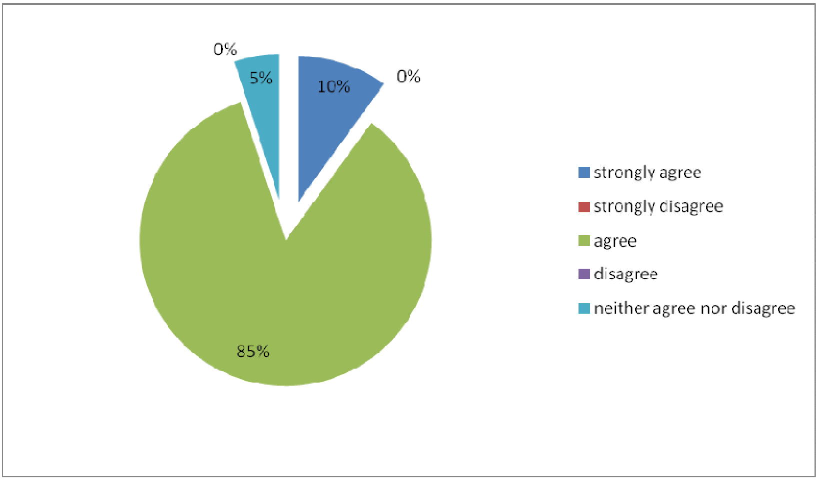


Interpretation

The above graph shows that 90% people agree and 10% people strongly agree for management treats to all employee at equal level .

Q6 Do you feel your participation appreciated by management?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	2	10%
2	Agree	17	85%
3	Neither agree nor disagree	1	5%
4	Disagree	0	0%
5	Strongly Disagree	0	0%
Total		20	100%

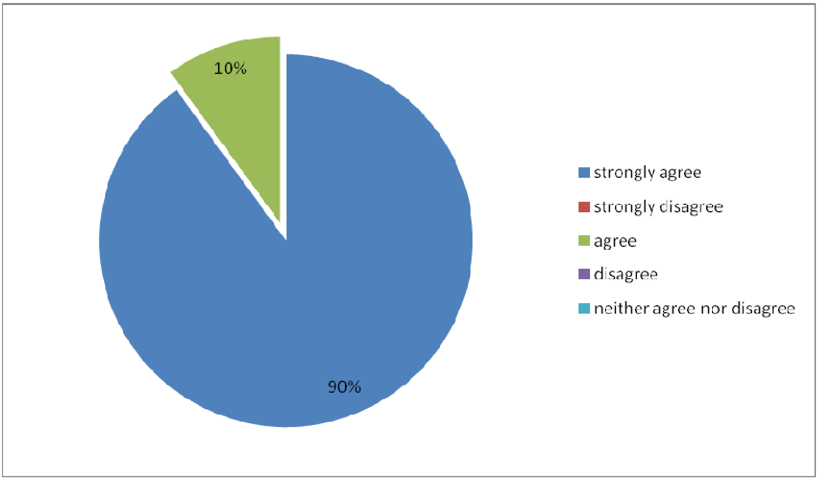


Interpretation

The above graph shows that 85% respondent agree&10% agree for participation appreciated by management while 10%people neither agree nor disagree

Q7 Do you understand what company expect from you and your work ?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	18	90%
2	Agree	2	10%
3	Neither agree nor disagree	0	0%
4	Disagree	0	0%
5	Strongly Disagree	0	0%
Total		20	100%

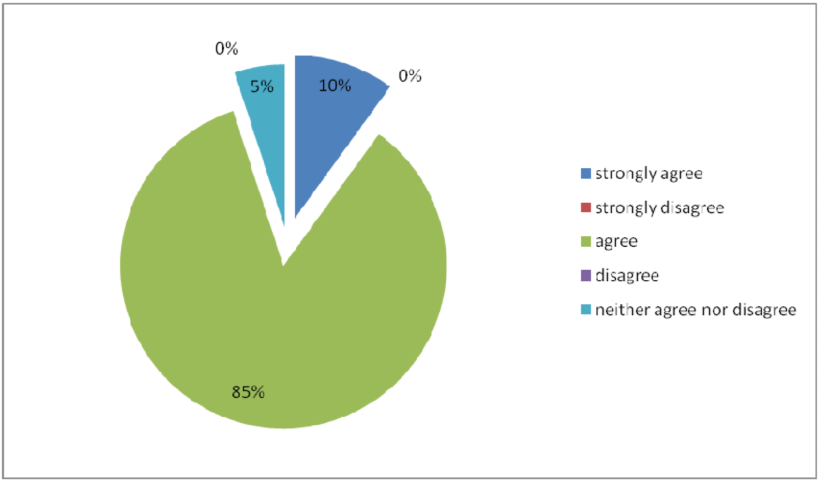


Interpretation

The above graph shows that 90% respondent strongly agree & 10% agree to understand what company expect them

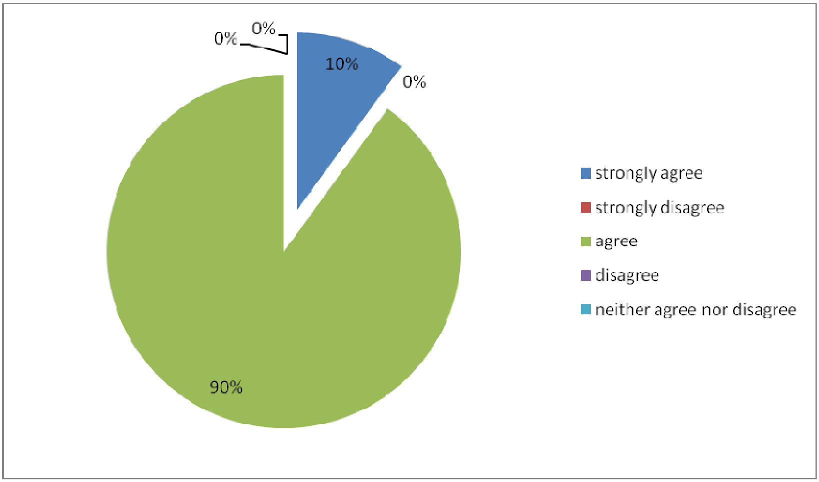
Q8 Do you feel your manager gives you formal feedback on your performance ?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	2	10%
2	Agree	17	85%
3	Neither agree nor disagree	1	5%
4	Disagree	0	0%
5	Strongly disagree	0	0%
Total		20	100%



Interpretation
The above graph shows that 85% respondent agree &10% agree that manager gives formal feedback, while 5% people neither agree nor disagree
Q 9 Do you feel free to talk with your superior ?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	2	10%
2	Agree	18	90%
3	Neither agree nor disagree	0	0%
4	Disagree	0	0%
5	sStrongly Disagree	0	0%
Total		20	100%



B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) -8.572 Issue NO, 337(CCCXXXVII) A
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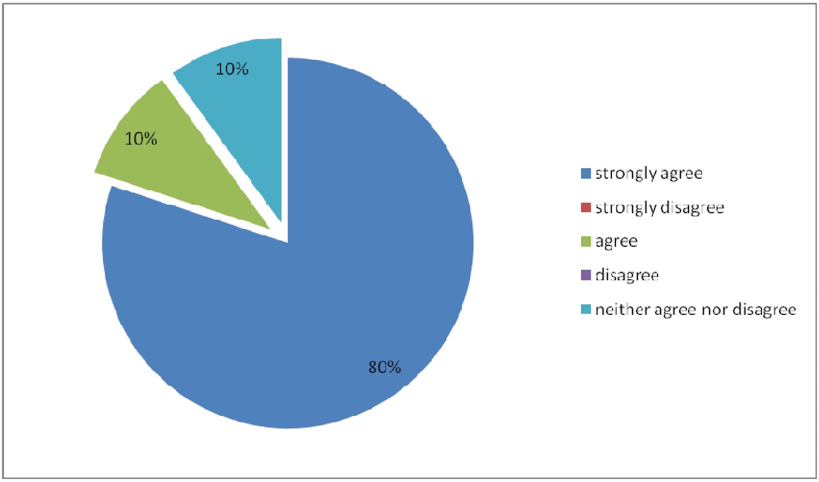
Interpretation

The above graph shows that 90% respondent agree &10% strongly agree for to free talk with their superior

Q 10 Do you think that your superior makes it easy for you do your best work ?

Sr. No	Option	No of respondents	Percentage
1	Strongly Agree	16	80%
2	Agree	2	10%
3	Neither agree nor disagree	2	10%
4	Disagree	0	0%
5	Strongly disagree	0	0%
Total		20	100%



Interpretation

The above graph shows that 80% people strongly agree & 10% agree for the superior makes it easy for employee do their best job. While 10% people neither agree nor disagree

LIMITATION OF THE STUDY

1 Information collected from internet cannot be validated using formal tools

2 Some secondary data required for study is not available.

3 More over research depends on the behaviour of the respondents. So it can also vary from person to person.

5 Time period of for study is less

FINDINGS

- The majority of the people are satisfied with motivational talk by manager
- The majority of respondent are highly satisfied with top management
- The majority of the respondent are strongly agree with management treat to all employee at equal level
- Majority of the people agree with superior makes it easy for employee do their best work
- Majority of the respondent are strongly agree for manager gives a formal feedback on employees performance

SUGGETION

- Increase health and safety standard
- Provide canteen facility to employee within company
- Employer should conduct Training and Development programmed for their employees.

ISSN : 2278-9308
February, 2022

- Company should provide uniform to every employee.
- Company should expand their business with another segment.

CONCLUSION

In this study found that the relation between management and employees responsible for the growth of organization , Also it improve my knowledge of practically idea of to maintain good relation between management & employee Also I learn that how company manage their business in the small scale.

The employer & employee of will have good relation through internal communication , trusting environment ,recognition & having familiar relation with each other this things are important to build good relation.

References.

smallbusiness.chron.com › Managing Employees › Employees
www.virginia.edu/insideuva/1999/30/managers.html
hhh;//www.business dictionary.coms

ISSN : 2278-9308
February, 2022

General Idea About Human Rights Which Every Person Must Know

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Violating human rights is abuse to the nation.

WHAT ARE HUMAN RIGHTS? : Human rights are the basic rights available to any human being by virtue of his birth in human race. It is inherent in all human beings irrespective of their nationality, religion, language, sex, colour or any other consideration. The Protection of Human Rights Act, 1993 defines Human Rights as: "human rights" means the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India". Protection of human rights is essential for the development of the people of the country, which ultimately leads to development of the national as a whole. The Constitution of India guarantees basic human rights to each and every citizen of the country. The framers of the Constitution have put their best efforts in putting down the necessary provisions. However, with continuous developments taking place, the horizon of human rights has also expanded. The parliamentarians are now playing a great role in recognizing the rights of people and passing statues, amending provisions etc. as and when required.

DEVELOPMENT OF HUMAN RIGHTS: The Human Rights in India originated long time ago. It can easily be recognized from the principles of Buddhism, Jainism. Hindu religious books and religious texts like Gita, Vedas, Arthasatra and Dharmashstra also contained provisions of human rights. Muslim rulers like Akbar and Jahangir were also very much appreciated for his regard for rights and justice. During the early British era, the people suffered a great violation of several rights and this led to the birth of modern Human Rights jurisprudence in India.

On January 24, 1947, Constituent Assembly voted to form an advisory committee on Fundamental Rights with Sardar Patel as the Chairman. Drafted list of rights were prepared by Dr. B. R. Ambedkar, B. N. Rau, K. T. Shah, Harman Singh, K. M. Musnshi and the Congress expert committee. Although there were few amendments proposed, there was almost no disagreement on the principles incorporated. The rights in the Universal Declaration of Human Rights were almost completely covered in the Indian Constitution either in Fundamental Rights or Directive Principles of State Policy. Nineteen fundamental rights were covered in Motilal Nehru Committee Report, 1928 out of which ten appear in the Fundamental Rights whereas three of them appear as Fundamental Duties.

WHAT IS THE NEED OF HUMAN RIGHTS? : There are various reasons due to which we can say human rights are very much important and required such as Human rights ensure people have basic needs met, Human rights protect vulnerable groups from abuse, Human rights allow people to stand up to societal corruption, Human rights encourage freedom of speech and expression, Human rights give people the freedom to practice their religion, Human rights allows people to love who they choose, Human rights encourage equal work opportunities, Human rights give people access to education, Human rights protect the environment, Human rights provide a universal standard that holds governments accountable, and many more.

WHO HAS HUMAN RIGHTS? : Absolutely everyone. Heads of state, children, men, women, Africans, Americans, Europeans, refugees, stateless persons, the unemployed, those in employment, bankers, those accused of carrying out acts of terrorism, charity workers, teachers, dancers, astronauts, etc. each and every person has human rights.

ISSN : 2278-9308
February, 2022

EVEN CRIMINALS HAVE HUMAN RIGHTS? : Absolutely yes. Criminals are humans too. The power of human rights lies in the very fact that they treat everyone as equal in terms of possessing human dignity. Some people may have violated the rights of others or may pose a threat to society and may therefore need to have their rights limited in some way in order to
protect others, but only within certain limits. These limits are defined as being the minimum which is necessary for a life of human dignity.

WHY DO WE TALK ABOUT HUMAN RIGHTS AND NOT ABOUT HUMAN RESPONSIBILITIES? : Although some thinkers and NGOs have put forward strong arguments for the need for human responsibilities and even codes or declaration to articulate these, the human rights community has generally been reticent about this debate. The reason is that many governments make the "granting" of human rights dependent on certain "duties" imposed by the state or ruler, in this way making the whole idea of rights as birthrights meaningless. However, it goes without saying that we need to act responsibly as individuals and groups to respect the rights of others, not to abuse human rights and to advance the rights of others as well as ourselves. In fact, article 29 of the UDHR recognises that, "1. Everyone has duties to the community in which alone the free and full development of his personality is possible. 2. In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society.".

CONNECTION OF HUMAN RIGHTS AND CONSTITUTION OF INDIA:

India had signed the Universal Declaration on Human Rights January 01, 1942. Part III of the Constitution India 'also referred as Magna Carta' contains the Fundamental rights. These are the rights which are directly enforceable against the state in case of any violation. Article 13(2) prohibits state from making any law in violation of the Fundamental Rights. It always provides that if a part of law made is against the Fundamental Rights, that part would be declared as void. If the void part cannot be separated from the main act, the whole act may be declared as void.

In the case of Keshvanand Bharti v. State of Kerela, the apex court observed: "The Universal Declaration of Human Rights may not be a legally binding instrument but it shows how India understood the nature of human rights at the time the Constitution was adopted

IMPLEMENTATION OF HUMAN RIGHTS IN INDIA: NHRC, which was established by the Protection of Human Rights Act, 1993 is the main body entrusted with promoting and protecting human rights. The Act also provides for the establishment of State Human Rights Commissions (SHRC) and Human Rights Courts (HRC) at the district level in each state. The Human Rights Act vests the NHRC with a broad mandate but it only has the power to issue recommendations and does not have any effective enforcement mechanism at its disposal. The scope of the NHRC's work and the zeal of victims of human rights violations to seek the Commission's attention is manifested by the fact that starting with 496 complaints in the first six months after it was established, the NHRC registered 50,634 complaints during 1999-2000.

There are no explicit provisions in the Indian Constitution regulating the incorporation and status of international law in the Indian legal system. However, Articles 51 (c) stipulates, as one of the directive principles of state policy, that: The State shall endeavour to foster respect for international law and treaty obligations in the dealings of organised people with another.

International treaties do not automatically become part of national law. They have to be transformed into domestic law by a legislative act. The Union has the exclusive power to implement international treaties. The status of customary international law in domestic law follows the common law of England. Accordingly, a rule of customary international law is binding in India provided that it is not inconsistent with Indian law.

HUMAN RIGHTS DAY: Human Rights Day is observed every year on 10 December – the day on which the United Nations General Assembly adopted, in 1948, the Universal Declaration of Human Rights. In December 1948, UNESCO was the first United Nations agency to place the Universal Declaration at the heart of all its action, to promote it across the world through education and the media. The Universal Declaration of Human Rights empowers us all. The principles enshrined in the Declaration are as relevant today as they were in 1948. We need to stand up for our own rights and those of others. We can take action in our own daily lives, to uphold the rights that protect us all and thereby promote the kinship of all human beings.

FUNDAMENTAL RIGHTS vs. HUMAN RIGHTS vs. LEGAL RIGHTS:

Fundamental rights are the rights of a country's citizens that are stated in the constitution and enforced by the law. Human rights, on the other hand, are the safeguards that a human being seeks in order to live in dignity and equality. Legal rights, on the other hand, are the government's protections for residents of a particular state. Fundamental rights only include certain rights that are fundamental to a normal existence. Human rights, on the opposite, include certain rights that are fundamental to real life and that are unconditional, i.e. that cannot be excluded. Legal rights, on the other hand, are neither fundamental to a normal life nor to absolute life.

While fundamental rights are nation-specific, i.e. these rights may differ from country to country. There is a worldwide recognition of human rights, which ensures that these rights are enjoyed by all individuals. The legal rights on the same note to the basic rights are state-wide, are open to the citizens of a specific region, and can even be altered by the government as necessary

CONCLUSION: Human Rights are the basic rights which form the essential part of his/her development as human being. Constitution acts as a protector of those basic rights as Fundamental Rights and DPSPs. More emphasis has been given to the fundamental rights and they are directly enforceable in the court of law. From a deep study of the Part III and Part IV of the Indian Constitution, it is easily evident that almost all of the rights provided in UDHR are covered in these two parts.

Judiciary has also taken great steps such as relaxing rules of 'locus standi' and now any other person in place of the ones affected can approach Court. The apex court has interpreted the Fundamental Rights available to a citizen and now rights like right to privacy, right to clear environment, right to free legal aid, right to fair trail etc. also find place in the Fundamental Rights.

Abbreviations:

UDHR – Universal Declaration on Human Rights
NHRC – National Human Rights Commission
DPSPs – Directive Principles of State Policies
UNESCO – United Nations Educational, Scientific and Cultural Organization

B.Aadhar' International Peer-Reviewed Indexed Research Journal

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308 February, 2022

An Extensive Review on Swarm Robotics and Its Applications

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E&TC | E&TC | E&TC | E&TC

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Abstract-

This paper aims towards giving a creatively brief overview of where swarm robotics can be used and how it can affect the society to make an innovative future. We have briefly described what swarm robotics is and why we need the field of swarm robotics. Then we will look at how we can use swarm robots on land and in the air, and underwater. We have also shown some miscellaneous applications of swarm robots and how using swarm robots in future will affect our society.

Introduction : Swarm is a term used to refer to a group of similar objects that are close together generally in motion; therefore, swarm robotics is a field where multiple robots with primary functionality group together to complete a task that might be difficult or time-consuming for a single robot to perform. Swarm robotics mainly consists of swarm principles and swarm intelligence. Swarm principles are similar to a set of behavioural rules that a swarm robot should follow, including communication, control approach, Mapping and localization, Object manipulation, Motion coordination, Learning and task allocation[3]. Swarm intelligence is a set of more generalised algorithms used to implement swarm robots. Swarm intelligence is created to imitate nature. It imitates insect colonies or packs of wolves or flocks of birds or herds of sheep or also humans. They typically do not follow commands from a leader.

Swarm intelligence comes from the swarming behaviours of groups of organisms. Group living enables organisms to solve complex or impossible problems for single individuals to resolve (see [4,6,7,8]). So, swarm intelligence can be seen as a mechanism that individuals can overcome some of their cognitive and perceptive limitations. Swarm mechanism is like teamwork, where one individual can overcome their own perceptive, cognitive, or other limitations by working together towards the same goal. According to yan-feizhu,[yan fei-zhu] swarm intelligence claims the ability to manage complex systems of interacting individuals through minimal communication with only local neighbours to produce global emergent behaviour. They typically do not follow commands from a leader. These unique features make swarm intelligence play essential roles in many engineering applications such as formation control of multi-robot systems, massive distributed sensing using mobile sensor networks, combat using cooperative unmanned aerial vehicles or flocking [2]. According to Cao et al. [4], swarm intelligence is "a property of systems of non-intelligent robots exhibiting collectively intelligent behaviour".

Literature related to the real-world application of swarm robots is a very scarcely explored domain, and this leads to swarm robots not being implemented in industrial or commercial use. However, many researchers have implemented swarm robots in their labs, and soon we might be able to see swarm robots being commercially and industrially in use. Some advantages of using swarm robots are

Effective computing: When a robot is part of a swarm, it can have more resources available for computing.

Great teamwork: failure of one or few robots can be compensated by other robots of the swarm.

Scalable: we can easily change the number of robots in the swarm within a limit without affecting communication between the current set of robots.

Decentralised Control: These robots do not need a master to control them

Economical: Every individual can consist of a robot with fundamental functionality in it hence cost of single hardware is significantly lower.[2]

Aerial :

UAVs (Unmanned Aerial Vehicles) and MAVs (Micro Aerial Vehicles) are gaining popularity and seeking the attention of researchers due to numerous applications in various industries. However, though these UAVs/MAVs have advanced technology, there are some places where a single UAV cannot provide the desired outcome, e.g. heavy payload transportation military assessments.

Swarm robotics can provide an agile way to gather large amounts of environmental data and coordinate operations of multiple devices. Swarm Vehicles are represented by the OFFSET(Offensive Swarm Enabled Tactics) project [37]. The project aimed to enhance reconnaissance over the city with the help of UAVs and UGVs [1]. Typical tasks in military applications include hovering over targets, forming different patterns, military logistics. Typical military applications of Swarm Robotics include surveillance precision assassinations. The Predix drone [38], a military swarm project funded by the Pentagon, is a swarm of 103 Predix UAVs that can perform four missions, including hovering over a target forming a specific pattern. In addition, a Swarm of UAVs can be deployed for precision farming. This swarm will constantly monitor farms and collect the data from its various sensors. This helps to locate and stop the spread of weeds locusts and eventually prevent damage to the crops. SAGA 1(Swarm Robotics for Agriculture Applications) focuses on the applicability of Swarm Robotics in Precision farming [12].

Furthermore, UGVs and UAVs can work together to automate the farming process. To avoid border conflicts and preserve integrity between nations, it is essential to map the border correctly. UAVs and MAVs with a built-in camera can map the borders correctly and be used for border surveillance. UAVs can serve a significant purpose in meteorology. Generally, most UAVs/MAVs are equipped with various sensors that can collect environmental data such as temperature, pressure, humidity, AQI (Air Quality Index). This collected data can further be fed to some AI/ML/DL algorithms to predict overall weather MARSBEE is a project proposed by researchers to explore the Martian surface by investigating the feasibility of flapping wing aerospace architectures in a Martian environment. A UAV has considerable computation power complex sensor circuitry, but the size of UAVs/MAVs limits their capabilities for payload transportation. A single drone can deliver a single small-sized payload, but o a large, heavy package is delivered by a delivering agent, and it is a lengthy, time-consuming process. A group of UAVs can deliver a comparatively large payload efficiently. Swarm Delivery system effectively delivers daily needs, medicines, payloads in hilly areas. Augmented Reality is an emerging technology. It enables the creation of 3D visualisation of objects in the open air using AR gears. A swarm of quadcopters can be used to create a big picture. These drones are equipped with flight controllers, GPS, communication channels, and multi-coloured LEDs. Intel has made a Guinness world record of most UAVs airborne simultaneously with a formation of 100 drones equipped with LEDs in 2016 [13]. Recently 1000 drones performed in a display at the Beating Retreat ceremony in New Delhi as a part of India's Republic Day celebrations. The movie theatre screen will be replaced by an AV swarm of drones within the near future.

Terrestrial

An Unmanned Ground Vehicle is a vehicle that operates on the ground territory without onboard human presence. UGVs can be used to perform highly dangerous or sometimes impossible tasks for a human being. There are many UGVs like Line Follower Bot, Hexapod, Quadpod, multi-legged robot. These individual robots can help humans achieve an outcome to a certain extent as they have several limitations. A swarm of UGV can automate a whole process and minimise human intervention. Many researchers have done, reviewed several applications of terrestrial Swarm Robotics already. Here are two fields where swarm robotics can be implemented innovatively. Construction -Swarm robots can be efficiently used in the construction industry. While working on a construction site, often construction workers have to do some dangerous tasks. While working on such tasks, a worker has to put his/her life at risk. Swarm robots can be used to perform such dangerous tasks in the construction industry. Many very simple robots can be used, which will fulfil the requirement. Every individual robot is not technologically advanced, but using thousands of robots to perform a particular task may do miracles. This technological innovation will undoubtedly save the lives of thousands of workers on construction sites who put their lives in danger every day. The best part about this innovation is that it will not steal the jobs of poor construction workers. These robots can be only used where the task is too dangerous and may involve the death of the person performing the task. This way, the lives of workers will be saved and at the same time not steal their jobs.

Household help - Manpower these days, especially in developed countries and developing countries, is getting expensive. This problem can be solved by using swarm robots. Rather than using a single very advanced robot to perform an entire task, thousands of not so advanced robots can be used. This system can also be designed so that even if one out of a thousand robots fails, another robot will notice the failure and do the task assigned to the failed robot. This way, the system will not completely collapse even when a significant number of robots fail. Of course, this system may not come at a low price and will not be a significantly good option in underdeveloped countries with relatively cheap human resources. Nevertheless, this innovation can save money in countries like the UK, USA, and Switzerland, where human resources are expensive.

Aquatic:

Humans have explored almost 90% of terrestrial earth but could not explore more than 5% of the ocean or aquatic life due to extreme conditions underwater. Many geographical, archaeological sites are submerged underwater. The UUVs Unmanned Underwater Vehicles can help human beings explore marine life collect data and samples for research purposes. A swarm of UUVs can be used for research purposes. CoCoRo(Collective Cognitive Robotics), a project with 41 Heterogenous UUVs, serves the researchers. Here there is one base station, fellow UUVs to sense and collect the data, and others relay the collected data to the base station[39]. A heterogeneous swarm of UUVs, UAVs and UGVs can be deployed for maintenance purposes of ships.UAVs will be monitoring and analysing the faults that are easily visible on the ship's exterior, while UUVs would examine the bottom part of the ship to check for any possible damage to the ship's body, either due to corrosion or some external factors. Various industries are dependent on crude oil. Transporting oil using ships is one of the big businesses. Often, there are oil spills in the ocean that harm aquatic life as the layer of oil on water blocks the oxygen. A UUV kilobit can perform this task efficiently and faster than humans preserving aquatic life.

Conclusion : In this paper we have briefly discussed about what swarm robotics is and what are some of the applications of Swarm robots on land, in air, underwater and some miscellaneous and futuristic applications.

References

1. Schranz Melanie, Umlauft Martina, Sende Micha, Elmenreich Wilfried,"Swarm Robotic Behaviors and Current Applications",Frontiers in Robotics and AI,vol. 7,2020
2. Yan-fei Zhu and Xiong-min Tang, "Overview of swarm intelligence," 2010 International Conference on Computer Application and System Modeling (ICCASM 2010), 2010, pp. V9-400-V9-403, doi: 10.1109/ICCASM.2010.5623005.
3. Y. Mohan and S. G. Ponnambalam, "An extensive review of research in swarm robotics," 2009 World Congress on Nature & Biologically Inspired Computing (NaBIC), 2009, pp. 140-145, doi: 10.1109/NABIC.2009.5393617.
4. Y. Uny Cao, Alex S. Fukunaga and Andrew B. Kahng, “Cooperative Mobile Robotics: Antecedents and Directions”, Autonomous Robots, vol. 4, 1997,
5. [6]E. Sabhin, “Swarm Robotics: From Sources of Inspiration to Domains of Application”, ser. Lecture Notes in Computer Science, Berlin/Heidelberg: Springer, vol. 3342, pp. 10-20, 2005
6. [7]D. Grunbaum and A. Okubo, “Modeling social animal aggregations”, In Frontiers in Theoretical Biology, Lecture Notes in Biomathematics, Springer-Verlag, New York, vol. 100, pp. 296-325, 1994

7. [1]Amanda J. C. Sharkey, "The Application of Swarm Intelligence to Collective Robots" in Advances in Applied Artificial Intelligence, John Fulcher, Idea Group Publishing, 2006, pp. 157 - 185

8. Amanda J. C. Sharkey, “Swarm Robotics and Minimalism”, Connection Science, vol. 19, no. 3, September 2007, pp. 245-260.

9. Amanda J. C. Sharkey, “Robots, Insects and Swarm Intelligence”, Artificial Intelligence Review, vol. 26, 2006, pp. 255-268.

10. Thomas H. Labella, Marco Dorigo and Jean-Louis Deneubourg, “Division of Labor in a Group of Robots Inspired by Ants’ Foraging Behavior”, ACM Transactions on Autonomous and Adaptive Systems, vol. 1, no. 1, September 2006, pp. 4-25

11. Ying Tan, Zhong-yang Zheng,”Research Advance in Swarm Robotics”, Defence Technology,Volume 9, Issue 1,2013,Pages 18-39

12. M. Dorigo, G. Theraulaz and V. Trianni, "Swarm Robotics: Past, Present, and Future [Point of View]," in Proceedings of the IEEE, vol. 109, no. 7, pp. 1152-1165, July 2021, doi: 10.1109/JPROC.2021.3072740.

13. Abdelkader, M., Güler, S., Jaleel, H. et al. Aerial Swarms: Recent Applications and Challenges. Curr Robot Rep 2, 309–320 (2021). https://doi.org/10.1007/s43154-021-00063-4

14. X. -S. Yang, S. Deb, S. Fong, X. He and Y. Zhao, "Swarm Intelligence: Today and Tomorrow," 2016 3rd International Conference on Soft Computing & Machine Intelligence (ISCMI), 2016, pp. 219-223, doi: 10.1109/ISCMI.2016.34.

15. M. Dorigo, "SWARM-BOT: an experiment in swarm robotics," Proceedings 2005 IEEE Swarm Intelligence Symposium, 2005. SIS 2005., 2005, pp. 192-200, doi: 10.1109/SIS.2005.1501622.

16. Y. Khaluf, E. Mathews and F. J. Rammig, "Self-Organized Cooperation in Swarm Robotics," 2011 14th IEEE International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing Workshops, 2011, pp. 217-226, doi: 10.1109/ISORCW.2011.30.

17. K. Kaur and Y. Kumar, "Swarm Intelligence and its applications towards Various Computing: A Systematic Review," 2020 International Conference on Intelligent Engineering and Management (ICIEM), 2020, pp. 57-62, doi: 10.1109/ICIEM48762.2020.9160177.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Cyber security In Indian Banking

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Introduction :-

The Indian Banking industry is old and many changes are brought in this industry since liberalization. The banking system is well regulated and supervised, it involves moral practice, financial distress and company governance. The call for development has given this unit monstrous probabilities and so, banks are presently among the best recipients of the IT insurgence. The on-line exchanges mounting on advancements like NEFT (National Electronic store Exchange), RTGS (Constant Gross Settlement), ECS (Electronic Clearing Administration) and transportable exchanges has provided aid in saving cash & fund problems.

The onset of COVID resulted in digitalization in the banking sector. Both front-end and back-end operations have now become digital. With all this growing technology cyber attacks persistently increase and attackers are actively looking for their victims for the malicious cyber-attacks on sensitive data of banking and financial systems.

This new digital workforce has pushed most of the banking sectors to go online including video conferencing that has led to privacy issues and phishing attempts including ransom ware attacks.

Since banking sectors are depending on ling banking both mobile and web services tend to have a weak security system due to which cyber security threats are becoming more prominent. Mostly cybercriminals prefer to target the banking sector to get customer and employee information details and them to steal bank data and money.

Research Methodology:-

The methodology adopted for study is mainly theoretical An examining research design is followed in the present study.

Method of Data collection/ Sores of Data:-

The study is mainly based on secondary data which is collected form cyber Attacks Reports other related inform collected from Journals, conference proceedings & websites.

Why is Cyber Security Important In Banking?

Here are five reasons why cyber security is important in the banking sector.

1) Digital India has led to an increase in the usage of cashless transactions digital money. In this context taking all the security measures is important to protect the data and privacy.

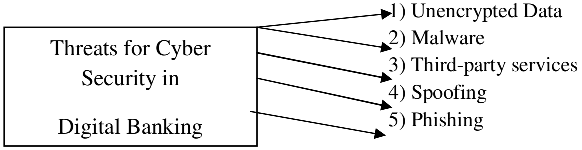
2) Data breaches are a serious problem in the banking sector. A weak cyber security system can cause their customer base to undergo cyber security threats.

3) When a banks data is breached recovering from this data breach can be time consuming and stressful. So enhancing the banking security system is a must!

4) Suppose you lost your card given a complaint against and cards are cancelled yet your data is sensitive and could reveal a lot of information that could be used against you and do great harm.

5) Banks need to be on their guard 24/7 if not your data with the bank can be breached.

Threats for Cyber security in Digital Banking



1) Unencrypted data:-

It is one of the common threats faced by the banks where the data is left unencrypted, and hackers or cybercriminals use the data rights a way, there by creating severe issues for the financial institution. All data that is stored on computers in financial institutions or online must be fully encrypted. It will ensure that even if your data is stolen cybercriminals may not be able to use them.

2) Malware :-

End to end-user devices like computers & mobile devices are mostly used for conducting digital transactions; therefore, it must be secured. If it is compromised with malware, then it may pose a serious risk to the banks Cyber security whenever they connect with your network.

Sensitive data passes through this network, & if the user device has malware installed in it without any security that malware can pose a serious threat to your bank's network.

3) Third- party services:-

Many banks & financial institutions use third-party services from other vendors to serve their customers better. However, if these vendors don't have a tight cyber- security measure, then the bank that has employed them will suffer badly.

4) Spoofing :-

This is one of the newest forms of cyber threats faced by banks. The cyber criminals will impersonate a banking website's URL with a website that is similar to the original one & functions the same way & when the user enters his or her login credentials that login credentials are stolen these criminals & use it later.

This cyber threat has gone to the next level where new spoofing techniques have been employed by these criminals. In this, they use a similar URL and target users who visit the correct URL.

5) Phishing :-

Phishing means the attempt get sensitive information such as credit card details etc. for malicious activities by disguising as a trustworthy entity in an electronic communication. Online banking phishing scams have evolved continuously they look to be genuine & real, but they fool you into giving away your access information.

What should be done to reduce Cyber security Threats in the Banking sector?

- Monitor Cloud Security:- To automate the threat detection and protect against potential threats one can use a vulnerability management tool before they become a problem.
- Establish Strict Access Management Policies : Restrict your access to employees who really need this information, instead of giving access to part-time workers, contractors, etc. By providing permissions to employees who require it. You're establishing Strict Access Management Policies to protect your organization form within.
- Increasing awareness among employees :- Banks need to adopt a comprehensive training module to prepare their staff to handle cyber attacks.
- Disaster Recovery Plan:- Having an alternate plan to protect the data, help you to minimize downtime after a disruption and avoid data loss. This can be applied only if you backup your data regularly.
- Encrypt Your Data:- Cryptography is one of the methods to encrypt your data and ensures your most sensitive digital assets are always protected.

➢Cyber security training :- Cyber security training is a must for cyber security professional to enhance their skills in relevant information and tests of their cyber- awareness by covering all aspects of data security and keeping them Up-to-date.

References :-

1.Mayank Bhushan Singh, Rathore Aatif Jamshed (April2018) Fundamentals of cyber security-BPB Publication

2.Joseph Steinberg (November 2019) Cybersecurity- Dummies Publication

3.Ugo Ekpo (October2018) Introduction to Cyber Security : Fundamentals

4.Ranjita S.(March 2021) Banking sector Deloitte Publication

B.Aadhar' International Peer-Reviewed Indexed Research Journal

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

Data Science And Management: A Study of Theoretical Approaches to Computer Systems With Organisation Using Advanced Analytics

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Abstract

A firm's Data Management department is in charge of the corporate data capture, retention, security, management, and safety, as well as the formulation and execution of all data-related regulations inside that company. The Data Management team, on the other hand, merely maintains the data resources; it is underrecognized in the fundamental technological uses of the material. All data is owned by the Data Function of management. The Data Science department in an organisation, on either extreme, conceptualises, develops, executes, and practises all "terms of improving" of information assets. In this context, "technical implementations" refer to the research, technologies, skill, and business practises that use corporate data.

Data Management has recently reached unprecedented heights as a result of a revolution in the corporate perspective of data. Data Science has become an essential aspect of data administration, yet information management and data science are sometimes viewed as distinct tasks. Data scientists invest their efforts working with data professionals, computer scientists, and DBAs to set up the information system for data processing and competition analysis. However, in the expanding next-generation digital marketplace, Data Management combined insights will become the essential variables for commercial success, thus both Data Management and Data Science must collaborate.

Data science entails so much more than just data-mining techniques. Successful data researchers have to be equipped to see business challenges through the lens of data. There is a core framework to data-analytic reasoning, as well as theoretical aspects that must be recognised. Many "traditional" disciplines of study are included in data science. The fundamental concepts of causal analysis must be comprehended. There are also certain areas wherein perception, inventiveness, practical wisdom, and understanding of a specific technology must be applied. A data-science viewpoint offers professionals with organisation and rules that give the data analyst with a structure for taking good care of difficulties of extracting valuable insight from big datas.

Keywords: Data Management, Data Science, Big data, techniques, Computer System, organisation.

1: INTRODUCTION

In recent years, various business organisations have seen a significant expansion in the use of Big Data Analytics (BDA). Need for BDA capacity in organisations is acknowledged as an information instrument to enable informed choice, but few research have expressed a grasp of BDA skills in a **manner**

that may expand the practical knowledge of employing BDA in the organisational domain (Van Rijmenam., et al 2021)[1]. The findings increase the efficacy and adoption of BDA apps in diverse organisations[2]. The undertaken research paper is a study based on Big data management and data science. The primary aim of the paper is to conduct a detailed analysis upon the evaluation of Data Science And Management. The paper will critically discuss Theoretical Approaches to Computer Systems With Organisation Using Advanced Analytics.

BACKGROUND

Organisations nowadays continually gather user data [e.g., data collecting] in order to enhance company efficiency and processes. Significant amounts of recorded datasets pertaining to online transactions are utilised to aid strategic planning, with administrators, regulators, and top executives increasingly frequently adopting innovative ways to turn this avalanche of original data into valuable, helpful information (Dubey., et al 2020). Data analysis is difficult, though one data-handling approach, "Big Data Analytics" (BDA), is extensively used. BDA is the use of sophisticated algorithms, such as data mining, statistics, and forecasting, on massive data as a new company intel activity. BDA transforms data into information which may be utilised to help decision-making using computational approaches. Big Data Analytics (BDA) is quickly becoming a popular method that many firms use to generate crucial results from BD. Businesses see the processes, including adoption and usage of BDA technologies, as a way to support business performance, despite its strategic potential to grow value for stakeholders and achieve a competitiveness over rival businesses.

LITERATURE REVIEWS

According to Sivarajah (2020), BD practises and the use of BDA methodologies as given in a prescriptive chunk of literature explains that in its raw state, BD consisting of a huge raw data collection does not provide much value[3]. BD analytical approaches may be considered as a subsystem inside the larger method for extracting insights from BD[4]. Administrative problems associated with BD are a collection of issues experienced, for example, in obtaining, storing, and regulating data.

There are several types of BDA available to satisfy the particular decision-support needs of various businesses. Analytical methodologies are used by retail firms to obtain a competitive edge and organisation performance[5]. Contemporary corporations are constantly investing in BDA initiatives to save costs, make more accurate decisions, and plan for the future. Amazon, for instance, was the first online store and has retained its revolutionary BDA development and use[6].

Effective procedures are necessary to undertake activities like ongoing diagnosis, strategic planning, and the execution and assessment of BDA to aid organisation decision-making for development (Anshari., et al 2020). According to Organisational Development (OD) theory, processes have the purpose of transferring knowledge and expertise to an organisation, with the method primarily aimed at improving problem-solving capability and managing possible change. OD is defined as a company's inner dynamics, which include a team working together to increase organisational effectiveness, capacity, ability to do the job, and the ability to control culture, policies, practises, and procedural needs.

RESEARCH GAP

The report critically assessed the gaps discovered in previous investigations. To resolve such gaps, the research has quickly illustrated the need of doing a systematic evaluation of Big Streaming data research employing robust and systematic methodologies to detect trends in Big Metadata instruments within various organisations within the computer system by analyses of techniques, innovations, and methods.

RESEARCH QUESTION

1. How is the effectiveness of BDA procedures such as continual evaluation, objective setting, and organisational decision-making executed?
2. How Big Data Analytics to fulfil the distinct decision-support needs of various companies?
3. How is the body of research on Big Data analytics, its potential, and how businesses might use them?

E. IMPORTANCE OF THE STUDY

The presented research paper is of utmost importance because it has briefly discussed Big data management and data science and the Theoretical Approaches to Computer Systems With Organisation Using Advanced Analytics. Findings highlight both strategic and practical implications related to decision making in organisations for top management, particularly in developing countries. This study attempts to contribute to the literature through novel findings and recommendations. These fallouts will help the top management during the key decision-making process and encourage practitioners who seek competitive advantage through enhanced organisational performance in SMEs.

RESEARCH OBJECTIVES

1.To assess the effectiveness of BDA procedures such as continual evaluation, objective setting, and organisational decision-making execution.

2.To analyse Big Data Analytics to fulfil the distinct decision-support needs of various companies.

3.To address the body of research on Big Data analytics, its potential, and how businesses might use them.

SCOPE AND LIMITATION

The constraints presented in the study point to the application of Big Data processing and data performance in the field of company processes. The study of additional regulators in this situation might be a topic of future studies. Moreover, investigating the function of modifiers, such as quality management, throughout this setting may contribute positively to the research and yield unique insights. However this research demonstrates important insights into two important indicators of performance (i.e The object model of big data and analytics as well as organisational practises) in SMEs by evaluating the proposed structure, it is suggested that further studies be conducted to determine whether the suggested scheme varies in other industries and situations.

RESEARCH METHODOLOGY

RESEARCH METHOD & DESIGN

Secondary sources, such as journals, books, articles, and web publications, will be used to supplement the research. The paper will critically examine the implementation of BDA at the organisational level using the interpretivism paradigm. The qualitative analysis approach was employed to gain broad access to the data and achieve the final purpose of the research work. This study's data is descriptive in nature, and the research approach is qualitative. Epistemology is the philosophy employed in the research (Ijab., et al 2020). The interpretivism technique was used as the methodology in this investigation. In data analysis, the explanatory and descriptive techniques are employed to achieve results. All across the comprehensive study, the collected data will be compared to predefined criteria to ensure that the study goal is met. By utilising descriptive forms of research strategy, desk research was conducted to examine every part of the aim framework. This model was developed because it can aid in the establishment of linkages such as readiness and growth amongst dependent factors and their impact on achieving objectives.

RESEARCH APPROACH

The research strategy is the method of planning the study design. Because the comparative findings from the literature review investigates the perspectives of numerous datas from different origins here on study's topic, the paradigm for interpretivism is investigated to execute this inquiry. The idea of interpretivism was used to carry out this study because it is critical for secondary data collecting in order to obtain reliable data that'd be beneficial in achieving the research objectives. To get conclusions, data has been analysed utilising interpretivism and descriptive approaches. As a consequence of the thorough review, only relevant data is made available for inclusion in the findings. The data was gathered through Google Scholar, papers, journals, and relevant articles.

ANALYSIS OF STUDY

i. How is the effectiveness of BDA procedures such as continual evaluation, objective setting, and organisational decision-making executed?

Researchers develop and test a system that evaluates the link between the application of big data analytics & organisational performance (OP) in small and medium enterprises, relying on resource-based theory principles (SMEs). In addition, the mediating function of knowledge management practises (KMP) in connection to the ABDA and OP is investigated in this study[7]. A customised questionnaire was used to collect information from the respondents work in SMEs (Anshari., et al 20209)[8]. The Baron–Kenny technique is used to examine the mediation in this study. The ABDA had a favourable and significant influence on OP, according to the findings[9]. In addition, in SMEs, KMP has somewhat moderated the link between ABDA and OP. The dataset only included SMEs from Pakistan-controlled Kashmir, therefore it may not be representative of other locations. As a result, the findings' universal applicability is limited. The findings contribute to both conceptual and operational consequences for senior executives in firms, particularly in developing nations. This study aims to add to the literature by presenting new conclusions and discussions (Araz., et al 2020). These ramifications will aid senior management in making crucial decisions and will motivate practitioners seeking a competitive edge through organisational effectiveness in SMEs.

Administrative performance is linked to an industry's efforts to fulfil its objective including stakeholders' demands, along with market durability. It is also known as a process of measuring and evaluating an employee's performance in connection to its aims and goals, which comprises a comparison and projected results. The OP compares actual output or achievement of the company to the expected effect or goals. Better output is also contingent upon that business's capacity to interact with creative, secure scientific information systems, effectively applying everything in a way that favours the firm. Furthermore, OP may be defined as the process of ensuring that overall organisational commodities have been used properly, hence it encompasses all operations and responsibilities conducted by top managers.

Training programmes improve efficiency at which information is constructed, received, translated, and implemented. This encompasses information collection, preservation, transmission, and exploitation. Knowledge creation is a key component of KM theoretical approaches, covering four different stages to conversion that include explicit and tacit knowledge. Knowledge is a powerful instrument for overcoming organisational issues. Quality of service provided is the method of obtaining, transforming, studying, retrieval, and sharing intellectual assets in order to improve and maximise performance of the organisation, as well as to encourage development and economic growth. Businesses are generally concerned with expertise creation and maintenance in order to improve organisational effectiveness.

ii. How Big Data Analytics to fulfil the distinct decision-support needs of various companies?

Let's take a good look at some studies from 2016 - 2018 to discover if there was a predominant type of statistical analytics. For said 2016 International Big Data Survey: Key Decisions, upwards of 2,000 professionals were challenged to choose a group that better described their bank's judgement call procedure (Kambatla., et al 2014)[10]. In addition, the C-suite was informed which statistics they relied on the most. The shows the results: That quantitative research method topped (58 percent) in the "frequently informational judgement call" division; diagnoses analytics led (34 basis points) there in "somewhat statistics" area; or prescriptive modelling dominated in the "very statistics" paragraph (36 percent).The poll findings are consistent with ScienceSoft's hands-on research, highlighting the relevance of one or maybe more kinds of statistics at varying phases of such a business in the long term. Corporations that strived for intelligent decision, for illustration, regarded predictive analysis as unsatisfactory and reinforced it with diagnostic testing assessment, or indeed went as far as known as a standard.

Analytics might well be categorised as follows[11]. We'll begin with one of the most simple or go to the highly difficult. As it happens, and the comprehensive the analysis, the lower the magnitude it produces.

Informative analytics is a type of data analysis that is used to

Descriptive analytics provides an explanation for what occurred[12]. Let us use an example from ScienceSoft's experience: a manufacturer was able to answer a series of "what occurred" questions and choose target product categories after analysing monthly sales and income by product group, as well as the total quantity of metal parts produced each month.

Analytical diagnostics

At such a point, past data may be compared to certain other data in order to determine how and why it occurred. For instance, users could see that a store may dig down into revenue and total profit to figure out why a company failed their net income objective in ScienceSoft's BI example. Another example from one of our data and analytics tasks: as in healthcare business, customer segmentation combined with multiple filters (such as diagnosis and medications prescribed) enabled for the identification of pharmaceutical impact.

Analytics that predicts the future

This analysis technique analyses what is mostly definitely going to happen. It uses exploratory and descriptive research analytics analysis to detect groupings and deviations, but also anticipate future occurrences, making it an effective forecasting technique (Dinh., et al 2020). See ScienceSoft's particular instance to know much about how powerful data analytics supported a famous FMCG organisation in forecasting what they would expect after revising marketing strategy.

Scenario analysis

Scenario analysis's objective is to explain to you exactly how to use it in order to avoid future difficulties or profit on a steady increase. As a sample of Different scenarios from the capital projects, a multinational firm were able to discover possibilities for repeated purchase depending on customer analytics and sales data

iii. How is the body of research on Big Data analytics, its potential, and how businesses might use them?

Technologies that store the processing of the data are readily accessible at little cost[13]. Organisations, on the other hand, are already using methods to assess it at a completely different extreme, focusing on digital technologies to assure realistic, massive economic experimentation that educate regulators and analyse productivity information, commercial goals, and customer experience. In only certain circumstances, new trends might help businesses make major judgments (Dagilienė., et al 2019). These developments have the opportunity to usher in a seismic shift in science, development, and company's marketing. Several organisations, including Amazon, Google, and others, were early commandants, researching success variables to determine what boosted business income and user participation. Finance institutions are good experimenters, and therefore were among the first to develop their credit card consumer segmentation strategies.

Analytical information analysis is also being utilised by mortar and brick enterprise in order to adversely examine their capacity to inform customer information by assembling transaction - oriented information from millions of consumers via a reliable program; the data gathered is then used to analyse new possibilities, such as how to accomplish the most promote excellence for targeted customer segment and to make investment decision; and another organisations and firms utilising data analysis to gathering information via social media, such as Southwest Airlines[14].

Collected information is also used by brick & click businesses to intensively test their own ability to propose user information by designing and building payment relevant data from millions of customers through the use of a loyalty scheme; the collected data can be used to evaluate lots of opportunities, such as how to achieve the most promote excellence for targeted customer and make financial choices; and other enterprises utilising analysis of the data to gather intelligence.

Reengineering processes may have been used through companies to integrate data analytics in order to realise big data's possibilities & reap its rewards[15]. Big data analytics needs significant adaptation and segmentation of operational processes in collaboration with the institution's IT design in strengthening economic activities. Organisations should be related to data analyses now and in order to gain a competitive advantage since it has an effect on systems and applications.

RESULTS

Data science is a latest trend that appeared during the last couple of years, with so many intellectual organisations trying to implement big data analytics in order to stay competitive in the industrial environment. The idea here is to be agile in order to implement big data analytics to improve business. Several more companies failed to secure advanced analytics because they lacked the required infrastructure to implement Hadoop, while some others failed to take into account the privacy licence by entering the business. The downside of someone using predictive analytics is obviously the confidentiality concerns; not much of the important information is free and accessible, therefore organisations need to examine the restrictions of collecting knowledge from other companies or even from individuals' personal accounts.

The handbook is genuine, information judgements lead toward the best moves, which tends to make supervisors start encouraging the said fact, and manufacturers which thus reveal how and when to integrate the specialist knowledge scope with big data analysis could well roll away from competition since some manufacturers may just not overpower this same computer aided to hold but also assess the irreplaceable relevant data, but instead they wouldn't have the comprehensive mastery but also practises to capture observation as well as derive benefit from huge amounts of data.

FUTURE SCOPE

Any use of big data and analytics in modernization processes can increase modernization efficiency and overall effectiveness. The communication forward into big data and analytics coastline the efficiency prediction models, that either allow senior managers to use additional information in putting into consideration several more courses of action because once trying so hard for such a company's objectives. When entities use big data technologies, those that can ideally at least foresee now also wacky things, but rather strengthen performance of the process. Organisations realise the advantage of operational processes through cost reduction, the best operations plan, reduced inventory levels, the best organisational labour force, and the removal of unnecessary supplies. Companies also encourage improvements in operational excellence. Several capabilities of an organisation's advanced analytics (such as data pooling, retrieving, merging, and disseminating) and organisation characteristics (including such big data strategy) might enhance the optimal use of data analytics in processes and systems.

REFERENCES

1. Dinh, L. T. N., Karmakar, G., & Kamruzzaman, J. (2020). A survey on context awareness in big data analytics for business applications. Knowledge and Information Systems, 62(9), 3387-3415.
2. Kangelani, P., & Iyamu, T. (2020). A model for evaluating big data analytics tools for organisation purposes. Responsible Design, Implementation and Use of Information and Communication Technology, 12066, 493.
3. Jha, M., Jha, S., & O'Brien, L. (2016, June). Combining big data analytics with business process using reengineering. In 2016 IEEE Tenth International Conference on Research Challenges in Information Science (RCIS) (pp. 1-6). IEEE.
4. Anshari, M., & Sumardi, W. H. (2020). Employing big data in business organisation and business ethics. International Journal of Business Governance and Ethics, 14(2), 181-205.
5. Dubey, R., Gunasekaran, A., Childe, S. J., Bryde, D. J., Giannakis, M., Foropon, C., ... & Hazen, B. T. (2020). Big data analytics and artificial intelligence pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organisations. International Journal of Production Economics, 226, 107599.
6. Sivarajah, U., Irani, Z., Gupta, S., & Mahroof, K. (2020). Role of big data and social media analytics for business to business sustainability: A participatory web context. Industrial Marketing Management, 86, 163-179.
7. Walker, R. S., & Brown, I. (2019). Big data analytics adoption: A case study in a large South African telecommunications organisation. South African Journal of Information Management, 21(1), 1-10.

8. Malaka, I., & Brown, I. (2015, September). Challenges to the organisational adoption of big data analytics: A case study in the South African telecommunications industry. In Proceedings of the 2015 annual research conference on South African institute of computer scientists and information technologists (pp. 1-9).
9. Raut, R. D., Mangla, S. K., Narwane, V. S., Gardas, B. B., Priyadarshinee, P., & Narkhede, B. E. (2019). Linking big data analytics and operational sustainability practices for sustainable business management. Journal of cleaner production, 224, 10-24.
10. Hopkins, J., & Hawking, P. (2018). Big Data Analytics and IoT in logistics: a case study. The International Journal of Logistics Management.
11. Ijab, M. T., Wahab, S. M. A., Salleh, M. A. M., & Bakar, A. A. (2019, December). Investigating big data analytics readiness in higher education using the technology-organisation-environment (TOE) framework. In 2019 6th International Conference on Research and Innovation in Information Systems (ICRIIS) (pp. 1-7). IEEE.
12. Van Rijmenam, M., Erekhinskaya, T., Schweitzer, J., & Williams, M. A. (2019). Avoid being the Turkey: how big data analytics changes the game of strategy in times of ambiguity and uncertainty. Long range planning, 52(5), 101841.
13. Araz, O. M., Choi, T. M., Olson, D. L., & Salman, F. S. (2020). Data Analytics for Operational Risk Management. Decis. Sci., 51(6), 1316-1319.
14. Dagilienė, L., & Klovienė, L. (2019). Motivation to use big data and big data analytics in external auditing. Managerial Auditing Journal.
15. Kambatla, K., Kollias, G., Kumar, V., & Grama, A. (2014). Trends in big data analytics. Journal of parallel and distributed computing, 74(7), 2561-2573.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Virtualization and Cloud Computing in E-Governance

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Keywords: Virtualization; Cloud computing; Hypervisor; Host; Redundancy

Introduction

Cloud computing is one among the order useful technology that is been widely used everywhere the planet. It for the most part gives on request IT administrations and items. Virtualization assumes a genuine job in distributed computing since it gives a virtual memory and registering administrations to the cloud customers which act exclusively conceivable through virtualization. Cloud computing could be a new business computing paradigm that's supported the concepts of virtualization, multi-tenancy, and shared infrastructure. This paper discusses about cloud computing, how virtualization is completed in cloud computing, virtualization basic architecture, its advantages and effects [1].

Cloud computing

"Cloud computing technology is predicated on three factors- grid computing, utility computing and automatic computing."

All the info is stored on the servers and may be accessed just by authenticating with the assistance of the net anywhere within the world. Apple, Google, Microsoft, etc. are the most important cloud service providers provide very large storage to its users and making the work easier [2].

Virtualization

Virtualization is essentially making a reflection or "version" of something like server, package, storage devices or network resources in order that they will be used on multiple machines at an equivalent time The main aim of virtualization is to manage the workload by transforming traditional computing to create it more scalable, efficient and economical. Virtualization will be applied to a large range like package virtualization, hardware-level virtualization and server virtualization.

Virtualization technology is hardware reducing cost saving and energy saving technology that's rapidly transforming the basic way of computing [3].

Architecture of Virtualized Technology

In cloud computing space/memory is virtually allocated to the users within the servers which needs a number (platform) on which hypervisor (software which interacts with the hardware) runs [4] (Figure 1). The virtualization model is consisting of cloud users, service models, virtualized models and its host software and further as their hardware. Virtualization software makes it possible to run multiple operating systems and multiple applications on constant server at constant time," said Mike Adams, director of product marketing at VMware, a pioneer in virtualization and cloud software and services. it's supported three service models that are SAAS (software as a service), PAAS (platform as a service) and IAAS (infrastructure as a service). SAAS gives applications to the cloud clients to full fill their needs and requests. PAAS provides the cloud users a standard platform on which they will execute their applications and IAAS provides the safety and hardware to take care of the cloud resources [5] the fundamental idea is to share large pools of resources like compute cycles or virtual CPUs (VCPUs), storage, software services etc [6].

Host: for virtualization the hypervisor programming runs on a virtualization stage for example. Hypervisor: the software program which handles the virtual machine to figure under the virtually simulated environment is named hypervisor.

Traditional Servers and Virtual Servers

It plays a awfully important infrastructure within the cloud computing technology. It gets the solicitations sent by they cloud clients and formulates it and also performs various tasks.

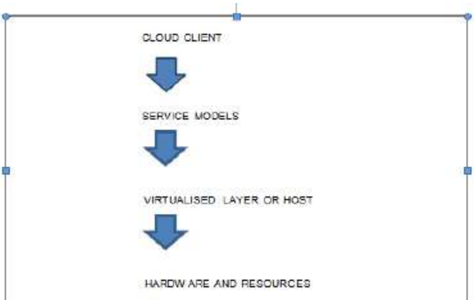

Figure 1: Basic architecture.

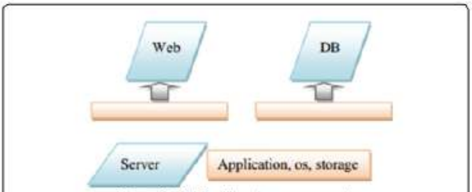

Figure 2: Old Traditional server concept.

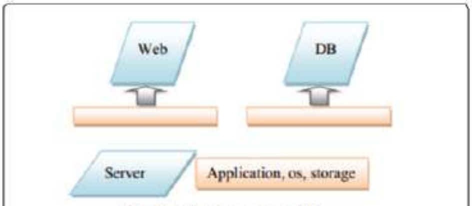

Figure 3: Virtual server concept [3]

Basic traditional servers

Traditionally the servers that were used contains a lost of disadvantages and weren't in the least cost effective. "These servers are maintained by supervisor, normally these servers are described as combined unit that contains software, the hardware, the storage and also the application" [7]. In traditional server if the storage becomes full then it's to get replaced by a replacement server (Figure 2).

Merits

a. Things are easily deployed in them.
b. Easy to take care of backup.
c. Application will be run virtually with traditional servers.

● Demerits

a. Hardware maintenance is incredibly cost effective.
b. Duplication is incredibly difficult.
c. Physical infrastructure can not be updated.

d. Redundancy implementation is incredibly difficult [4].

Virtual server

"Virtual server seeks to encapsulate the server software far from the hardware the virtual server consists of the software (os), storage and application" [7]. By maintaining virtual server we are able to reduce the service provided by the cloud provider (Figure 3) [3].

● Merits

a. IT pool maintenance.
b. High availability of hardware.
c. Sending of servers in for all intents and purposes based condition [4].

Advancement for universe

There are many positive and negative effects of virtualization technology on the environment likewise because the business and IT field.

Temperature

Virtualization technology is based on the group of hardware machines because of which an oversized amount of warmth is released once they are used. So to beat this problem special cooling mechanism should be used to cool down them and rise its performance.

Energy consumption

With virtualization the facility consumption because of machines has reduced because the number of hardware machines has been reduced which makes this technology more efficient and eco friendly.

Redundancy

Redundancy is largely the repetition of knowledge which is principally encountered when the systems don't shares a typical storage and different memory storages are created. because of the massive number of knowledge centres the fault tolerance is incredibly high because of which redundancy is reduced.

Types of virtualization

In cloud computing the virtualization will be worn out two ways either by storage virtualization or by software virtualization.

a. Storage virtualization: The storage available is virtualized to urge large memory access and it's further used for allocating memory to the cloud clients.

b. Software virtualization: software built by the corporate will be utilized by an oversized number of systems at a similar time with the assistance of virtualization. A virtual layer is formed on which the software is installed and used [8].

Why Virtualization?

With the assistance of virtualization we are able to increase the employment of resources available to us in many to urge more benefits.

We should virtualize attributable to the subsequent reasons:

a. Isolation among users: one user should be isolated from the opposite users in order that he/she might not get information about the others user's data and usage and can't even access other's data.

b. Resource sharing: a big resource can be fragmented into multiple virtual resources in order that it will be utilized by multiple users using virtualization technique.

c. Dynamical resources: reallocation of resources like storage and computational resources is incredibly difficult but if they're virtualised then they'll be easily re-allocated.

d. Aggregation of resources: the little resources available will be increased at an oversized extent with the assistance of virtualization [9].

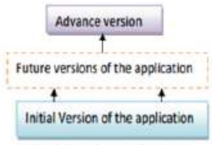

Figure 4: Upgradable Model.

Benefits of Virtualization Technology

a. Virtualization is one amongst the cost-saving, hardware-reducing and energy-
b. savingtechnique.
b. It helped to create cloud computing more efficient and eco- friendly.
c. a giant step towards new technology making life easier and better.
Isolation.
e. Resource sharing.
f. Aggregation of resources.
g. Dynamical resource.

Benefits of Cloud Computing

Cloud computing provides millions of benefits to the users and makes the work much easier and a few of the key benefits are mentioned below:

a. Pay only for service
b. On demand self service
c. Resources are shared
d. Business is that the main focus
e. Accessible everywhere the globe
f. Data is secured

Future Scope

Data loss, data security and inconvenience to access the information are a number of the most important problems that users face but with the employment of cloud computing these problems will be resolved easily. a number of the most important future aspects are:

a. Migration time will become negligible
b. Information is verified and information misfortune is limited
c. One user-many devices relationship
d. Good service quality for computational resources e. Good service quality for computational resources
f. Problem of geographical distance between clients and servers will be avoided
g. Band width are going to be sufficient for the users h. Data redundancy is reduced

Challenges

One of the major problems which may be faced by using this technology are mass data loss, infected application and data integrity.

a. Mass data loss: If some calamity hits the datacentres then it would destroy the data stored in the datacentres or might shutdown servers.
b. Infected application: If a pestilence is infects one file then it should corrupt whole system.
c. Data integrity: The integrity of knowledge will be affected as anyone can access it

References

1.Swathi T, Srikanth K, Reddy SR , Virtualization In Cloud Computing, IJCSMC, Vol. 3.
2. Lombardi L, Pietro RD Secure virtualization for cloud computing, Journal of Network and Computer Applications 34: 1113-1122.
3.Krishnatej K, Patnala E, Narasingu SS, Chaitanya JN Virtualization Technology in Cloud Computing Environment by, IJETAE 3.
4. Xing Y, Zahn YZ (Virtualization in cloud computing Springer journals.
5. Thakral D, Singh M Virtualization in Cloud Computing. JCSMC 3: 1262-1273.
6. Grossman RL The Case for Cloud Computing 11: 23-27.
7. Macias G Virtualization and Cloud Computing “Security is a Process, not a Product.
8. Sareen P Cloud Computing: Types, Architecture, Applications, Concerns, Virtualization and Role of IT Governance in Cloud, IJARCSSE 3:533-538.
9. Jain R, Paul S Network Virtualization and Software Defined Networking for Cloud Computing: A Survey IEEE 24-31.
10. Kuyoro SO, Ibikunle F, Awodele O Cloud Computing Security Issues and Challenges, IJCN 3: 247-255.

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Effect of GST on the Indian Economy

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Goods and Services Tax or GST was introduced in India in 2017 with the idea of one tax for the whole nation. Hence, it is considered one of the greatest tax reforms that India has ever seen.

Several taxes were subsumed in GST, which led to the removal of the cascading effect of taxes. To comprehend the effect of GST on Indian Economy as a whole, we must first comprehend what GST is and how it is applied. We'll also go through in detail how GST affects different sectors.

What is GST?

The Goods and Services Tax (GST) is imposed on the country's manufacture and sale of goods and services. Every step of the production process is subject to taxation. The buyer and the manufacturer are both subject to the GST. In other words, GST will be collected at the point of consumption. As a result, if a product is made in Haryana and sold in Delhi, the tax will beimposed in Delhi. Furthermore, GST is collected at every point in the production process when added value is included

Types of GST

In India, GST is levied at every stage of the manufacture and selling of products and services. When goods or services are consumed, this tax is imposed. The following are the several typesof GST:

1. **CGST (Central Goods and Services Tax):** The central government collects the CGST on intrastate sales of goods and services.
2. **SGST (State Goods and Services Tax):** This tax is levied by the state government on the intrastate supply of goods and services.
3. **IGST (Integrated Goods and Services Tax):** The IGST tax levies on exchanging goods and services between two states. The federal and state governments split the tax revenue

Implementation of GST

GST has been implemented across the country in 29 states and 7 union territories to create a win-win situation for everybody. Fewer tax filings, specific regulations, and simple bookkeeping would help manufacturers and merchants; consumers would pay less for products and services. The government would earn more revenue by plugging revenue leaks. As we all know, ground realities differ. So, what is the impact of GST in India?

Immediate GST Effect on Economy

•Simplified Tax Structure

The country's tax structure has been streamlined due to GST. Since GST is a single tax, calculating taxes at various supply chain points has become more straightforward. Therefore, GST impact on India can be considered positive. Customers and manufacturers can both see how much tax they'll be charged and how it'll be calculated this way. It is also possible to avoid the difficulties of dealing with tax officers and authorities.

•Support for SMEs

Small and medium-sized businesses can now register under the GST Composition Scheme. They pay taxes based on their annual revenue under this arrangement. As a result, firms with annual revenue of Rs. 1.5 crores are only needed to pay 1% GST. Other businesses with a turnover of Rs. 50 lakh are also required to pay GST at a rate of 6%.

•Additional funding for production

The reduction in the overall taxable amount is another effect of GST on Indian economy. This money saved may be re-invested in the manufacturing process to boost output.

ISSN : 2278-9308
February, 2022

• Elimination of cascading effect of taxes

The state and central governments' taxes have been combined under GST. This has eliminated the tax cascade effect, lowering the burden on both the buyer and the seller. So, even though it appears like you are paying a large amount of tax, you are paying fewer hidden taxes.

• Improved operations across India

Tax barriers such as toll plazas and checkpoints can now be avoided. Previously, this caused issues, such as harm to unpreserved items during transportation. As a result, producers had to maintain buffer stock on hand to compensate for the losses. Their profit was limited by the overhead expenditures of storage and warehousing. These issues have been mitigated by a unified taxing system catering to the positive impact of GST. They may now readily move their wares throughout India. As a result, their operations across India have improved.

•Increasing output

The overall tax component is about 30% of the product cost, according to the Indian retail industry. Taxes have decreased due to GST effects in India. As a result, the final customer pays lower taxes. The reduction in tax burden has boosted retail and other businesses' output and growth.

• Increase in exports

The customs charge on products exported has been decreased. The GST impact in India has boosted the country's export rate. When it comes to developing their companies worldwide, firms have grown more competitive.

The introduction of GST has aided in the consolidation of state and federal taxes. The cascading effect of numerous taxes has been reduced as a result of this. As a result, the tax burden on businesses and consumers has decreased. Also, the number of taxpayers has grown, resulting in a considerable increase in tax income. The whole tax system is now simpler to administer. Furthermore, small and medium-sized firms can expand their operations. It is believed that the positive impact of GST would assist more Indian businesses in entering overseas markets.

GST Bill Impact: Effect on small scale producers and traders

Consumers would now have to pay a higher tax on most of the goods and services they purchase. The bulk of everyday commodities are now taxed at the same rate or slightly higher. Furthermore, there is a cost of compliance associated with the GST adoption. This cost of compliance appears to be exorbitant and expensive for small-scale producers and traders, who have also expressed their opposition. They could end up having to charge more for their goods.

What is the effect of GST on consumer?

• Consumers will now have to pay higher taxes on products and services they purchase, based on the short-term effects.

•The bulk of necessary consumables will be taxed at the same rate or a higher rate. The benefits or positive impact of GST on the average person are numerous.

•Small-scale businesses must also pay the expense of compliance, which may result in higher costs for their goods, impacting consumers.

•GST effects in India have several long-term advantages. With the reduction in due taxes for consumer goods makers such as Fast-moving consumer goods or FMCG, the automobile industry will be forced to lower the pricing of its products. The clients will be able to pay less when attempting to obtain these services due to this.

• A reduction in pricing will instantly increase demand, accelerating the production cycle and increasing profitability. Both the buyer and the seller will eventually save money, and the economy will benefit as well.

•A jump in output will also create the path for growth, which will result in more jobs and more revenue catering to the GST impacts. This not only expands opportunities for the average person but also helps the economy.

• The introduction of GST necessitates the creation of an invoice for the purchase of any goods or services.

•The possibility of black money and corruption will be reduced with a good billing system. For an average person in India, these have been troublesome elements.

Impact of GST on Different Sectors

•Pharma

With its streamlined tax structure, the pharmaceutical and healthcare industries would benefit from the impact of GST in India. It will also receive a tax break in exchange for making healthcare more affordable and accessible to individuals of all economic levels.

•E-commerce

E-commerce has a lot of room for expansion such as it benefits the supply chain process of goods production by reducing the tax rate. E-commerce businesses, on the other hand, would have to deal with the GST tax collected at the source element.

•Telecom Sector

Prices in the telecom sector are projected to fall as storage, shipping, and other expenses decrease.

•Logistics

Logistics plays a critical role in the economy of a large country like ours. A well-organised and structured logistics business, particularly under the Make in India banner, has the potential to develop enormously.

•Fast-moving consumer goods or FMCG

FMCG companies would save a lot of money on logistics and distribution since GST will eliminate several sales depots.

•Farming and Agriculture

Agriculture contributes the most to India's GDP, accounting for more than 18%. Transportation expenses for agricultural goods will also decrease as logistics become more efficient. As a result, the impact of GST can be observed to be positive on wholesalers.

•Startups

GST has benefited Indian entrepreneurs greatly, with features such as a Do-It-Yourself compliance approach, higher registration limits, free movement of products and services, and tax credit on purchases. It has also gotten easier for firms with a pan-India presence, particularly those in the e-commerce sector, to compute taxes. If you work in small-scale industry, you should be aware of the impact of GST on Indian economy.

•Automobile

Several taxes were applied under the old taxation system, including excise, VAT, sales tax, road tax, motor vehicle tax, and registration duty, which GST has now replaced. Automobile costs are expected to fall, leading to an increase in sales and profitability.

•Textiles Sector

Textiles are one of the major employers of both skilled and unskilled labour in India. With the elimination of customs charges, the textile sector in India, which accounts for 10% of total exports, is expected to grow. Cotton, a commodity on which most small-scale textile companies rely, would be positively impacted by GST. These are some of the impacts of GST on small businesses.

•Individuals who work for themselves

Self-employment or freelancing is a relatively new business in our nation. Still, with the adoptionof the GST, it has become easier to file taxes because they fall under the category of service providers. Such individuals must understand how GST would impact their buisness and follow the rules and regulations under GST.

GST impact on India: What Does the Future Hold?

When it comes to the long-term benefits, it is expected that GST would result in lower tax rates and tax slabs. Only two or three rates are used in countries where the Goods and Service Tax has assisted in economic transformation: a mean rate, a lower rate for essential products, and a higher tax rate for luxury goods. In India, we now have five slabs with three rates: an integrated rate, a central rate, and a state rate. In addition to this, there is a cess fee. For fear of losing revenue, the government has refrained from experimenting with lower or cheaper charges. GST and its impact on Indian economy are expected to provide significant benefits in the long run. The inflation would also be decreased due to GST as there will be no tax on tax. It will increase the government's revenue and bring in more Foreign Direct Investment into India.

GST will lead to ease of doing business in India.

Conclusion :

GST is one of the biggest tax reforms in the history of India. GST has several advantages and disadvantages that influence both consumers and sellers. It will lead to ease of doing business in India, reduced inflation, and an increase in Foreign Direct Investment into India. The impact of GST on GDP is negative since it increases the inflation rate because the tax rate has increased the cost of some products and services such as pharma products, telecom, dairy, etc. These aspects also must be considered. On the one hand, as taxes have grown more simple, compliance costs have increased. Thus, the impact of GST on Indian Economy must be carefully analysed. Both positive and negative aspects should be considered while evaluating GST impact in India.

Reference Book :

1) Gupta R.L. Radhawamy M. : Company Accounts suttan chand & Sons, New Delhi.
2) Maheswari S. N. : Corporte Accounting, Vikas Publishing House, New Delhi
3) Shukla M.C. , Grewal T.S. & Gupta S.C. Advanced Accounts, S.Chand & Co. New Delhi
4) R.R. Gupta : Advanced Accountancy.
5) Dr. Medha Kanelkar, Dr. D.R. Baheti, Corporate Accounting : Sainath Prakeshan, Nagpur.

Study Of Ponzi Schemes

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1. Abstract :-

In 1919 Charles Ponzi start the fraudulent scheme and then for every scam regarding some massive money invested to get multiple returns is known as Ponzi Schemes. In introduction all research are topic selection and mention that what are the purpose of the research. Then mention that some objectives.

In review of literature all points clear between the history of Ponzi scheme and case study in our area related to Ponzi scheme fraud. After review of literature using Exploratory research methodology and mention that area of the research. In analysis and findings by using LokSabha report for solved cases regarding Ponzi schemes.Then conclusion of the research paper. And the last mention that references of the research paper.

Purpose of Research Study :-

- Awareness about the Ponzi schemes.
- Spread this information with many people as possible.
- Saving people from stuck of this fraudulent schemes.

Keywords :-

Charles Ponzi, Ponzi Schemes, Fraudulent, Awareness.

2. Introduction :-

Topic selection is one of the important aspects of my research paper. In India there are many cases regarding froads and scams in day by day increasing. I mention that the topic is "Ponzi Scheme".

Ponzi Scheme is a fraudulent investing scam peoples are attracting to greed high return of money with low risk to investors.Under this Ponzi schemes research I will realise in most of the Maharashtra rural areas people are loss their money in these fraudulent schemes.

The main purpose of my research only to create awareness between all peoples and they understand information regarding this Ponzi scheme.

Objectives :-

1) To study the concept of Ponzi scheme.
2) History of Ponzi scheme.
3) To identify the different Ponzi schemes.

3. Review of Literature :-

To understand all this Ponzi scheme history we have to back a in 1919. In the year 1919 Mr. Charles Ponzi start a postal scheme in US, where he started promising people that in 45 days, I would give you 50% returns and in 90 days or 3 months will give 100% returns. US Postal Service over which this whole scheme was based, was a very complicated thing. About which the general public did not know much. But as soon as Charles Ponzi started giving regular returns to his investors, more and more people started getting attracted to this scheme. "The Boston Post" this newspaper found all this very fishy. Due to which they started investigating this whole thing and then they got to know that this is very big scam. In which public money amounting to Rs 250 Crores were stuck. Later on in the world whenever such schemes came, they all were called Ponzi Schemes. And Charles Ponzi was called the father of Ponzi Schemes.

All Ponzi schemes have one thing common, they always bring in something new, an innovative idea.

Case Study of T-Zone Company Ponzi Scheme :-

When I was 12 years old my aunt lived in Nasik. A Company name T-zone approach them to an offerto my aunt, if you will pay 10,000 rupess we will get mothlyretunrs of multiple times. Then my aunt invested money in T-zone 10,000 and then company pay regular returns for 3 months. After 3 months my aunt 10,000 investmet goes to 30,000 a massive return.T-zone running smoothly and build trust their customers. The company also offered to my aunt we giving more commission and rewards if you add peoples under them. Many of them got interested in it, then my aunt told my family for this massive offer. My all family members invest money in T-zone, some of my women family members are sold their jewellery and invest this greedy scheme. After some months company in real face they gain the trust of many people and finally they collected the money of more peoples and they were running out the market. In India every day new Ponzi Schemes cases are created by fraudulent and all Ponzi Schemes have one thing common, they always bring new innovative idea. First the provide regular returns, build trust and then run for collecting more money.

4. Research Methodology :-

The researcher has chosen 30 families interview in kopargaon. Data collected by interview method because in this area most of the people are illiterate so using interview method.

I was use the the Exploratory research type. In exploratory research research into unknown .Investigating something.

The nature of data is both primary and secondary. Primary data is which data gather for the first time by researcher. I use in primary data interview method to the families.

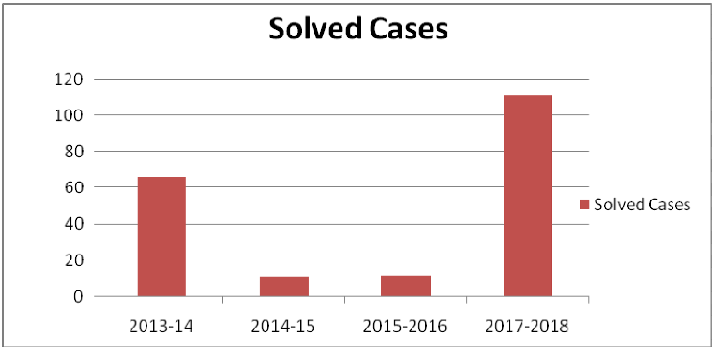
The secondary data collected from youtube, google, books but all data is in my own language.

Area of Research :-

The area research is Kopargaontaluka of Ahmednagar District of Maharashtra. Interviews collected by number of family memebers in our rural areas. Which are as follows :-

1) Sanvatsar
2) Sanjivani
3) Shinganapur
4) Karanji

5. Analysis and Findings :-



In India last 4 years has been seen 10,687 cases of Ponzi Schemes. The above graph shows that the number of cases investigated and soled by central bureau of investigation against companies running Ponzi schemes has spike in recent years.

In 2013-14 Central Bureau of Investigation solved 66 Ponzi Schemes cases. In 2014-15 solved 11 cases. In 2016-16 solved 12 cases. In 2017-18 solved 111 cases. This solved cases source is LokSabha.

6. Conclusion :-

In short Ponzi scheme is fraudulent scheme they promised providing regular massive returns on your investments. S & P survey shows that more than 76% Indians badly in financial literacy. Most of the Ponzi schemes are successful in India because most of the Indian peoples are not knowlegable in finance as well daily life. The truth of Ponzi Schemes are never ending because new innovative ideas keep coming forward and greedy people attract for those schemes and lose their money every time. But we aware about any this massive returns schems, first investigate all of this matter.

7. Limitations :-

1) The study was mainly in rural area in Kopargaon.
2) It does not cover other rural and metro cities area.
3) The study was much more time cosuming.

8. References :-

1) Convey by FinnovationZ (Youtube Channel) – Prasad Lendwe.
2) livemint.com
3) Investopedia.com
4) LokSabha data about solved Ponzi schemes
5) Research Methodology Textbook – T.Y. BBA – Prof Ameya Anil Patil – page no- 1.14, 4.15, 4.16.

ISSN : 2278-9308
February, 2022

Systematic Investment Plan –Efficient, Affordable And Safe Investment Optionfor Common Man

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Abstract

Indian economy is considered as a fastest growing economy in the world. Many investors and institutions across the world are willing to invest in Indian economy due to high possibility of getting better return on their investments. So, most of them invests capital in Indian Securities Market.Likewise, a common Indian man also wishes to invest a small portion of his saving in securities market of his native country. So, he goes for safe and better option of investment called as **Systematic Investment Plan (SIP)**. Systematic Investment Plan now-a-days are one of the quickest developing ideas in Indian Economy andhave great potential for supported future development. SIP make saving and contributingstraightforward, open and reasonable. The benefits of SIP include rupee cost averaging, power of compounding, absorbing market volatility, less documentation, quick start etc. Securities markets are becoming more extensive with wide-ranging financial products trying innovations indesigning mutual funds portfolio but these changes need unification in correspondence withinvestor's expectations. This study examines the impact of various factors onthe investment of common man towards Systematic Investment Plan. This researchpaper throws light on number of factors that showscommon man'sincreasing interest towards Systematic Investment plan.

Introduction

A Systematic Investment Planshortly referred as SIP, is aneasy, convenient and well-mannered way to meet one's financial goals. It allows you to invest in Mutual Funds in scheme over a pre-defined period of time. It allows investors to make the most of the growth potential of Mutual Funds schemes, by investing periodically and getting benefited from Rupee Cost Averaging.

SIP is a method of investing a fixed sum of money after a fixed time interval say one week or one month or one quarter in mutual fund schemes. SIP is nothing but averaging our investment instead of investing a lumpsum amount at a time so fewer units are bought when the price is high, and more units are bought when price is low.

Efficient and well-disciplined investment plan, usually referred to as a Systematic Investment Plan (SIP), permits you to put routinely a decent total in your favourite mutual fund plans periodically say weekly or monthly. In SIP a proper sum is deducted from your investment account consistently and invested towards the common asset you decide to put resources into.

Objectives of the study

This research paper focused attention on number of factors that highlights investors' increasing interest towards Systematic Investment Plan, and the objective is as follows.

1) To find out various options available for investment.
2) To find out investors attitude towards various options of investments.
3) To find out investor's preference from available options for investments.
4) To find out risk involved with various options of investments.
5) To find out best suitable option of investment for investor.

Literature Review

1) Punita Soni and Iram Khan (2009)" SIP V/S other investment avenues" Shivshakthi, International journal of multidisciplinary, Academic Research, Vol: 1, No: 3, Sept-Oct 2009, 1-8.

Punita Soni and Iram Khan (2009) evaluated the performance of Systematic Investment Plan with other investment avenues on the basis of income, investment term, risk, tax benefits and liquidity in the individual portfolio management. The study concluded that Systematic Investment Plan is simpler, return-oriented in comparison with other investment avenues. Investors prefer Systematic Investment Plan because it helps them for minimizing the cost and maximize the return on the individual portfolio.

2) Karthikey Koti (2014)," Investor's preference towards stock market and other investment avenues," Indian Journal of research in management business and social sciences, Vol: 2, Issue: 1, January, 1-5.

Karthikey Koti (2014) analysed the investor's perception of the stock market and various investment options by studying their objective of investment, sources of information regarding the investment and their attitude towards stock market investment. The result found that most of the people would like to save their earnings keeping future life and home purchase as their primary goals of investment. Investors preferred investment in bank deposit, real estate, investment in stock market etc. Many investors who don't like to invest in stock market. The study resulted in that risk to be the major cause for their noninvestment in the stock market.

Research Methodology

This research paper methodology includes combination of primary data and secondary data.

The primary data was mainly collected from the respondents through well framed questionnaires and personal interviews.Gathering information over the phone while talking about SIP was also done.

The sample size consists of 100 respondents. The respondents are categorized on the basis of different groups such as income, age, occupation gender, marital status, family size, religion, qualification and annual saving.Sampling area is mainly Khamgaon and Buldana district and target audience from this area only.Major source of secondary data is Journals, newspaper articles, books and magazines.

Hypothesis

H0:Systematic Investment Plan is an efficient investment option

H1:Systematic Investment Plan is an inefficient investment option.

H0:Systematic Investment Plan is an affordable investment option.

H2:Systematic Investment Plan is an unaffordable investment option.

H0:Systematic Investment Plan is an safe investment option.

H3:Systematic Investment Plan is an unsafe investment option.

Results and Discussions

For this research study, sample of 100 respondents were taken into account and analysed. All the data

Investment Options	**Bank Deposit**	**Post Office Scheme**	**Gold**	**Realty Sector**	**Systematic Investment Plan**	**Life Insurance and Provident Fund**	**Shares & Debentures**
Efficient	47%	53%	79%	37%	71%	61%	41%
Affordable	34%	44%	37%	13%	89%	77%	32%
Safe	71%	82%	90%	53%	63%	81%	42%
Average	50.67%	59.67%	68.67%	51.50%	74.33%	73.00%	38.33%
Rank	**6**	**4**	**3**	**5**	**1**	**2**	**7**

collected was measured and interpreted with the help of following table.

Table 1: Total Average of different investment options by respondents in relation to efficiency, affordability and safety.

In order to test our all three hypothesis respondents were provided a well framed questionnaire asking about efficiency, affordability and safety of various investment options mentioned above in Table 1. Simple average score is used as a statistical tool to find out the result. It is clear from the above table 1, that Systematic Investment Plan option stood at first rank among all available options, then second rank goes to Life Insurance option, third rank goes to Gold option which is a popular and traditional way of investment, fourth rank goes to Post Office schemes, fifth rank goes to Realty Sector, sixth rank goes to Bank Deposits and Last rank means seventh rank goes to Shares and Debentures investment option.

This studytells thechoice of investor in relation to efficiency, affordability and safety of their investment is Systematic Investment Plan option. In this way our all three null hypotheses were also proved true which also means all three alternate hypotheses were clearly rejected.

Conclusion

- Systematic Investment Plan is a simple investment strategy which aims to give better returns.
- Common man now a days are becoming aware and getting attracted towards Systematic Investment Plan.
- Systematic Investment Plan are becoming part of common man's portfolio.
- Systematic Investment Plan is a modern investment option to generate wealth over time.
- Systematic Investment Plan is an efficient, affordable and safe investment option of investment for common man.

Bibliography

Websites:
www.aiginvestment.co.in
www.amfiindia.com
www.assetmanagement.hsbc.com/in
www.axismf.com
www.benchmarkfunds.com
www.blackwell.com
www.bluechipindia.com
www.bseindia.com
www.business-standard.com
www.capitalmarket.com
www.crisilfundservices.com
www.economywatch.com
www.editgrid.com
www.faculty.babson.edu
www.finance.indiamart.com
www.finmin.nic.in
www.geojit.com
www.hdfcfund.com
www.hdfcmf.com
www.icicimf.com
www.icicipruamc.com
www.idfcmf.com
www.investopedia.com
www.kotakmutual.com
www.licmutual.com
www.moneycontrol.com

www.money-zine.com
www.morningstart.com
www.mutualfundsindia.com
www.navindia.com
www.njindiainvest.com
www.nseindia.com
www.rbi.com
www.reliancemutual.com
www.religaremf.com
www.saharamutual.com
www.sbimf.com
www.sebi.org
www.tatamutualfund.com
www.traders-library.com
www.utimf.com
www.valueserachonline.com
www.yahoofinance.com

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Cashless Economy in India – Present Scenario

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ABTRACTS:

This paper studied the views of people on introduction of cashless economy in India. The study was conducted in Delhi region & data was collected with the help of structured questionnaire and analysed using simple percentage method. Responses from respondents shows that cashless economy will help in curbing black money, counterfeit's fake currency, fighting against terrorism, reduce cash related robbery, helps in improving economic growth of our country. Major challenges that can hinder the implementation of the policy are cyber fraud, High illiteracy rate, attitude of people, lack of transparency & efficiency in digital payment system. The study shows that the introduction of cashless economy in India can be seen as a step in right direction. It helpsin growth and development of economy in India.

KEY WORDS: cashless economy, corruption, Black money, India, Digital Payments

INTRODUCTION:

The government has implemented a major change in economic environment by demonetizing the high value currency notes of Rs 500 and Rs 1000 from 8 thNovember 2016 and push India towards cashless future.

What is cashless economy: A cashless economy is one in which all the transactions are done through electronicchannels such as debit/credit cards, Immediate Payment Service (IMPS), National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement (RTGS). The circulation of physical currency is minimum. The Indian economy continues to be driven by the use of cashless than 5% of allpayments happen electronically.

The policy is to shift the economy from a cashbased economy to a cashless one. Efficient and modern paymentsystem is a key enabler for driving growth and development. The policy also aims at improving the effectiveness of monetary policy, managing inflation in the economy, maintaining stable pricing system. In India, the ratio of cash to gross domestic product is 12.42 %in GDP; this is one of the highest in the world. It was 9.47% in China or 4 % in Brazil. Further, the number of currency notes in circulation is also far higher than in other large economies, India had 76.47 billion currency notes in circulation in 2012-13 compared with 34.5 billion in US.he government is working at various levels to reduce the dependence on cash

PM-Narendra Modi

Unveiled two schemes Lucky GrahakYojna, Digi DhanVyapaarYojna for customers and traders like to promote mobile banking and e-payments. To encourage and strength, habit of making e-payments. Government encourages cashless transactions like mobile banking, Ru-pay cards, UPI, USSD these are means and methods of digital payments. Less cash economy is in the interest of everyone and it will help in creating a clearer economy in future. Government have also introduced Aadhar based dependence on cash is desirable for a variety of reasons. To control counterfeit notes that could be contributing transfers can't be made without paper currency, Curbs illegal activities altogether. A large part of black money is generated in illegal trades like selling drugs therefore without cash or less cash illegal trade might become difficult. RBI has also issued licenses to open new-age small finance banksandpaymentsbanks which expected to give a push to financial inclusion and bring innovative banking solutions. Things are also falling in place in terms of technology for India. The recently launched Unified Payments Interface by National Payments Corporation of India makes digital transactions simple. Even the RBI has also recentlyunveiled a document, "Payments and Settlement Systems in India: Vision 2018", setting out a plan to encourage electronic payments and to enable India to move towards a cashless society or economy in the medium and long term.

BENEFITS OF CASHLESS ECONOMY :

Cash less economy helps in curbing generation of black money. As a result it reduces real estate prices because most of black money is invested in Real estate which inflates the prices of real estate market.in 1to 7 Study on Introduction of Cashless Economy in India 2016: Benefits &Challenges notes is supposed to be fake, which has a huge negative impact on economy, by going cashless, that can be avoided.An increased use of digital payment instead of cash would enable a more detailed record of all the transactions which take place in the society, allowing more transparency in business operations and money transfers which reduce tax avoidance and money laundering .Cashless Economy also reduces the cost of banking services. It also improves monetary policy in managing inflation and increases economic growth in our country. Another benefit of cashless economy is that it discourages cash related robberies and other cash-related crimes.

CHALLENGES IN INDIA, CASHLESS ECONOMY:

Large part of the population is still outside the scope of Net banking like use of credit or debit cards, making transactions using mobile phones, and using the internet to pay bills they are not in a position to reduce its dependence on cash. Second, about 90% of the workforce, which produces nearly half of the output in the country, works in rural sector It will not be easy for this sector to become cashless. There is a general preference for cash transactions in India. Merchants prefer not to keep records in order to avoid paying taxes and buyers find cash payments more convenient. Although cashless transactions have gone up in recent times, a meaningful transition will depend on a number of things such as awareness, technological developments and government intervention. For instance, mobile wallets have seen notable traction, and it is possible that a large number of Indians will move straight from cash to mobile wallets. The availability and quality of telecom network will play an important role. People face difficulties in making electronic payments even in metro cities because of poor network. Service providers will have to constantly invest in technology in order to improve security and government will also need to play its part. It will have to find ways to incentivize cashless transaction and discourages cash payments. Difficulties in changing attitudes and perception of people towards moving digital payments.transactions and

REVIEW OF LITERATURE

Review of literature paves way for a clear understanding of the areas of research already undertaken and throws a light on the potential areas which are yet to be covered. Keeping this view in mind, an attempt has been made to make a brief survey of the work undertaken on the field of Cashless economy.

The reviews of some of the important studies are presented below. Cashless economy is not the complete absence of cash, it is an economic setting in which goods and services are bought and paid for through electronic media. According to Woodford (2003),

Cashless economy isdefined as one in which there are assumed to be no transactions frictions that can be reduced through the use of money balances, and that accordingly provide a reason for holding such balances even when they earn rate of return. In a cashless economy, how much cash in your wallet is practically irrelevant. You can pay for your purchases by any one of a plethora of credit cards or bank transfer (Roth, 2010) observed that developed countries of the world, to a large extent, are moving away from paper payment instruments toward electronic ones, especially payment cards. Some aspects of the functioning of the cashless economy are enhanced by e-finance, e-money, e-brokering and e-exchanges. These all refer to how transactions and payments are affected in a cashless economy (Moses-Ashike, 2011). Marco and Bandiera (2004) argue that increased usage of cashless banking instruments strengthens monetary policy effectiveness and that the current level of e-money usage does not pose a threat to the stability of the financial system. However, it does conclude that central banks can lose control over monetary policy if the government does not run a responsible fiscal policy. According to a 2015 report by Price Water House Coop million.

OBJETIVES:

Objectives of present study are as follows:

1. To study the benefits of cashless economy
2. To assess the preparedness for the implementation of the cashless economy by Indian Government.

RESEARCH AND METHODOLOGY:

The study is conducted to obtain data on Introduction of Cashless economy in India. The study is conducted in Delhi region. A sample size of 100 was selected using the convenience sampling procedure out of which 87 copies were retrieved in usable form. This represents a response rate of 87%.The sample includes bothliterateand illiterate population since they are the ones who give their views on introduction of cashless economy and use of digital payment methods, there response determine the reliability of survey. Survey methodStudy on Introduction of Cashless Economy in India 2016: is used for collecting data with the help of questionnaire.The responses from the respondents were collected and analysed using the simple percentage method.

Conclusion:

According to a report by Google India and Boston Consulting Group, by 2020, $500 billion worth of transactions would take place online. This means that the increase will be 10 folds. Furthermore, cash-based transactions would fall by 40% in the coming years. The online transactions have increased 20 times in the last 6 years. This date is before the demonetisation. While observing the recent situation, it is evident that India well-equipped to adapt to the slow-paced shift towards the cashless economy.

Suggestion:

From this study, we would like to suggest that:

From this study, we would like to suggest that:

• Mere launching of schemes and campaigns regarding cashless doesn't seem to be worthwhile. To make these schemes more impactful, some marketing tools should be applied to make these schemes fruitful.

• Online transactions should be made as cheap as possible, eliminating all sorts of extra charges so that more and more peoples switch from cash-based to cashless economy.

• More emphasis should be laid on educating the people in rural areas as a major part of the nation resides in rural areas only.

• All sorts of transactions dealing with huge investment must be cashless to keep control over black-money.

• Adequate security mechanisms should be put in place to safeguard the interest of consumers against dubious and fraudulent practices of From this study, we would like to suggest that:

• Mere launching of schemes and campaigns regarding cashless doesn't seem to be worth while. To make these schemes more impactful, some marketing tools should be applied to make these schemes fruitful.

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Limitations of the Study

Despite all efforts and dedication towards this study, there are some limitations to this research which are as follows:

• Sample size: The sample size for this study was 70, which is too small for a diversied country like India.

• Population: The

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REFRENCES:

Abor, J. "Internationalization and Financing Options of Ghanaian SMEs."
Acta Commercii, vol. 4, no. 1, 2004, pp. 60-72.

Aigbe, Princewill. and Jackson Akpojaro. "Analysis of Security Issues in Electronic Payment Systems." International Journal of Computer Applications, vol. 108, no. 10, 2014, pp. 10-14. Ajayi, L.B. "Effect of Cashless Monetary Policy on the Nigerian Banking Industry: Issues, Prospects, and Challenges." International Journal of Finance and Business Management Research, vol. 2, 2014, pp. 29-41. Akhalumeh, P.B. and Ohiokha, F. "Nigeria's Cashless Economy; The Imperatives." International Journal of Management & Business Studies, vol. 2, no. 2, 2012, pp.12-17. Amin, S. Gender Inequality in the workplace: Banks from Sweden and Pakistan, University of Gavle, 2015. Angelakopoulos, G. and Mihiotis, A. "E-b

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• Mere launching of schemes and campaigns regarding cashless doesn't seem to be worthwhile. To make these schemes more impactful, some marketing tools should be applied to make these schemes fruitful.

• Online transactions should be made as cheap as possible, eliminating all sorts of extra charges so that more and more peoples switch from cash-based to cashless economy.

• More emphasis should be laid on educating the people in rural areas as a major part of the nation resides in rural areas only.

• All sorts of transactions dealing with huge investment must be cashless to keep control over black-money.

• Adequate security mechanisms should be put in place to safeguard the interest of consumers against dubious and fraudulent practices

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Investigation On Study Of Wild Relatives Of Grasses And Their Importance For Grazing Habitat Of Wild Herbivores In Tadobaandhari Tiger Reserve Maharashtra State

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Abstract :

Wild Relatives of grasses are naturally distributed in the grasslands of TadobaAndhari Tiger Reserve , the wild relatives are the parental genera of cultivated crops, the diversity of wild relatives of grasses variable with the change in soil texture and soil ecology , soil physical properties. The important wild relatives of grasses reported fromTadobaAndhari Tiger Reserve are *Setariapumilla , Setariaitalica , Sorghum halpens , Panicumscorbiculatum , Oryzaruphipogon , Elusineindica , Panicummilliaceum , Paspalumcanare , Panicumnotatum , PaspalumPaspalodes , Panicumsumatrense , Saccharumspontanium , Sorghum contraversum , Sorghum deccanense , Urochloapanicoides.*wild relatives of grasses identification and conservation by seeds collection and enrichment useful to maintain composition of grasslands in Protected Areas. Wild relatives of grasses are nutritive and having good forage value with reference to grazing habitat of wild herbivores and play vital role in grasslands management.

Key Words :
Wild relatives of grasses ,TadobaAndhari Tiger Reserve , grasslands Management and conserve diversity of wild relatives.

Introduction :

Grasses are one of the largest and most valuable groups of flowering plants, consisting of 610 genera and 10,000 species (Cope, 1982). Clayton and Renvoize (1986) put the total number of grasses in the world about 10,000 species, 651 genera were recognized and assigned numbers indicating their phylogenic status based upon various evidences. It ranks third in number of genera after the Compositeae and Orchidaceae and fifth in number of species after the Compositeae, Orchidaceae, Leguminoseae and Rubiaceae (Good, 1953). Grasses are widespread than any other family of flowering plants. The great adaptability of different species has enabled them to thrive under the most varied conditions. They form the climax vegetation of the semiarid prairies of the American continent, the steppes of Asia and the savannas of Africa. Grasses exceed all other in the importance of its products. It provides food in the form of cereals for man and forage for most animals. Many species of native and introduced grasses are utilized in improved pastures (Salter, 1952).

A grass is taxonomically defined as any species within the large family (Gramineae or Poaceae) of monocotyledonous plants having narrow leaves, hollow stems, and clusters of very small, usually wind-pollinated flowers. Grasses include many varieties of plants grown for food, fodder, and ground cover (Grass 2014). Grasses are often confused with sedges (Cyperaceae family) and reeds (Restionaceae family. However, sedges do not have a leaf sheath and their leaves are attached directly to the culm—a diagram of grass anatomy is provided in Appendix C. The culms of sedges are also angular, while grass culms are circular. The grass family is the fifth largest plant family on earth with over 700 genera and 9700 species. About ten percent of the grass species worldwide can be found in southern and tropical Africa; the major genera of which are Eragrostis, Pentaschistis, Panicum, Sporobolus, Aristida, Digitaria, Stipagrotis, Setaria, Brachiaria, and Hyparrhenia (Van Oudtshoorn 2009).

Almost all animal species and food chains depend on grass because grass occurs across the world and is almost always edible. The groups of animals that depend most directly on grass for food are birds, insects, rodents, and grazers. There are many bird species, such as Quelea finches, the most common bird on earth with a population of over 1.5 billion in Africa alone, that solely eat grass seeds. Grass provides the only food source for seed-eating birds, and the birds play an integral role in seed dispersal. Insects use grass for both food and shelter. Disruption of these grassland ecosystems can cause a dangerous under or overabundance of insect species. Rodents consume grass seeds or the base of the plant where the most nutrients are stored. Grazers have the largest impact on grasslands and typically graze in large herds which makes spatially expansive impact.. Grazers remove old plant material, stimulate new growth, and provide nutrients in the form of manure. Although predators and decomposers are also ultimately dependent on grass species, it is primary consumers- specifically herbivores- that have the biggest causal relationship with grass species. Herbivores and grass species composition are highly interdependent.

Evaluating a Grassland There are four main measures to evaluate a grassland: grazing value, ecological indicator status, succession stage, and perenniality. Several factors that can help conservation managers determine whether their area is providing valuable grazing material. By identifying grass species in the area, grazing value can be determined. Grazing value is defined as the quality and quantity of material from an individual available for grazing (Van Oudtshoorn 2009).

Grasses inhabit the earth in greater abundance than any other comparable group of plants. Some are adapted to warm, humid and tropical climate while others are established in the polar regions, where the growing season is two months or less and direct sunlight is absent for many months of the year. Some are important elements of marsh and swamp vegetation, and other inhabit desert regions where the annual precipitation is 5 inches or less. Even before the time of recorded history, the grains of grasses provided a staple food supply or the human race (Gould, 1968). The members of this group are present in all the conceivable habitats, suitable for growth of plant communities (Mitra and Mukherjee, 2005). Grasses are used as forage for domesticated, wild animals and soil conservation (Gould, 1968).

TadobaAndhari Tiger Reserve Forest Diversity :

"Tadoba" is taken from the name of the god "Tadoba" or "Taru", worshipped by the tribes who live in the dense forests of the Tadoba and Andhari region, while "Andhari" refers to the Andhari river that meanders through the forest.

TadobaAndhari Reserve is the largest national park in Maharashtra. The total area of the reserve is 625.4 square kilometres (241.5 sq mi). This includes Tadoba National Park, with an area of 116.55 square kilometres (45.00 sq mi) and Andhari Wildlife Sanctuary with an area of 508.85 square kilometres (196.47 sq mi). The reserve also includes 32.51 square kilometres (12.55 sq mi) of protected forest and 14.93 square kilometres (5.76 sq mi) of uncategorised land.Tadoba National Park and Andhari wildlife sanctuary together form the Tadoba-Andhari Tiger Reserve. The total area of the Tadoba-Andhari tiger reserve is about 1,727 km^2.

Tadoba National Park was established in the year of 1955. Total area of the park is 116.55 Km^2.The Andhari Wildlife Sanctuary was formed in the year 1986. Total area of the Andhari Wildlife Sanctuary is 508.85 Km^2.

Total core area of the tiger reserve is 625.40 Km^2. Total buffer area of the tiger reserve is 1101.60 Km^2. The reserve also includes 32.51 Km^2 of protected forest and 14.93 Km^2 of other areas.
The monsoon season begins in June; the area receives heavy rainfall during this season (approx.1275 mm) and humidity around 66-70%.

TadobaAndhari TigerReserve **is a predominantly southern tropical dry deciduous** forest with dense woodlands comprising about eighty seven per cent of the protected area. Teak is the predominant tree species. Other deciduous trees found in this area include *ain* (crocodilebark), bija, dhauda, salai, semal and tendu. Beheda, hirda, karaya gum, mahuamadhuca (crepe myrtle), *palas* (flame-of-the-forest, *Buteamonosperma*) and *Lanneacoromandelica* (wodier tree). Axlewood (*Anogeissuslatifolia*, a fire-resistant species), black plum and *arjun* are some of the other tropical trees that grow in this reserve.

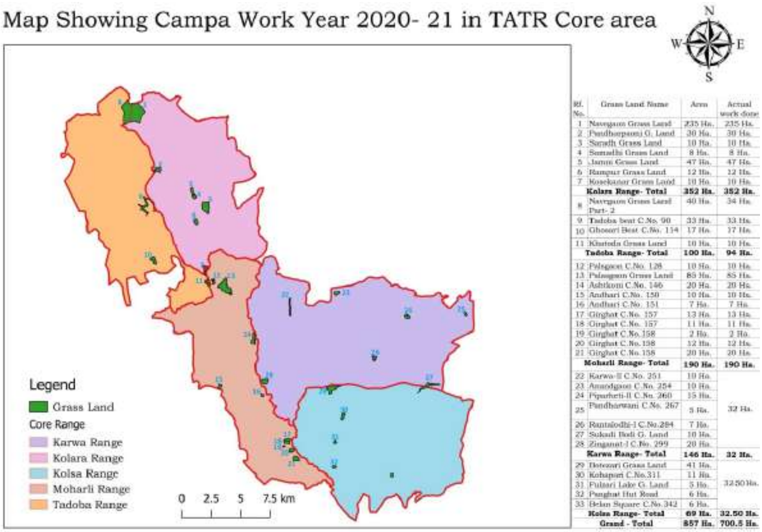
Aside from the keystone species, the Bengal tiger, Tadoba Tiger Reserve is home to ther mammals,including: Indianleopards,sloth bears, gaur, nilgai, dhole, striped hyena, small Indian civet, jungle cats , sambar,barking deer, chital, chausingha and honey badger . Tadoba lake sustains the marsh crocodile,which was once common. Indian star tortoise, Indian cobra and Russel's viper also live in Tadoba.The lake contains a wide variety of water birds, and raptors. 195 species of birds have been recorded, including three endangered species. The grey-headed fish eagle, the crested serpent eagle, and the changeable hawk-eagle are some of the raptors seen in the park.

Poaceae is the one of the largest family among the monocotyledons in the world .The grass vegetation broadly divided into two types depending upon their life-span, Ephemeral vegetation consisting mainly of the grasses that complete the life cycle during rainy season or after rainy season. Grasses autumn or long lived vegetation with species that grow with the rains but complete their life-cycle after rains. The species like *Arthraxonlancifolius ,Arundenellapumila, Sporoboluscoromondelianus , Digitariaternata*, are the chief components of farmers category. On the conterary the species like

Heteropogoncontortus ,*Andorpogonpumulus* , *Chrysopogonfulvus* , *Dicanthiumcaricosum* , *Setariaforbesiana* , *Pennisitumhohenackeri* which form the autumn vegetation are either perennial vegetation forming large tufts.

Tadoba-Andhari National Park/Coordinates 20.2484° N, 79.3607° E

Sr. No.	Name of grassland	Area in Hectares
	Kolara Range grasslands	
1	**Navegaon part 1 (Rehabilated Site)**	235 Hectare
2	Kosekanar	10 Hectare
3	Pandharpauni	30 Hectare
4	Jamni(**Rehabilated Site)**	47 Hectare
5	Samadhi	08 Hectare
6	Rampur	12 Hactre
7	Saradh	10 Hectare
	Tadoba Range Grasslands	
1	Navegaon part 2	40 Hectare
2	Tadoba beat Comp. No. 90	33 Hectare
3	Khatoda	10 Hectare
	Mohrli Range Grasslands	
1	Palasgaon (**Rehabilated Site**)	95 Hectare
2	Girghat	58 Hectare
3	Astkoni Com. No. 146	20 Hectare
	Karwa Range	
1	Sukdobodi	10 Hectare
	Kolsa Range Grasslands	
1	Botezari	41 Hectare
2	Kohapari	11 Hectare
	Doni	65 Hectare
	Kolsa (**Rehabilitated village**)	150 Hectare



Objectives :

- Identification and Enumeration of Wild Relatives grasses plants.
- To identify the wild grasses plants from open grasslands with the help of morphological study by using regional floras.
- Exploration of plants from forest areas.
- To determine diversity of wild grass plants and its ecological significance in forest ecosystem.
- Floral association in grassland ecosystem and its role in forest Ecology.
- Phenological study of the wild grasses plants.
- Conservation and propagation of plants.
- In-situ conservation of plants , seed collection and enrichment in grasslands
- Ecological and morphological study of plants

Methodology

- To select the sites /area for the study of wild grasses plants present in forest and grasslands ecosystem of Madhya Pradesh State.
- To arrange the regular field visits in three different seasons of the year, Rainy season , Winter season and Summer season.
- To observe the open grassland with special reference to phytosociology .
- G.P. S. study of grasses plants of Madhya Pradesh.
- Grasses distribution and their ecological and environmental study.
- Ecological significance of grasses in forest ecosystem.
- To prepare the photographic album of wild grasses plants.

Recognising the morphology of plant species

By using regional, local and national floras, the data from the herbarium specimens, the accounts on morphological details, diagnostic characters and range of variation studied. The grasses plants are observed at different stages vegetative and reproductive stages of the plants. The roots are observed from morphological point of view , to study the role of grasses in forest ecology and to modify the texture of soil. Observation of morphological characters under dissecting microscopes and magnifying lens. Study of root, stem , leaf and flowers morphology of the plants in specific season. Identification of grasses plants by using regional floras or national floras. To take the GPS coordinates of the plants at the different sites.

Their identity requires a skill in systematic botany. This is perhaps the reason why wild relatives are meagrely represented in the germplasm collections. The wild relatives of crop plants by and large, occur as component of disturbed habitats within the major vegetation types. The information on their occurrence is available from different herbaria floristic accounts, floras, etc

Use of herbaria

Herbaria with large collections of plant genetic resources including wild relatives of grasses assist the explorers in having an idea about the species diversity of a region. Herbarium field notes and associated data such as root , stem , leaf , flowers , fruits morphology and ecological characters with GPS coordinates seed maturity of wild relatives from the locality of collection help in planning the duration of exploration. Since the herbarium specimens are generally collected during flowering, this information can be considered to be optimal for seed collection.

Collection and Conservation of plants

Observations and collection of plants before approaching for the field collection directly. On spot identification of target species and seed collection, drying storage and broadcasting in different grasslands for the insitu conservation purposes in forest ecosystem or new species to the collection ofvaluablegermplasm of wild species for gene bank conservation.

Collection of Wild Relatives

The collection missions are primarily aimed at tapping germplasm variability in Plant Genetic resources of different agri-horticultural Wild relatives of Grasses in the entire genepool. The germplasm is collected on the basis of priority for collection from targeted regions, and of species. The information on ecological distribution with precise location of species helps in collection of targeted gene pool

Study area : Core area grasslands of TadobaAndhari Tiger Reserve .

1. Palasgaon grassland 2. Navegaon grassland 3. Jamnigrassland 4. Pandharpauni grassland 5. Botezari grassland.

Observations:

Finger Millet (EleusineCoracana (L.) Gaertn.)

Finger millet is commonly known as Ragi . It is a staple food for many people. There are two sub species - E. africana and E. coracana. Eleusine having only one wild relative in Madhya Pradesh Eleusineindica (L.)Gaertn. E. indica is the only wild species widely occurring which is morphologically and cytologically similar to E. coracana (Krishnaswamy,1951). E. indica is of Indian origin and may be the immediate ancestor of finger millet (Mehra, 1963)

Prosomillet (Panicummilaceum L.)andLittleMillet (PanicumSumatrense Roth. ex RoemetSchult.)

Prosomillet is commonly called kodo. It is supposed to be one of the oldest grain crops and is grown extensively in India. It is a quick growing drought resistance crop. It has two sub-species psilopodium and sumatrense.It is classified as race- nana and robusta, sub races-laxa,erecta and compacta. In Madhya Pradesh, Panicum maximum Jacq., P. milare L., P. notatum Retz., P. psilopodiumTrin (related to P. milare), P. repens L., are present. Out of these species, P.psilopodium which is similar to the wild forms of P.sumatrense from which the later species might have originated (Anonymous, 1966).

Kodo Millet (Paspalumscrobiculatum L.)Kodo millet is locally called kodokutki. It has three races viz.,regularis, irregularis and variables. In Madhya Pradesh wild related species, Paspalumcanarae (Steud.) Veldk.,P. paspaloides (Michx.) are present

Foxtail Millet (Setariaitalica (L.) P. beauv)

Foxtail millet is considered to be sweet, is used as a sedative to the gravid uterus.The grain is said to possess heating properties and when taken alone sometimes causes diarrhoea. The grain is astringent, diuretic and laxative and is useful externally in rheumatism. It is a popular remedy for alleviating the pains of parturition (Kirtikar and Basu, 1935). Foxtail millet is locally called as wild baara. It is also known as Italian millet. Cultivation of foxtail millet dated back to the third millennium BC. S. italica is not known in the wild state except as a weed which escapes from cultivation. S. italica is divided into sub species viridis and italica. S. italica is further classified into three races moharia, maxima and indica, viridis is the ancestral form of S. italica on the basis of chromosome number.

Sugarcane (Saccharumofficinarum L.)

Sugarcane is derived from the sanskrit word shakkara.This crop from the east provides a linguistic evidence of Indian origin of sugarcane. In Madhya Pradesh, many sweet based products are prepared from sugarcane. There is only one wild relative Saccharumspontaneum L. is present in TATR.

Echinochloacolona(L) Link , hort. Berol.2: 209. 1833: Blatt. &McC. Bombay Grass.148.1935; Bor, Grass.Ind.308.1960. *Panicumcolonum* L. Syst. Nat. ed. 10.2:870.1759; Hook.f.Fl.Brit.India 7:32. 1896; Cooke, Fl. Pres. Bombay 3: 447.1958 (Repr. ed.).wildnachanigrass.

Herbs, annual, decumbent- ascending; culms 40-90 cm long, rooting at base. Leaves 3-30 x 0.4-2.0 cm, linear –lanceolate, scabrid,apex acute to acuminate. Racemes spiciform, distant, 5-10, 1.5-2.0 cm long.Spikelets c 0.3 cm long ovoid; lower glume ½ as long as lower lemma, broadly ovate; upper glume cuspidate, hairy; lower lemma ovate, hairy;upper lemma polished. (Plate VI, Fig. 35)

- Palatable grass
- Flowering Season : September – November.
- Fruiting Season : December
- Ecological data : Common weed, best soil binder grass in forest.

Soil pH range required – 7.2 – 7.6

- Rainfall range : 950 mm – 1078 mm.
- Temperature range : 26 ^{o}c – 39 ^{o}c.
- Humidity required : 51 % - 67%.

EleusineGaertn. Fruct. Sem.Pl.1:7.1788

Eleusineindica(L) Gaertn. Fruct.1:8. 1789: Hook.f. Fl. Brit. India 7: 293. 1896; Cooke, Fl. Pres. Bombay 3:560.1958 (Repr.ed.); Blatt.&McC. Bombay Grass. 259. 1935; Bor,Grass. Ind. 493. 1960. *Cynosurusindicus* L. Sp.Pl.72.1753. '*Nachni'*.(WILD NACHANI)

Herbs, annual, erect, tufted c 25 cm high; culms slightly compressed. Leaved 8-12 x 0.2-0.3 cm, linear, flat.Spikes 2-7 or more, 4.0.5-5 cm long.Spikelets c 0.3 cm long, ovoid or oblong, green. Grains oblong or globose.

- Palatable grass
- Flowering Season : September – November.
- Fruiting Season : December
- Ecological data : Sporadic annual grass grows in cultivated soil.

Soil pH range required – 7.2 – 7.6

- Rainfall range : 950 mm – 1078 mm.
- Temperature range : 26 °c – 39 °c.
- Humidity required : 51 % - 67%.

Field Note – Grass of dry soil ,non palatable grass found in smaller grasslands.

ORYZA L.Sp. Pl.1:333.1753

OryzarufipogonGriff.Notul.3: 5.1851; Bor, Grass.Bur. Cey.Ind. Pak. 605.1960; Laxmi.in Sharma *et al.* (eds.), Fl. Maharashtra, Monocot. 545. 1996; 151 Moulik, Grass. Bam. India 1: 47. 1997; Naik, Fl. Marathawada 2: 1065. 1998.

Annual, culms 30-70 cm tall, tufted, terete, erect or decumbent, spongy, rooting at lower nodes, nodes glabrous.Leaf sheath 6-09 cm long, tereteorcompressed, keeled, glabrous, smooth. Ligule 15-31 mm long, membranous, Leaf blade 15-30 x 0.6-1.6 mm, flat, linear to ovate, keeled,scabrid on nervesand margins, apex acuminate. Panicles 10-22 cm long.

- Palatable
- Flowering Season : October.
- Fruiting Season : November
- Uses : Seeds edible grass.
- Ecological data : Common in marshy places.

Soil pH range required – 7.1 – 7.5

- Rainfall range : 950 mm – 1180 mm.
- Temperature range : 26 °c – 39 °c.
- Humidity required : 68 % - 71%.

PanicumantidotaleRetz. Obs. Bot. 4:17. 1786**.**Hook.Fl.Brit. India 7: 52. 1896; Cooke , Fl. Pres. Bombay 3:453.1958 (Repr.ed); Blatt.&McC.Bombay Grass.163.1935. Bor,Grass.Ind.322.1960.

Annual erect , diffusely branched, 1-2 mtr tall , creeping , grass. Leaves 10-40 cm long , linear – lanceolate . Panicle 15-22 cm long , Spikelets ovoid.

- Palatable
- Flowering Season : Septeber – November.
- Fruiting Season : December
- Uses : Seeds edible, Best soil binder grass.
- Ecological data : Common in marshy places.

Soil pH range required – 7.1 – 7.5

- Rainfall range : 950 mm – 1000 mm.
- Temperature range : 26 °c – 39 °c.
- Humidity required : 68 % - 71%.

Panicum maximumJacq. Ic. Pl.Rar.1:2, t. 13. 1781-86 7 Coll. Bot. 1:76.1786. Hook.Fl.Brit. India 7: 52. 1896; Cooke , Fl. Pres. Bombay 3:453. 1958 (Repr.ed); Blatt.&McC.Bombay Grass.163.1935. Bor,Grass.Ind.322.1960.Perennial denslytufted , erect , branched, 1-2 mtr tall , grass. Leaves 10-40 cm long , linear – lanceolate . Panicle 30-55 cm long , Spikelets oblong.

- Palatable cultivated grass.
- Flowering Season : November.
- Fruiting Season : December
- Uses : Fodder grass,
- Ecological Data : Common in marshy places.

Soil pH range required – 7.1 – 7.5

- Rainfall range : 950 mm – 1000 mm.
- Temperature range : 26 °c – 39 °c.
- Humidity required : 68 % - 71%.

Saccharumspontaneum L. Mant. Alt. 2: 183. 1771. Hook. f. Fl.Brit. India 7: 118. 1896; Cooke , Fl. Pres. Bombay 3:465. 1958 (Repr.ed); Blatt.&McC.Bombay Grass.45.1935. Bor,Grass.Ind.214.1960.

Kans grass Wild relative of Sugarcane

Perennial rhizomatous tall tufted , 1-2.5 m tall, erect grass. Leaves narrow linear , sheath smooth , ligule ovate.Panicle large , silvery , Spikes with silver hairs, spikelets sessile.

- Palatable grass.
- Flowering Season : October.
- Fruiting Season : December
- Uses : Soil binder grass
- Ecological Data : Distributed in moist, marshy soil along the bank of river.

Soil pH range required – 7.5 – 7.8

- Rainfall range : 950 mm – 1000 mm.
- Temperature range : 28^{o}c – 39 ^{o}c.
- Humidity required : 68 % - 71%.

Field Note – Grass indicator of wet soil with more water holding capacity.

Setariapumila(Poir.) R. & S. Syst. Veg. 2:481.1817; T. A. Cope in Nasir Ali, Fl. Pak.143:181. 1982. Panicumpumilum Poir.in Lam. Encycl. 4:273.1816. Setaria pallid-fusca (Schumach.)Stapf& C.E. Hubb.in Kew Bull.1930: 259.1930; Bor,Grass.Ind.363.1960.S. glauca non (L.)P.Beauv.1812;Hook.f.Fl.Brit.India 7: 78.1960; Cooke,Fl.Pres.Bombay 3: 435.1958 (Repr.ed.); Blatt.&McC.Bombay Grass.172.1935;bor,op.cit.360. 'Kolu'.

Herbs,20-60 cm high,tufted;culmsmany,spreading,ascending.Leaves 3-10 X 0.2-0.5 cm , linear. Spikes 1.5-5.0 X 0.3-0.7 cm. Spikelets 0.2-0.3 cm long, ovoid or ellipsoid, subacute;upper lemma rugose. Grains plano-convex.)

- Palatable grass
- Flowering Season : August – October
- Fruiting Season : December
- Uses : Fodder grass
- Ecological data : Soil pH range required – 7.5 – 7.8
- Rainfall range : 950 mm – 1270 mm.
- Temperature range : 26 ^{o}c – 39 ^{o}c.
- Humidity required : 68 % - 71%.

Field Note – Annual , palatable grass , grains are edible , grass of smaller grassland , distributed in acidic soil.

Setariaverticillata (L.) P. Beauv. Ess. Agrost.51,178.1812; Hook. f. Fl. Brit.India 7:80.1996; Cooke, Fl.Pres. Bombay 3:436 .1958 (Repr.ed.); Blatt.&McC. Bombay Grass .174.1935; Bor, Grass. Ind. 365.1960. PanicumverticillatumL.Sp.Pl.ed. 2:82.1762. (Chiktnagawat)

Annual herbs, 1m high, erect, rooting at lower nodes.Leaves 8-20 X 1.2-4.0 cm, linear or linear-lanciolate .panicals 2.5-9.5 cm long. Spikelets c 0.2 cm long, ovoid, sub acute ; upper lemma finely rugose. Grains 0.2-0.23 cm long, ellipsoid.

- Palatable grass.
- Flowering Season : August – October
- Fruiting Season : December
- Ecological data : Soil pH range required – 7.5 – 7.8
- Rainfall range : 950 mm – 1270 mm.
- Temperature range : 26 ^{o}c – 39 ^{o}c.
- Humidity required : 68 % - 71%.

Setariaitalica(L.) P. Beauv. Ess. Agrost.51,170,178.1812; Hook .f.Fl.Brit.India 7:78.1896; Cooke,Fl.Pres.Bombay 3:437.1958 (Repr.ed.); Blatt.&McC. Bombay Grass.175.1935;Bor,Grass.Ind.362.1960.Panicum italicum L.Sp.Pl.56.1753.

Erect annuals,60-100cm tall. Leaves 15-30 X 0.4-2.5 cm, Linear-lanceolate, minutely scaberulous on both sides and along margin.Panicles 8-12 cm long, compact.Spikelets 0.25 cm long, ellipsoid; lower glumes c 0.05 cm long, ovate,1- nerved, upper glumes c 0.15 cm long, ovate, glabrous,rounded.

- Palatable grass.
- Flowering Season : August – October
- Fruiting Season : December
- Ecological data : Soil pH range required – 7.5 – 7.8
- Rainfall range : 950 mm – 1270 mm.
- Temperature range : 26 ^{o}c – 39 ^{o}c.
- Humidity required : 68 % - 71%.

SORGHUM Moench. Methodus207.1794

***Sorghum halepense** (**L.**)Pers.Syn.Pl.1:101.1805;Blatt.&McC.Bombay Grass.5.1953;Bor,Grass.Ind.222.1960; T.A.Cope in Nasir& Ali, Fl. Pak.143: 295.1982. Holcushalepensis L.Sp.Pl.1047.1753. Andropogonhalepensis(L.) Brot.Fl.Lusit.1:89.1804; Hook.f.Fl.Brit. India 7: 182. 1896; Cooke,Fl.Pres. Bombay 3: 502.1958 (repr.ed.).Sorghum miliaceum (Roxb.)Snowden in J. Linn.Soc. 55:207.1955; Bor, op.cit.223. S. miliaceumvar.parvispiculum Snowden,op.cit.209; Bor,op.cit. 'Boru'.(Ran Jawari)*

- Perennial, 3 m high,erect; culms simple or branched, solid.Leaves 10-45 x 1.5 cm, linear-lanceolate; sheaths striate; ligules short,membranous, ciliate.panicles 15-35 cm long,decompounds. Sessile spikelets 0.4-0.5 cm long,ovoid-lanceolate; pedicelledspikelets as long as sessile but narrower.Grainsterete,dark brown.

- *Flowering Season : August – October*
- *Fruiting Season : December*
- *Ecological Data : Soil pH range required – 7.5 – 7.8*
- *Rainfall range : 950 mm – 1270 mm.*
- *Temperature range : 26 ^{o}c – 39 ^{o}c.*
- *Humidity required : 68 % - 71%.*

Conservation of wild relatives of crops is the most important task to match the challenges of erosion of species. The existence of these wild relatives are shrinking fast due to various bio-edaphic factors and disturbed habitats. In the present rate of threat of genetic erosion, we must collect all requisite information of the wild relatives to make use of their wider adaptability/tolerance/resistance to diseases and insect-pests, yield, quality attributes and other biotic and abiotic characters. In comparison to the cultivated land races, conservation and utilization.

Wild Relatives of Grasses of TadobaAndhari Tiger Reserve

Sr. No.	Botanical Name	Common Name	Vernacular Name	Flowering Season	Fruiting Season
1	Brachiariareptans	Sawa/ sama	Ran Sama	August	Sept. –Oct.
2	Brachiariadistachya	Sama grass	Ran Sama	August	October
3	Setariaintermedia	Chikta	Ran Bajara	August	October
4	Setariaverticellata	Chikta	Ran Bajara	August	October
5	Sorghum halpens	Wild Jawar	Ban Jawar	September	November
6	Echinochloacolona	Wild sama	Ban sama	August	October
7	Elusineindica	Wild Nachani	Ban Nachani	September	November
8	Panicumsumatrense	Wild kutki	Ban Kutki	August	November
9	Panicumnotatum	Wild Kutki	Ban Kutki	September	November
10	Oryzaruphipogon	Wild Rice	Ban Dhan/ Chawal	August	November
11	PaspalumPaspalodes	Wild Kutki	Ban Kutki	kutki	October
12	Paspalumcanare	Wild kodo	Ban Kodo	August	October
13	Saccharumspontanium	Wild Sugarcane	Ganna origin	September	November
14	Setariapumilla	Wild Bajara	Ban Bajara	August	September
15	Urochloapanicoides	Wild Kutki	Ban Kutki	August	October

Diversity in Wild Relatives
- Finger Millet (*Eleusinecoracana*) – *Eleusineafricana*
- Barley (*Hordeumvulgare*) – *Hordeumarizonicum*
- Rice (*Oryzasativa*) – *Oryzarufipogon*
- Pearl Millet (*Pennisetumglaucum*) – *Pennisetumpurpureum*
- Sorghum (*Sorghum bicolor*) – *Sorghum halepense*
- Broom millet (*Panicummiliaceum*) – *Panicumfauriei*

Results and discussion :

Findings of research work in grasslands of TATR :In the current exploration of wild relatives of grasses from the different grasslands of TadobaAndhari Tiger Reserve the genetic and species diversity is in the following manner.

Sr. No.	Name of grass genera	Number of spesies
1	*Brachiariareptans* *Brachiariadistachya*	Two species
2	*Setariaintermedia* *Setariaverticellata* *Setariapumilla*	Three species
3	*Panicumsumatrense* *Panicumnotatum*	Two species
4	*PaspalumPaspalodes* *Paspalumcanare*	Two species
5	*Urochloa*	One species
6	*Echinochloa*	One species
7	*Elusine*	One species
8	*Oryza*	One species
9	*Sorghum*	One species

In the present research study it is observed that the species diversity of wild grass genera depends upon the soil texture,moisture , humidity , water holding capacity. The composition and association of grasses also determines the wild relatives of grasses diversity. Generally it is found that the wild relatives of grasses are associated with soft palatable grasses with high percentage of fibre , ash , protein and moisture. The associates of wild relatives of grasses are :*Dicanthiumannulatum , Digitariastricta , Digitariaabludens , Iselimalaxum , Cynodondactylon , Ischemumindicum .*

The herbivores depend on soft palatable grasses as a primary consumers, Spotted deers , Barking deers , Chousinga , Black bucks mostly feed on soft palatable grasses which play an important role in grazing habitat of soft feeding herbivores.Grazing habitat of soft feeding herbivores associated with composition of grasslands, the grasslands are of three types ; smaller , intermediate and taller grasslands. Wild relatives of grasses shows distribution in smaller and moist grasslands.Threats to wild relatives of grasslands are : loss of natural habitats due to soil degradation , fragmentation of grasslands , loss of soil moisture due to climate change , changes in composition of grassland , invasion of woody species in grasslands , soil microbial composition and associates which grasses i,e soil mychorhiza and microorganisms which promotes the growth of grasses.

Conservative measures for wild relatives of grasses :

Loss of habitat: Many of the accessions currently held ex situ are from regions that have undergone significant land-use change over the past 50 years. The urban expansion in South and Central America has seen forests, grasslands and savannahs replaced by urban space. The expansion of agriculture, especially in Brazil, has resulted in vast areas of natural forests and grasslands being substituted by intensive production of crops such as soybean and improved monospecific pastures. There are ~ 60 million ha of Brachiariabrizantha cv. Marandu in Brazil, which is a dangerously narrow genetic base highlighting the importance of germplasm diversity. Similarly development and population growth in many parts of Africa have resulted in expansion of cropping and overgrazing of rangelands with associated loss of biodiversity. The changes in the economies and populations across the tropics have made the TSTF germplasm already held ex situ extremely valuable (sometimes irreplaceable) and in need of a particular focus on conservation.

ISSN : 2278-9308
February, 2022

Conservation of wild relatives of grass genetic resources

Secure conservation is at the heart of the Centres' stewardship of their collections and depends on the application of technical practices of high standard, based on an accurate assessment and appropriate management of risks.

The adequacy of the conservation technologies in use is key to meeting the objectives of long-term conservation of genetic diversity:

- As more land is coming under intensive cultivation, much of the natural diversity of species will be lost.
- Demand for use of forage genetic resources for increasing livestock production, as well as to maintain a more sustainable agricultural system, is expected to increase.
- The further study of the conserved germplasm will allow the easier identification of genotypes with potential for livestock feed for specific environments, as well as adequate germplasm to be re-established in degraded areas and also adapted to future climate changes.
- The adequate long-term conservation of germplasm will allow the preservation of essential forage biodiversity for current and future generations as global public goods.

Acknowlwdgement :

Authors are very much thankful to Honourable Field Director and Deputy Director of TadobaAndhari Tiger Reserve to give me permission to carry out research work on wild relatives of grasses of TATR in the core area.

References

Anonymous (1966) Record of research, sorghum and millet.Annual reports of EAAFRO, Nairobi, Keny

Arora RK and ER Nayar (1984) Wild Relatives of Crop Plantsin India.National Bureau of Plant Genetic Resources.Sci.Monograph. No.7. NBPGR, New Delhi, 90p.Arora RK (1996) Indian region provides treasure house of wildplant genetic resources. Diversity. 12: 22-23.

Bor NL (1960) The Grasses of Burma, Ceylon, India and Pakistan.Pergamon Press, London.Bothmer R Von and O Segerg (1995) Strategies for the collectionof wild species. In: Collecting Plant Genetic Diversity - TechnicalGuidelines. ABI International, Wellingford, UK, pp. 94-111.

Ellis JL (1987) Flora of Nallamalais.Vol.I and II.BotanicalSurvey of India, Calcutta.FAO (1999) FAO Yearbook, Production.Vol. 52 FAO Stat. SeriesNo.148, FAOUN, Rome, Italy.Gamble JS and CEC Fischer (1915-35) Flora of the Presidencyof Madras. London (reprinted. 1957: BSI, Calcutta).

Hajjar R and T Hodgkin (2007) The use of wild relatives in cropimprovement: A survey of developments over the last 20 years.Euphytica 156: 1-13.Harlan JR and JMJ de Wet (1972) A simplified classification ofcultivated sorghum. Crop Sci. 12: 172-176.

Gadgil M, SN Singh, H Nagendra and MD SubashChandran(1996) In situ Conservation of Wild Relatives of CultivatedPlants: Guiding Principles and A Case Study. Food and Agriculture Organization of the United Nations and IndianInstitute of Sciences, Bangalore, India.Jackson MT (1995) Protecting the heritages of rice biodiversity

Anonymous (1966) Record of research, sorghum and millet.Annual reports of EAAFRO, Nairobi, Kenya.

Arora RK and ER Nayar (1984) Wild Relatives of Crop Plants in India. National Bureau of Plant Genetic Resources. Sci. Monograph. No.7. NBPGR, New Delhi, 90p.

Arora RK (1996) Indian region provides treasure house of wild plant genetic resources. Diversity. 12: 22-23.

Bor NL (1960) The Grasses of Burma, Ceylon, India and Pakistan. Pergamon Press, London.

Bothmer R Von and O Segerg (1995) Strategies for the collection of wild species. In: Collecting Plant Genetic Diversity - Technical Guidelines. ABI International, Wellingford, UK, pp. 94-111.

Ellis JL (1987) Flora of Nallamalais.Vol.I and II.Botanical Survey of India, Calcutta. FAO (1999) FAO Yearbook, Production. Vol. 52 FAO Stat. Series No. 148, FAOUN, Rome, Italy.

Gamble JS and CEC Fischer (1915-35) Flora of the Presidency of Madras. London (reprinted. 1957: BSI, Calcutta).

Hajjar R and T Hodgkin (2007) The use of wild relatives in crop improvement: A survey of developments over the last 20 years. Euphytica 156: 1-13.

Harlan JR and JMJ de Wet (1972) A simplified classification of cultivated sorghum. Crop Sci. 12: 172-176.

Gadgil M, SN Singh, H Nagendra and MD SubashChandran (1996) In situ Conservation of Wild Relatives of Cultivated Plants: Guiding Principles and A Case Study. Food and Agriculture Organization of the United Nations and Indian Institute of Sciences, Bangalore, India.

Reviving Indian IT Sector amid Trump's protectionist policies

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Abstract:

Trump's nationalist policies ,especially the ones relating to H-1 B visas are seen to be taking a toll on India's $150 billion information technology industry, which relies heavily on exports to the United States. Trump's policies regarding H1 B visas could slow down and make this sector less competitive.This paper tries to study this impact in detail and also explore solutions to this problem,from the point of view,of Indian IT industries.

Keywords: Infrormation technology, H1 B visa, onsite,outsourcing

Objective:

The paper has two-fold objectives ,as listed below:

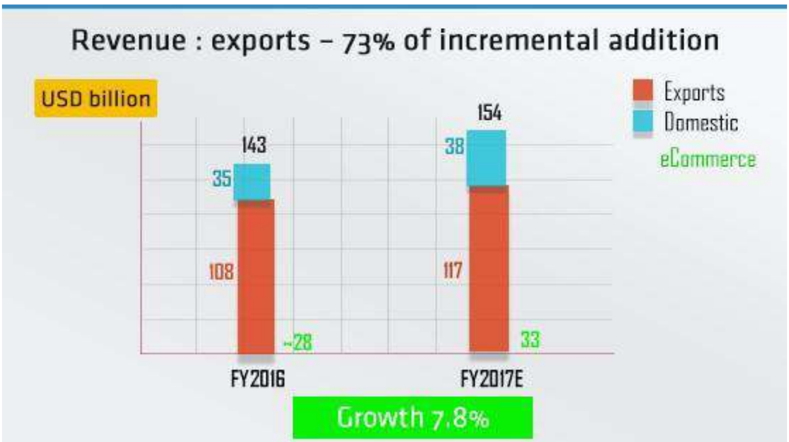
To understand the impact of Trump's outsourcing policy related to H1 B visas on Indian IT sector

To propose solutions to the problem regarding revised H1 B visa rules to Indian IT sector

Introduction:

The outsourcing industry accounts for about 20 percent of India's exports of goods and services, and has helped millions of Indians in raising their standard of living.Indian IT sector forms a major chunk of this industry. India's $150 billion information technology industry, which relies heavily on exports to the United States is een to be facing a wrath of Trump's policies regarding H1 B visas. These policies are in line with the Trump administration's intent to prevent foreign workers from taking up US jobs. As quoted by the US President,"Right now, H-1B visas are awarded in a totally random lottery, and that's wrong. Instead, they should be given to the most skilled and highest-paid applicants, and they should never, ever be used to replace Americans".

As per NASSCOM, India's IT-BPM industry is projected to grow ~8% in FY2017 to USD 154 billion. In light of the very disruptive emerging technologies, the industry is re-imagining itself to become the Digital Solutions Partner for the world.



Source : NASSCOM

H1B visa is an employment-based, non-immigrant visa category for temporary workers in USA. An employer must offer a job and apply for an employee's H1B visa petition with the US Immigration Department. In 2014, 70% of total H-1B petitions approved were from Indian citizens.

A bill introduced in the U.S. Congress raises the minimum salary for positions granted under the H-1B visa scheme from $60,000 to $100,000 per year.Indian IT companies,, are among the biggest beneficiaries of the H-1B visa program, which allows foreign professionals to work in the United States. Many Indian techies are sent by Indian IT companies such as Infosys,TCS,Wipro and others to work onsite for high-skilled technology work on H-1B visas.

These employees are paid much less than $100,000 per year ,thereby reducing the costs for Indian IT firms.These visa curbs will be coinciding with the pressure on traditional IT services sector due to automation and the shift in spending on newer areas such as digital and cloud.

As per Prabhudas Lilladher brokerage firm in Mubai,"H-1B is a very important lifeline for the sector, and a tougher stand on these visas would mean substantial increase in local hiring."

In addition to mimimm salary norms,several norms are under consideration by Trump administration,as described below:

Earmark 20% of H-1B visas for small and start-up employers

Remove 'per country' cap for employment visas to ensure equal distribution

Firms hiring H-1B visa holders need to make a "good faith" effort to recruit Americans first

Give preference to students educated in the US for H-1B visas rather than computerized lottery system

Crack down on outsourcing companies that import workers for temporary training and then send them back home to do the same job

Prohibit spouses of H-1B visa holders from working in the US

Prohibit companies with more than 50 employees, of which at least half are H-1B or L-1 holders, from hiring additional H-1B employees

Strict audit and vetting by Department of Labor to clamp down on fraud or misuse (Surce: Hindustan Times)

Major concerns:

Changes in H1 B Visa norms:

Many Indians working at client's site on H-1B visas earn less than the $100,000 per year. "So,this bill,which states minimum salary for positions granted under the H-1B visa scheme to increase from $60,000 to $100,000 per year will significantly increase the cost structure of India IT firms .Therby, the cost advantage that Indain IT firms had in comparison with other regional and global IT firms will be eroded.

Human resource:

Employees in IndianIT firms are flexible .They can be easily moved from city to city and are accustomed to work long hours to coordinate with teams at home without extra pay. These advantages will not be available with American hires.

USA as revenue generator:

As per the Annual reports of several Indian IT companies,US generates nearly 60 percent revenues for them.With increasing cost structure,retaining clients in these markets will become difficult.

Loss of revenues

The Indian IT companies stand a risk of losing their clients in USA and UK as the cost advantage that was available with cheap labour erodes away. Even in case of new avenues like China and Japan,though Indian IT companies have a presence there,majority of the hiring is of local populace, and not of Indians coming to work on-site.

As per reports of several brokerage houses,this move could dent revenues of Indian firms by as much as 10 per cent.

Job losses for Indian IT sector employees:

These rules are also supposed to mean less number of jobs for Indian nationals ,who are already facing the heat of automation.As quoted by Vishal Sikka,CEO of Infosys Ltd.,"A strong focus on local hiring, on local contributions to the economy, will be needed to mitigate the impact of regulatory tightening".

Shrinking margins:

The profit margins for Indian IT firms will be reduced with increasing costs of hiring onsite,as these costs may not be fully passed on to end clients.Though the Indian IT companies have already been boosting local hiring in anticipation of tighter visa regime, margins are likely to be hit.The day the bill was to be presented saw the shares of India IT companies plunging by nearly 9%.

Unionisation:

IT Sector has never witnessed unions,which are common across manufacturing sectors.However,with job losses in plenty,IT employees are approaching some unions,such as FITE , NDLF-IT and ITEC.

ET has reported that The Forum for Information Technology Employees (FITE) will be getting itself registered formally as the first union for IT employees in India.Moreover, National Democratic Labour Front-IT, has filed a public interest litigation seeking directions for the TN government to ascertain if labour protection laws applied to the IT sector. The state has responded favourably stating that the sector had all along been under the purview of the labour laws.

With unions,the workforce productivity gets reduced.Moreover,fearing unionized environment,some IT firms might move their offices outside India,which will further add to employment problems.

Solutions

New avenues:

The software services industry body - National Association of Software and Services Companies (Nasscom) is now trying to tap countries closer home, starting with China(Source:Economic Times). To achieve this purpose,The and the Consulate General of India in Shanghai ans Nasscom cohosted an event with the Nanjing government earlier in January to promote tradeties between Chinese companies and Indian IT firms. As quoted by Gagan Sabharwal, director of global trade development at Nasscom ,"China and Japan are the second largest economies and the second largest IT spenders in the world. We need to shift from our overreliance on the US and UK,".As per him,China is not a closed economy as believed traditionally.

Negotiations within and outside USA:

Several negotiations have to be made with the Trump administration explaining them the importance of outsourcing with repect to America's interest.Such negotiations should take place by USA lobby groups as well.To this effect, Nasscom, India's software lobby group,has asked IT majors in USA such as Apple, Microsoft ,Google and IBM to lobby with Trump, to explain that more jobs would be generated by US companies if they outsource to India.

Sanchit Vir Gogia, chief analyst at Greyhound Research makes a point in this regard. As per him,"Skilled foreign workers who come to work in the US by the route of H1-B visas don't just directly supplement the US IT industry with specialized skillsets, they also contribute indirectly to other industries in the US. H1-B workers bring their families along and thereby bring additional business for other industries like real estate, banking, hospitality and others. The effects of this announcement will impact the GDP and the overall business economy and growth of US" .

Role of Nasscom:

The role of the software services industry body - National Association of Software and Services Companies (Nasscom) will be crucial with regards to lobbying for the interests of Indian IT firms through various channels and findind new opportunities.They have hard pressed the fact that Indian IT industry contributes to about 4 lakh direct and indirect jobs in the US , contributing for about USD 5 billion in taxes annually.

Diversification:

Indian IT firms should gradually move towards a path of acquiring clients from other geographies such as Middle East,Asia and Africa .This will diversify their client portfolio and eliminate the business from the risk of huge client concentration

Trapping Domestic market:

As India is undergoing a digital wave, Indian IT firms must seriously look for domestic markets, especially the SME 's (small and medium scale enterprises)and help them with the technology solutions.This will help Indian IT firms to reduce their dependence o American clients.

Uberization of Workforce:

Uberization of Workforce aka Gig economy is the one wherein talent works along a demand-supply model,moving across projects and organizations as per the demand and their interest areas.This trend is prevalent in USA,wherein freelancers and consultants work on a short-term project.It has to pick up in India, for Indian companies to control costs and avoid legal hassles associated with full-time employment.Also,it will allow companies to add or reduc workforce as per the projects.

Conclusion

It is true that Trump's protectionist policies will have at least a minimal effect on the Indian IT sector. However,solutions such as diversification of markets,adoption of Gig economy with a positive attitude and putting pressure on Trump administration from a few lobbies might just sail India through this storm.

References:

Newspapers:
The Economic Times The Business Standard The Mint
The Indian Express The Hindustan Times Times of India
The Financial Chronicle Websites:
http://www.business-standard.com/article/companies/indian-it-sector-braces-for-impact-of-donald-trump-s-immigration-order-117012900803_1.html
http://economictimes.indiatimes.com/tech/ites/trump-effect-indian-it-companies-now-eyeing-chinese-market/articleshow/56881548.cms
http://www.voanews.com/a/india-it-industry-trump-h1b-visas/3691299.html
http://www.livemint.com/Industry/nS6Bfc39NKYd6jGiFY4D6I/Indian-IT-industry-faces-twin-challenges- of-Donald-Trump-au.html
http://www.hindustantimes.com/india-news/h-1b-visa-the-proposed-changes-and-how-they-will-affect-indians/story-5fVNjaf1IEmQF83l5eIPfP.html
http://profit.ndtv.com/news/industries/article-what-trumps-h-1b-order-means-for-indian-it-companies-10-points-1683222
http://mashable.com/2017/01/31/h1b-visa-bill-impact-india-us/#C237HpyhwSq1
http://nasscom.in/knowledge-center/publications/it-bpm-industry-india-2017-strategic-review

The Contribution Of Industrialization In Employment Generation Of Nagpur Districtthrough Mihan (Multi-Modal International Airport Hub, Nagpur)

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Abstract:

Nagpur is one of the fastest-growing cities in India. A city with a very important location on the international airways. The center of the Indian subcontinent is an ideal destination for civil aviation and freight routes to Southeast Asia and Middle East Asia/Europe. Equipped with all basic amenities, this city was named the best city in 2001. It is also known as the second greenest city in the country. Nagpur is connected in all four directions by an efficient transport system of three National Highways, three State Highways, 75 Railway Trains, 60 Goods Railway Trains. Nagpur city has been chosen for setting up the MIHAN project considering its mineral richness, good quality fertile land for cultivation, natural resources, and rich forest area as well as all-around educational facilities.

In the Nagpur MIHAN Project is a very important project in terms of clearing the backlog in Vidarbha and has been included in the Vidarbha Development Programme. The country's first "International Hub Airport" will be known as the most famous hub in the Southeast Asian continent.This research paper has been written to find answers to the questions that what is the contribution of MIHAN (Multi-Modal International Airport Hub, Nagpur) in employmentgeneration of Nagpurdistrict, what is the government's effort to deal with the unemployment in Nagpur District? what is the importance of MIHAN for Nagpur district?

Keywords: Employment,Work Opportunities,MIHAN,Special Economic Zone (SEZ)

Introduction:

The Multimodal International Hub Airport in Nagpur, i.e.,MIHAN, is an airport project for the Dr. Babasaheb Ambedkar International Airport in Nagpur, Maharashtra. The MIHAN project aims to transform the existing international airport into a major freight and passenger hub, connecting Nagpur to its central location in India, linking the road and rail network. It is one of the most ongoing investment projects among the ongoing economic development projects in India. The MIHAN Project is a major center for freight transportation from Southeast Asia and West Asia.

The MIHAN project will be spread over an area of 4354 hectares and will include International Hub Airport, Special Economic Zone (SEZ) roads, ROBs. Water supply, sewerage system, entertainment, etc. For this specific and earmarked land will be made available. Under the project, the proposed runway 3600460 m, parallel runway 4000460 m long will be constructed. At the same time, arrangements are being made to land 50 planes at the base and 50 planes at some distance. The construction of various items in a 3lakh square meter area will be completed in phases. Various facilities like a truck (multi axle) parking (1000), truck maintenance, fuel facility, open stockyard, warehousing, cold storage, private godown, etc. will be provided.

The existing 300x45m long runway at Nagpur airport will be extended to 3600x45m. It is capable of handling runway code 4-D type aircraft. Also, 4000 X 60 meters parallel to the existing runway. Length Code 4 - Another new runway capable of handling Type D aircraft is proposed. The existing apron at Nagpur airport is 400 x 153 meters long and has a 24-hour instrumental landing system type. It can accommodate seven aircraft at a time. The extension of the apron of such a scheme is proposed. The existing terminal building at Nagpur Vitantal is 2700 sqm. The area has a handling capacity of 1200 passengers/hour cm of area The construction of the circular terminal building is proposed.

The major part of the SEZ is the Information Technology Park, which will be expanded through a reputed IT company. It will have call centers, data centers, software production houses, animation studios. Some software companies have started work. Since SEZ is an international movement, it will provide various facilities like accommodation, tourism, entertainment to tourists, entrepreneurs and their families, and all concerned.

Research Methodology:

This research depends on secondary data

The Objective of Research:

- To study the contribution of MIHAN (Multi-Modal International Airport Hub, Nagpur) in employment generation of Nagpur district
- To study the government's effort to deal with the unemployment in Nagpur District
- To know the importance of MIHAN for Nagpur district

The Contribution of Industrialization in Employment Generation of Nagpur DistrictThroughMIHAN (Multi-Modal International Airport Hub, Nagpur):

MIHAN means 'Multi-modal International Cargo Hub and Airport at Nagpur' (Multi-modal International Cargo Hub and Airport at Nagpur) is a project to expand the airport of Nagpur, India to equip it with various facilities. At present, it is India's biggest economic development-related project in terms of investment. Nagpur is in the center of India, that is why making this city the cargo hub of India and connecting it to different parts of the country by rail and road is of utmost importance. MADC says that Rs 728.63 crore has been spent so far in setting up the infrastructure and 78.06 percent of the work has been completed. There are two parts to this project. Construction of an international airport that will act as a 'cargo hub' of India. A 'Special Economic Zone' (SEZ) spread over 40.25sq. km has been created at the southern end of Nagpur.

Due to the fame of the Empress Mill and the Model Mill in Old Nagpur, Nagpur became a major trading center for cotton textiles. People from different cities of far-flung and neighbouring states started settling here. Many types of business institutions were created. The business started growing. 100 years ago, the circumference of Nagpur city was limited to a radius of just 3 km, now everyone is familiar with its vast form. Expanding in a radius of about 50 km, this city has got the honour of number 13 in the list of largest cities of the country. If compared with the largest cities of Maharashtra, Nagpur comes after Mumbai and Pune. Nagpur, the third-largest city in the state, has been witnessing rapid growth in the last few decades. Nagpur is also continuously crossing the limits of expansion in the context of population growth.

Given Nagpur's geographical location, the idea was to develop Nagpur for refuelling aircraft instead of Mumbai. Later, the maintenance and repair of the aircraft began to be considered. After this, a plan was prepared to develop a cargo hub. To increase the utility of the freight center, so now the Special Economic Zone has been started.

The MIHAN project being located in the middle of India will be easily connected to all four directions of the country. Since the MIHAN project is being implemented through SEZs, the market value of the manufactured goods will remain affordable. The cost of living for the citizens of this city will be less as compared to other metros. Adequate manpower with specific educational qualifications and skills will be available at affordable rates. Availability of open space at affordable rates, availability of abundant raw material easily from the surrounding area, uninterrupted power supply through proposed power plants, uninterrupted power supply through proposed power plants, banks and postal through efficient management Services, one-stop-shop arrangement, inter-supply, water supply are all benefits of MIHAN.

Due to large industrial investment due to the MIHAN project in Nagpur city, about two lakh jobs can be created. Nagpur Metro needs safe, reliable, affordable, fast passenger transport which contributes to the sustainable development of the environment and environment. In terms of weather, cost, travel time, and energy savings. Nagpur Metro Rail Project covers 38.215 km. The corridor will have 37 stations and two depots. The first route is north-south and has a length of 19.658 km. It will have 18 stations. The second route is east-west and has a length of 18.557 km. And it will have 19 stations. Various types of feeder services will be started from the metro station to reach the end of the region. It will provide shuttle buses, battery-operated vehicles, pedestrians, and bicycles. M. Will happen. The total cost of the metro rail project is estimated at Rs 8680 crore. Under the railway project, the passenger capacity of the train is 764 and the trains will run daily for 19 hours from 5 am to 12 noon. About 1700 people will get employment from this project.

Recognized Special Economic Division (SEZ) is established near Nagpur Airport. Establishment of high-quality infrastructure, basic services, import duty-free levy on capital assets, major raw materials and other taxes, production of finished goods, processing, essential services, matching, trading, repair, and re-packing, under SEZs Easy Tax Assessment. Various labour systems such as friendly labour laws, incentives for the best workers, and special allowances will also be implemented. The MIHAN project will enable 140 lakh passengers and 8.70 lakh tonnes of cargo over the next two decades. By supplementing railway/road freight and air freight, the target of freight movement up to 2.5 million tonnes per annum can be achieved. May ML&T is expected to transport 1400 million passengers and 8.7 million tonnes of cargo by 2030, according to a December 2001 report by the world-renowned Rambalaya organization.

A new SEZ of 2086 hectares, the largest multi-productive economic zone in India, is being built near the airport. Like all special economic zones, it offers financial incentives and a low tax policy to attract investment. The initial installation material and then the raw material for these components are free of charge.

The main section of this Special Economic Zone is the Information Technology Park spread over 500 hectares and includes all the necessary infrastructure for IT companies. Many technology companies like Tata Consultancy Services, HCL Technologies, and Hexaware have started and are expanding. Infosys and Tech Mahindra are preparing their range. The health city is spread over 49 hectares and has multi-specialty hospitals with training institutes for campaigners and medical technicians such as AIIMS, Indo-UK Health Medicity, and National Cancer Institute. The architectural industry would include industries such as textiles and textiles, food processing, pharmaceuticals, and bio-medical. Pharmaceutical company Lupine has been operating here for a long time. Tata Aeronautics Limited has also started operations here. SEZ is a residential area adjacent to SEZ to take advantage of various developments. Many colonies like Mahindra Bloomdale, Shiv Kailasa, and Moraj Township have come up here. DY Patil International School, Delhi Public School, MIHAN Staff teaches children. There are also other recreational facilities such as a golf course, flying club, and multi-cinema complex.

The construction of Air India-Boeing MRO on 50 acres of land purchased from Maharashtra Airport Development Company was expected to be completed by 2012. Since July 2013, the aircraft have begun arriving at Boeing's hangar for maintenance and repair. Since the MRO work is being done in collaboration with Air India, Air India aircraft are the priority at this location.

Under the MIHAN project, an area of about 2000 hectares, adjacent to the existing airport, has been developed in the MADC Superb Special Economic Zone. To develop economic business, it includes the information technology industry, cosmetics and jewelry, textile industry, electronics, pharmaceuticals, food processing industry, industries, and other such industries related to fortune. It has a parking lot with about 900 trucks at a time, a large godown, cold storage, open cattle shed, and an adjacent railway line that can run two trains at the same time.Thus,MIHAN is an airport, road development, railway development, special economic development, and various services related to it. Housing is a joint venture involving healthcare, international schools, and others.

The investment of Special Economic Zones (SEZs) in the next 5 years is around Rs 20,000 crore. Direct employment generation from the MIHAN project is estimated to be around 120,000 jobs by 2025. It is estimated that indirect employment will create around 240,000 to 360,000 jobs in the next 10 years. 800 crore and about 2865 hectares for infrastructure under the MIHAN project. Rs 300 crore has been spent for land acquisition and about Rs 1400 crore for construction of power plant. M / s. (Sinosphere) These companies have started production and export. In 2011-12, about Rs. 70 crore was exported and about 1000 people were provided employment. M/s TAL Manufacturing Solutions has commenced production of floor beams and other parts of Boeing aircraft. The following companies have started manufacturing in Special Economic Zones and the employment generated by them are as follows: Diet Foods International (M/s MRO) - 2200, Mahindra Satyam-60, Lupine Pharma-60, Tata Consultancy (TCS) Mumbai - 500 The district has been given employment.

In the year 2014, the government had promised to employ fifty thousand youth under MIHAN. So far, 54 thousand direct and indirect jobs have been given under this project. Air India gave jobs to 4500 people in MIHAN. Air India, directly and indirectly, gave jobs to 4500 people in Nagpur, HCL has given two and a half thousand and Tata Consultancy Service (TCS) has given employment to 7500 people. Similarly, employment opportunities have been made available with the investment of more than 170 companies. These jobs have come due to the establishment of industries and development projects in Nagpur. A total of 36 407 jobs have been received under the Special Economic Zone (SEZ), a total of 16162 jobs have been received under non-SEZ. At the same time, 2299 people got jobs through Central Facility Building MIHAN SEZ. Further jobs will be available to the people of Nagpur.

Conclusion:

MIHAN is currently India's largest economic development-related project in terms of investment. Nagpur is in the center of India, that is why making this city the cargo hub of India and connecting it to different parts of the country by rail and road is of utmost importance. Considered to be an important step in the chain of taking the country towards industrialization, Maharashtra's huge project Multimodal International Hub and Airport in Nagpur i.e., MIHAN and Special Economic Zone SEZ projects are progressing at a tortoise pace, while industrialization has the potential to generate employment. The dreaming farmers and youth are tired of waiting for it. Even after getting all the facilities from the government, companies are not reaching here as expected. One aspect of both the projects is the resettlement of the farmers here, which has become a noose for the government.

References:

- Adam Szirmai,Socio-Economic Development,CAMBRIDGE (2017)
- V.K. Puri (Author), S. K. Misra,Indian economy,Himalya Publication,39th Revised (2021)
- Datt Or Sundarm, BhartiyaAarthvyevastha, S.Chand Publication,(2020)
- https://www.ukibc.com/wp-content/uploads/2015/10/nagpur_brochure_final.pdf
- https://wiki2.org/en/MIHAN
- https://www.itpi.org.in/uploads/journalfiles/jul8_10.pdf
- https://www.livemint.com/Politics/1JM8Oqb4zmKaIfKAAXQ7JN/Nagpur-cargo-hub-stuck-in-slow-lane.html
- https://www.mihansez.org/Pages/details/mihan-project-at-a-glance
- https://www.nmcnagpur.gov.in/mihan-multi-modal-international-hub-airport-of-nagpur-
- https://nagpur.gov.in/mihan/
- https://www.hrkatha.com/news/mihan-project-created-54000-jobs-more-opportunities-to-come/
- https://npnews24.com/2020/11/30/nagpur-know-how-nitin-gadkaris-dream-project-mihan-project-helped-54000-people-get-jobs/
- https://en.wikipedia.org/wiki/Multi-modal_International_Cargo_Hub_and_Airport_at_Nagpur
- https://www.zeebiz.com/india/news-nitin-gadkari-mihan-project-created-54000-jobs-tcs-hcl-to-air-india-open-hiring-doors-more-to-come-142273
- https://timesofindia.indiatimes.com/city/nagpur/mihan-to-generate-1l-jobs-in-next-2-3-years-gadkari/articleshow/87213426.cms
- https://www.nitnagpur.org/pdf/Metro_Region_DP.pdf

Inclusiveness of Scheduled Castes Entrepreneurs into Entrepreneurship with special reference to role of Dalit Indian Chamber of Commerce in promoting inclusiveness

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Abstract
Inclusiveness fuels Innovation…!

The objective of writing this paper was to study the inclusiveness in entrepreneurship among the scheduled castes entrepreneurs. After going through the literature a gap was identified that a lot of work has been done in promoting entrepreneurship among the depressed classes but no such work was observed which examined the sustainability of the existing entrepreneurs and their existence in the prevailing emerging markets and their inclusiveness in the ecosystem. This paper is an attempt to study the inclusiveness among the scheduled castes entrepreneurs into entrepreneurship and the role played by DICCI through its interventions and through its policies in fostering inclusiveness among the scheduled castes entrepreneurs.

Keywords
DICCI (Dalit Indian Chamber of Commerce), entrepreneurship, inclusiveness, sustainability, Disinvestment Introduction

Ancient Indian dogmas restricted lower castes of Hindus to remain segregated from all walks of social and economical life. The social contract of India guarantees equality of law to all its citizens and this guarantee applies to all aspects of national life-including social and economic. This provision proved to be a tool especially for the up-liftmen of those sections of the population that had suffered deprivation for long periods in history owing to the pernicious caste system. One such section is that of Scheduled Castes. According to the Economic Survey 2017-18, Scheduled Castes constitute 16.6% of the total population of the country (2011 Census) but continue to suffer on account of severe socio-economic deprivation arising out of poor asset base. This section of the population was tagged as untouchables and their survival was merely on residuals.

Based on the affirmative actions taken by the government, this study aims in identifying how inclusive they are in the economic fabric of entrepreneurial ecosystem.

However a lot of steps have been taken in past and many schemes had been drafted to develop entrepreneurship among the depressed classes. But very few or rather I would say, minimal steps have been observed which had examined the sustainability or the inclusiveness aspects of the entrepreneurs who have been created by those schemes. If the schedule caste entrepreneurs are not inclusive then there is no point in going ahead with those schemes. This study is a step in studying the inclusiveness quotient of schedule caste entrepreneurs which will pave the way for their future growth.

Inclusiveness is a feeling of acceptance of one's unique individual characteristic and point of view by members of his or her immediate work group and the industry as a whole. The variables selected to measure the inclusiveness here are, Diversity Climate, Fairness, and Belongingness.

DICCI being the first chamber of commerce for the depressed classes had turned the tables for depressed classes entrepreneurs. By providing a hand holding support in every step to the entrepreneurs, it came as a blessing. This paper made an enquiry into the efforts taken by the chamber in promoting inclusiveness among schedule caste entrepreneurs.

This study was conducted on the entrepreneurs of DICCI Nagpur chapter and examined the role of DICCI in promoting and developing entrepreneurship among the schedule castes entrepreneurs by evaluating the variables like trade fairness, trade belongingness and diversity climate prevailing in the ecosystem and stated its role in making them inclusive into entrepreneurship.

Literature Review

According to Planning Commission in their study entitled "Entrepreneurial Challenges for SC Persons in India- A Research Study".

Bhartiya Shishu Evom Mahila Vividh Vikash Samiti, Government of India, New Delhi. The study revealed that there was a strong need to impart vocational training to the entrepreneurs, who were from the rural areas. Technical knowledge was found missing and that was the main reason that entrepreneurs were not able to survive in the markets.

According to Iyer, L. Khanna, T. Varshney, A. (2011).In their study "Caste and Entrepreneurship in India", Harvard Business School they found that the schedule caste entrepreneurs were not able to develop the business linkages and networks which would have increased their customer base.

Thorat and Sadana(2009) comprehensive evidence from the published Economic Census and National Sample Survey data presents a confirm & continuing inter-caste gaps in ownership of private enterprises.

Deshpande A. and Sharma S, (2013) finds that in terms of caste and gender, disparities are prevailing in all segments of enterprises. The share of SC-ST ownership has declined over the period, SC-ST enterprises tend to be decreasing, more rural than urban, have a greater share of owner-operated (single employee) units. Objectives

As per the review literature, following objectives are taken for the study:

1. To study the fairness experienced in exploitation of market opportunities by scheduled castes entrepreneurs.
2. To study the belongingness experienced in markets by scheduled castes entrepreneurs.
3. To study the diversity climate in markets for scheduled castes entrepreneurs

Hypothesises

The following NULL Hypothesises has been developed in tune with the objectives of the study and was tested:

Ho1: There is a significant negative relationship between fairness experienced by schedule caste entrepreneurs in business and their inclusiveness.

Ho2: There is a significant negative relationship between belongingness by schedule caste entrepreneurs into business and their inclusiveness.

Ho3:There is a significant negative relationship between Diversity in business for schedule caste entrepreneurs and their Inclusiveness.

Methodology

The study is largely based on Descriptive approach. It entails collection of information from primary and secondary sources.

Primary sources:

- Structured Questionnaire will be filled through surveys (Online & Offline).
- Focus Group Discussions
- Schedules

Secondary Sources:

- Scanning Government Reports
- Journals and Record Books etc.
- Community establishments helping SC entrepreneurs working for entrepreneurial development of SCs.
- Books, Magazines
- Company reports

Sample Design:	Non Probability Sampling
Sample Universe:	Entrepreneurs registered with DICCI
Element Sampling Unit:	One Schedule Caste Entrepreneur.
Sampling Techniques:	Convenience sampling
Sample Size:	**30**

Testing Hypotheses

Multiple Regression Results:

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	1
R Square	1
Adjusted R Square	1
Standard Error	1.1652E-16
Observations	30

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	5	15.5	3.875	2.85394E+32	0
Residual	25	3.39443E-31	1.35777E-32		
Total	30	15.5			

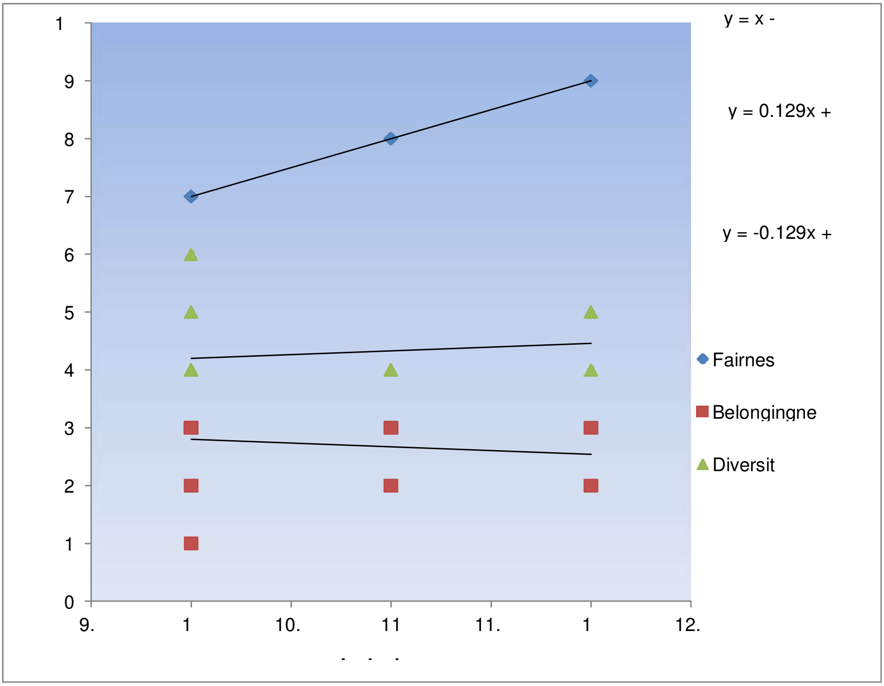
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	3	7.43789E-16	4.0334E+15	3
Fairness	1	3.09954E-17	3.22628E+16	0.0654
Belongingness	-3.6337E-17	4.2992E-17	-0.845204248	0.0876
Diversity	2.7346E-17	4.31515E-17	0.633729654	0.0934
Lower 95%	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*	

3	3	3	3
1	1	1	1
-1.24881E-16	5.2207E-17	-1.249E-16	5.22067E-17
-6.15257E-17	1.1622E-16	-6.153E-17	1.16218E-16
-1.92678E-17	1.811E-16	-1.927E-17	1.811E-16

Test Interpretations:

1. There is a significant positive relationship between fairness experienced and inclusiveness as the P value calculated is higher than the Alpha value (0.0654 >0.05). Hence the Null hypothesis is rejected.
2. There is a significant positive relationship between Belongingness and inclusiveness as the P value is higher than the Alpha value 0.0876> 0.05). Hence the Null hypothesis is rejected.
3. There is a significant positive relationship between diversity and inclusiveness as the P value is higher than the Alpha value (0.0934> 0.05). Hence the Null hypothesis is rejected.

Fig. 1 Showing fairness/belongingness/Diversity



Discussion:

Diversity fuels Innovations; hence we should encourage and welcome new sections from the society who wants to cater the needs of consumers. Every new section of the society which was deprived till now can offer new products and services which were untapped till now. Hence with these results we can say that DICCI has been instrumental in making this happen and is doing a phenomal job in bringing segregated groups into mainstream ecosystem .

Conclusions:

After testing the following hypothesizes from the study following conclusions can be made:

1. After testing it has been found that there is significant positive relationship between fairness experienced by the scheduled castes entrepreneurs in exploiting market opportunities. So we can say that DICCI so far is successful in ensuring fair trade to sc entrepreneurs.
2. Also it has been found that there is a significant positive relationship between DICCI's role in promotion & development of belongingness in entrepreneurship which is making them inclusiveness in entrepreneurship.
3. Also it has been found that there is a significant positive relationship between diversity and inclusiveness in Scheduled Castes entrepreneurships. Diversity fuels innovations sounds correct in this context.

References:

Books:

Collins. J, "*Good to Great and the social sectors*"(2001). William Collins publications, United States.

Dahiwale M. S, "*Emerging Entrepreneurship among scheduled castes of contemporary India: A study of Kolhapur city*". Concept Publishing Company (Dahiwale, 1989)

CharantimathP.M,"*Entrepreneurship Development & Small Business Enterprises*" (2006), Dorling Kindersley (India) pvt.Ltd.

Gupta.A, "*Indian Entrepreneurial Culture*" (2009), New Age International Pvt Ltd Publishers, (New Delhi).

Chatterjee P. and Katznelson I, "Two *banks of Same River? Social Order and Entrepreneurialism in India", Anxieties of Democracy: Tocqueville an Reflections on India and the United States",* (Delhi: Oxford University Press)

Research papers, articles and journals:

1.Iyer, L. Khanna, T. Varshney, A, "*Caste and Entrepreneurship in India*", EPW Economic & Political Weekly ,VolxlvIiI no 6 EPW February 9, 2013

2.Ahmed N. and Hoffman A. "*A Framework for Addressing and Measuring Entrepreneurship*" OECD Statistics working Paper no 2, January 2008

3. Planning Commission, "*Entrepreneurial Challenges for SC Persons in India- A Research Study*". BhartiyaShishuEvomMahilaVividhVikashSamiti, Government of India, New Delhi. (Samiti, 2006)

4.Charantimath P.M , "*Entrepreneurship Development & Small Business Enterprises*"

1.Saxena S, "*Caste and Capital Can't Coexist*", An interview with MilindKamble, The Times of India, October 2

2.Jodhka, Surinder (2010):"*Dalits in Business: Self-Employed Scheduled Castes in Northwest India*", Indian Institute of Dalit Studies Working Paper, 4(2)

3.Challa K. ," *Entrepreneurial Communication Challenges for Dalits in India: A Case study of Visakhapatnam District in Andhra Pradesh"*, IOSR Journal Of Humanities and Social Justice (IOSR-JHSS), Volume 21, Issue 1,Ver.1 (Jan 2016) pp 54-55

4.Raghuram R. and Klapper,Leora,Luc L," *Entry Regulations as a barrier to Entrepreneurship*", Journal of Financial Economies 82(3): pp 591-629

5.Prasad, Chandra Bhan and Kamble M., (2013): "*Manifesto to End Caste: Push Capitalism and Industrialization to Eradicate this Pernicious System*", Times of India,23January(://articles.timesofindia.indiatimes.com/2013-01- 23/editpage/36485155_1_dalit-youth-upper-castes-caste-system)

6.Coad, A and Tamvada, JP. (2012*):"Firm growth and barriers to growth among small firms in India*", Small Business Economics, 39(2): pp 383-400.

7.Thorat, Sukhadeo and NidhiSadana (2009): "*Caste and Ownership of Private Enterprises*", Economic and Political Weekly, XLIV (23): pp 13-16

8.A. Deshpande, S Sharma (2013)," *Entrepreneurship or survival? Caste and gender of small business in India*"Citeseer,working paper no.228, Delhi School of Economics,https://scholar.google.co.in/citations

9.Audretsch D.B, Meyer N.S," Religion, culture and entrepreneurship in India",International Public Affairs Conference, 2009, Indiana, https://scholar.google.co.in/citations

B.Aadhar' **International Peer-Reviewed Indexed Research Journal**

Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A

ISSN : 2278-9308
February, 2022

Liberty And Marriage In "Little Women"

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Abstract-

Feminist coming of age novel shows us the inner side of the female persona. Louisa May Alcott's novels cover the same. Other than being just an object of beauty, being a soul mate and binary in the society, Louisa May Alcott gives a deep understanding of female essence where she does not wants only to be an ornament for the society but to prove herself worthy in every situation life throws. 'Little Women' is a beautiful story of four sisters who want to explore their liberty and prove their worth before getting married and Alcott has shown us how the institution of marriage was out there in the Gilded Age of America.

Born in the transcendental age Louisa May Alcott's novels revolve around feminism, adult fiction, and social justice. Due to her intricate health problems throughout her life, Louisa May Alcott found solace in literature which stimulated her to inscribe. Her works mainly focus on the female side and their emancipation from chauvinism. Her fulgurous presence can be seen in the women's suffrage movement which was gaining its pace in America at that time.

Semi-autobiographical and bildungsroman in nature, Louisa May Alcott's "LITTLE WOMEN" can be seen as a perfect example of feminist literature in the Gilded Age of America. The American feminist movement gained its strength during this time and the radical thoughts of feminism can be seen in 'LITTLE WOMEN' through the eyes of the March sisters. It stresses how women and the institution of marriage were out there in the society and how the central character 'Jo' rejects the old traditional status of marriage which was seen as an economic proposition in the Gilded Age of America and how she goes on to carve a name for herself in the American patriarchal society.

"LITTLE WOMEN" opens in the aftermath of the American civil war, where the man of the March family Mr. March is serving as a chaplain who represents the whole male community's involvement in the war leaving the household to the females of the family. The novel is loosely based on the lives of March's sisters.

Margaret 'Meg' March- The eldest March sister. She is beautiful and a skillful actor.

Josephine "Jo" March- Rebellious, tomboyish, full of writerly ambitions and wants the world to remember her as an author. Her only beauty asset is her thick brown hair which she sells as the family is in need of money and this incident shows a woman's utility and her ardor to prove herself. Elizabeth "Beth" March – Small, delicate, and has great command over piano but unfortunately in the end dies of scarlet fever. Amy March – The youngest sister who is often called "a regular snow maiden". She often boasts about her tiny, delicate, and perfect feet. Her only aim is to be a great painter or nothing.

The central figure can be seen as Jo. The character of Jo is said to be based on Louisa May Alcott herself. Jo is the outspoken tomboy who rejects the traditional notion of marriage for her aesthetic career. On the other hand, Aunt March insists the sisters to marry well, someone wealthy who can keep their family afloat. Aunt March calls Jo "a lost cause" as she does not want to get married just for the sake of good fortune and a life of security. Jo meets Theodere "Laurie" Lawrence, a wealthy and spoiled brat who falls ardently in love with her. He spends most of his time with the March sisters to get close to Jo but she is busy building her artistic career in writing and declares that she is not meant for marriage as she is in love with her liberty way too much and is not willing to give it up. It was obvious that Jo and Laurie would end up together but after this heart-breaking incident Jo moves to New York to support the family expenses and there she meets the unromantic German professor Friedrich Bhaer. In New York, Jo sells her stories anonymously as it was considered inappropriate for women to write.

Amy who is with Aunt March in Paris gets engaged to wealthy Fred Vaughn on the insistence of Aunt March though she is secretly in love with Laurie. Here the character of Aunt March is quite bizarre who thinks marrying a wealthy man is the only modus operandi for women to gain good fortune. Such nature of Aunt March counts that in the gilded age marriage was only seen as an economic proposition where the female was only seen as an object of beauty and the property of her husband where everything would belong to the husband including her children.

Mrs. March on the contrary lets her daughters decide about their future and wealth. She states,"I am not ambitious for a splendid fortune, or fashionable position or a great name for my girls. If rank and money come with love and virtue also, I should accept them gratefully and enjoy your great fortune, but I know my experience, how much genuine happiness can be had in a plain little house, where the daily bread is earned, and some privations give sweetness to the few pleasures."

Feminists like Louisa May Alcott question the convictions regarding the status of women in society. How women were supposed to behave?, What was their position in society than merely being an object of love? What other roles they were to handle?. Louisa May Alcott has presented some explicit feminist passages dealing with the position of women in the gilded age. Jo expresses her deep down rumination in the following lines –

"I just feel like women, they have minds and they have souls as well as just hearts, and they've got talent as well as just beauty and I am so sick of people saying that love is all a women fit for."

In the above lines, Louisa May Alcott has overt the idea of women's usefulness which stretches beyond the sphere of heart and home and this is most evident when Jo goes on to forge a name for herself as an author. Jo enjoyed the taste of satisfaction and great comfort in knowledge and her work where she could support her own wants and need not ask anyone for a penny. She went beyond the realm of being just an ordinary American girl in society to follow her passion by rejecting the patriarchal society.

In the climax scene, Professor Bhaer proposes to Jo, eventually leading to their marriage and five years later the couple can be seen running a school in Aunt March's house which Jo inherits after her death. In the meantime, Jo also gets her own book published based on the very lives of the March sisters. "Little Women" ends on a happy note where all three March sisters are happily married but also continues to follow their respective passion.

Here Jo can be seen as a perfect example of an ideal woman in our modern era who strives for her own identity and liberty as well as rejects the old traditional roles of women in society. Louisa May Alcott has exhibited a breath-taking view of female power, talent, and maverick through the characters of the March sisters especially the protagonist Jo March.

References-

Little Women Introduction, Penguin Classics, 1989. ISBN 0-14-039069-3
https://www.grin.com/document/512678
https://www.theatlantic.com/ideas/archive/2020/01/little-womens-real-feminist-problem/604429/

B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Patriarchy And It's Setup In The Novels Of Nuruddin Farah: An Overview

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The status of African womanhood, though not given much consideration in critical evaluations of African literature until recent years. But, in recent times, it is one of the subjects which often finds its way into the writings of both male and female authors.

Nuruddin Farah, one of the African male writers who portrayed African womanhood in his novels. He is an African male writer who does not dabble in stereotypes of African womanhood but portrays women as independent individuals. He frequently raises women from secondary roles and makes them the primary focus of his concern.

The female characters are classified in his novels on the basis of their role, as the traditional Somali woman who symbolizes what is the status of women in Somalia; the transitional Somali woman who symbolizes what becoming the status of women in Somalia; the liberated modern Somali woman who symbolizes what should be the status of women in Somalia; and the modern Western woman who, because of her Western values and liaisons with Somali males, serves as a contrast to the Somali woman in every classification.

Farah, in his fictional work, questions the cultural practices that rob women of their equal rights in respect to the privileges, status, and rights that men retain in Somali society. He invites us to criticize the patriarchal ideology that allows heinous practices such as female genital mutilation, forced marriage, and polygamous marriage, practices which destroy women's lives and damage their dignity. According to Fatima Moolla, a specialist in African literature and orature, *From a Crooked Rib* is considered the first African novel by a male author to highlight the experience of women from a woman's perspective (Moolla) Dahabo Farah argues that when a boy is born to a nomadic Somali couple, they display their pleasure and pride in the new-born baby, while the opposite is true when it comes to the birth of a girl. The reason, she claims, is that a girl could dishonour the family at any moment if she, for instance, performs a sexual act before marriage, a judgement that does not apply to boys (D. Farah 338). This means that women in Somali society are unfavourably treated from their very first three days in the world. As girls, they are confined to the home sphere throughout their childhood to be programmed in the patriarchal ideology by their mothers. They learn from them how to behave well and how to become good wives for their future husbands; and, as adults, they become an unpaid workforce who own nothing but are owned themselves by their families before marriage and by their husbands after marriage (D. Farah).

Nuruddin Farah was born in 1945 in Baidoa, a small town in Southwest Somalia, which was then a part of what was known as Italian Somaliland and brought up in Kallafo, a small town in the Western Somali territory of Ogaden under Ethiopian rule. He took his primary education in Amharic and Arabic languages, secondary in the Italian language and for higher education he went to several universities abroad. At Punjab University, Chandigarh he did a B. A. in English Literature & Philosophy in 1970. He works as a clerk typist in the ministry of education then as a school teacher and lecturer at various Universities. At the age of 20, he wrote his first book *Why Dead So Soon?* a novella in the Somali language. He wrote many books at Punjab University and his *Doctor and Physicist,* a revue broadcast on All India Radio in 1968. He wrote two novels in the same year but did not get published. He completed the manuscript of his third novel in 1968 that became his first English novel entitled *From a Crooked Rib* (1970) that deals with the uneducated eighteen years old maid Ebla who runs away from her nomadic family to avoid her arranged marriage. *A Naked Needle* (1976) is a second novel that deals with man women relationship. His trilogy *The Variation on the Theme of an African Dictatorship* consists *Sweet and Sour Milk* (1979) *Sardines* (1981) and *Close Sesame* (1983). His second trilogy entitled *Blood in the Son* consists *Maps* (1986), *Gifts* (1992) and *Secrets* (1998). The third trilogy is *Past Imperfect Trilogy* that consists *Links* (2003) *Knots* (2006) and *Crossbones* (2011). His recent novels are *Hiding in Plain Sight* (2014) and *North of Dawn* (2018).

Farah's feminist attitudes have given him the title of "Africa's first feminist male writer" (Kirsten Hoist Petersen). Indeed, Farah is well aware of his feminist attitudes; he states in his essay "*A View of Home from the Outside*" that he is interested in those denied their rights, be it women or men, and the struggle behind it (Okonkwo). Eventually, the women in Farah's fiction become instruments to reconstruct Somalia and reshape society by giving a new meaning to womanhood. In his fiction, women's struggle for freedom and for the right to voice themselves become an allegory for a nation in search of its voice. New womanhood becomes interchangeable with a new Somalia, and eventually, Somalia becomes once more the mother, as opposed to its status as a father-land in a dictatorial system.

This research paper focus on Farah's feminist perspective by providing the examples of his work. The first novel *From Crooked Rib (1970)* that deals with female protagonist Ebla and her futile effort to be free from the violence of patriarchy. It also highlights the ordeal of Somali women and the multiple problems that they face. The next novel is *Sardines*, a part of the Dictatorship Trilogy. The female protagonist of this novel is Medina, the contrapuntal intellectual whose secular activism and radical voice can be seen as a form of multilingual and humanist opposition against the Somali regime. The dogmatic state of Islamic fundamentalism, and all forms of dogmatic hegemonies are focused on in the study by voicing the female protagonist. The protagonist of *Gifts* is Duniya, a middle-aged nurse in Mogadiscio, the capital of Somalia, who is struggling to bring up her teenage son and daughters.

Cambara, the protagonist of *Knot* is a martial arts expert, twice married in her adopted Toronto to Zaak and Wardi. She returns to Somalia the country of her birth after about fifteen years to reclaim her family's property in Mogadiscio from a minor warlord who lives in it in the conflict-ridden and clan-divided city. Cambara has also returned to be able to create physical and emotional distance from Canada from her estranged husband who she blames for the death of their son, Dalmar; Cambara needs space to grieve for her son. The two missions—repossessing family property and mourning her son bring her into direct interaction with some aspects of the Somalia war that has been going on for twelve years.

Through the character of Cambara researcher wants to show the feminist tone of Farah by focusing on Cambara's stance against Zaak, Wardi, Gudcur, and all patriarchal structures.

Bella, the protagonist of *Hiding in a Plain Sight* (2014), a fashion photographer living in Rome, learns of her beloved half-brother's murder, she travels to Nairobi to care for her niece and nephew. But when their mother resurfaces, reasserting her maternal rights and bringing with her a gale of chaos and confusion that mirrors the deepening political instability in the region, Bella must decide how far she will go to obey the call of sisterly responsibility. A departure in theme and setting, *Hiding in Plain Sight* is a profound exploration of the tensions between liberty and obligation, how gender and sexual orientation define us, and the unintended consequences of the secrets we keep.

Through all these protagonists' I tried to highlight the intellectual capability of third world women to deals with patriarchal problems.

References:

Farah, Nuruddin. *From a Crooked Rib*. London: Heinemann, 1970.
- - -. *Naked Needle.* Pearson Education Ltd, 1976.
- - -. *Sardines.* London: Allison & Busby, 1981.
- - -. Gifts. London: Serif, 1993.
- - -. *Knots*. New York: Riverhead Books, 2007.
- - -. *North of Dawn*. New York: Riverhead Books, 2018.
Wright, Derek. *The Novels of Nuruddin Farah*. Beyreuth: EckhardBeitinger, Beyreuth University, 1994
Moolla, Fatima Fiona. *Reading Nuruddin Farah: The Individual, the Novel and the Idea of Home*. Boydell & Brewer, James Currey, 2014.
Sparrow, Fiona. *Telling the Story yet Again: Oral Tradition in Nuruddin Farah's Fiction*. Journal of Commonwealth Literature Vol. 24, 1(1989).
Mohanty, Chandra Talpade. *Feminism without Borders: Decolonizing Theory, Practicing Solidarity*. Durham: Duke University Press, 2003.

. Human Resource Management: A Theoretical Perspectives

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Abstract: The present paper aims at theorizing the basic concept of Human Resource management in the context of its development stage. It is also attempted to gauge the avenues of recurring challenges in the rapid changing scenario of business management under the impact of modernization and globalization. The modern trade, in the larger, context has been shifted to the ownership of corporate sector and entrepreneur enterprises. Accordingly the development of Human Resource management is influenced by many new factors such as corporate restructuring of business, new organizational designs, emphasis on total quality management, changing job profile, changing workforce profile, increasing role of working women and role of woman employees. The skill component is also a significant element affecting Human resource management.

Keywords:deployment Human Resource, globalization, entrepreneurship, establishment,

Introduction

The establishment requires a variety of resources to produce a fixed product or marketable goods. Land, financial capital, machinery, raw materials and manpower are roughly five resources. In the present research, the researcher has done research work in line of reviewing the concept of Human Resource Development in the light of modern day, unprecedented development in every walk of life. Different scholars have attempted a defination of Human Resource. Leon C. Megginsoon defines human resources as follows. "From a national point of view, human resource means knowledge, skills, creativity, ability, intelligence and a positive outlook; similarly from the point of view of an individual entrepreneur." (Leon 256) We need manpower of different abilities to carry out our various tasks. They are categorized according to the work they are carrying out, e.g. production department, marketing department, finance department, procurement department.

Research Methodology:-

The research is of descriptive type which is purely based on secondary data which is collected from mass media sources like newspapaer.news.articles and internet.

Objectives of the study:-

1.To study the Human resources management.
2.To study the functions of Human resource management,

Human Resources Management

Human resources are the most important and essential support of an organization. Wiki, advertising, financial balance sheets. Many tasks like registration etc. cannot be done without manpower. Manpower resources in new establishments is viewed from the perspective of a creative energy source that works to mobilize resources other than human resources and hence the importance of human resources.

Human resource management is a pragmatic approach to managing the manpower in an establishment. The main objective in managing the manpower is to ensure that the workers / employees working in the establishment do the work assigned to them in the job to their full potential and at the same time develop them personally. Human resource management seeks to contribute to the development of both the establishment and the manpower by being consistent with the goals and policies of the establishment and socially and mentally integrated with the manpower. Therefore, human resource management is seen as an intimate link between management and workers, not just administrative matters.

From study point of view, the human resource management is part of the discipline of management. The four basic methods of Human Resource management includes planning, organization, direction and regulation to achieve the objectives of the organization by recruiting, developing and maintaining the manpower in the human resource management establishment. Human resource management is an ongoing process. According to George R. Terry, the human resource management process is not about turning on or off tap water or 1 hour a day for one day a week. Human resource management is related to the existing manpower in the establishment as well as the manpower that will be useful to the future establishment. (Terry 256) Human resource management has an important role to play in finding the right people for the establishment and bringing them into your establishment. Real human resource management is a management tool that supplies the establishment with the best manpower from the workers to the top managers.

A role to play in the proper and efficient utilization of selected human resources and the proper use of tools and techniques in human resource management functions as a guideline for the establishment while achieving policy objectives. While it is true that establishments have different departments and each department has different people and different objectives, such different departments and people depend on others for their work. Human resource management plays a vital role in achieving the objectives of the establishment by all the manpower in an organized manner by maintaining a good correlation between the different departments of manpower and their functions.

The current scenario :

The systematic study of the concept of human resource development began in the field of management in the early 20th century. Human resource management can be defined as follows. Human resource management is a pragmatic approach to managing the manpower in an establishment. The main objective in managing the workforce is to ensure that the workers / employees working in the establishment do the work assigned to them to the fullest extent possible and at the same time develop them personally. Human resource management seeks to contribute to the development of both the establishment and the manpower by being consistent with the goals and policies of the establishment and socially and mentally integrated with the manpower. Therefore, human resource management is seen as an intimate link between management and workers, not just administrative space.

Main Functions of Human Resource Management

Human resource management is an activity that acts as a method in the context of establishment. That is, it is a management approach in the context of an organization, but human resource management has its own contextual identity. Combining organizational context and human resource management helps us understand the method of human resource management and where it helps to understand what its functions are. The objectives of human resource management are as follows.

1. Attracting manpower in the establishment.
2. To motivate the manpower for best performance and to motivate and develop them for the same.
3. To ensure that the human resources in the establishment remain an integral part of the establishment.
4. Manpower recruitment
5. Human resource development
6. Employee evaluation and compensation
7. Supplement for employees and commitment to their maintenance.
8. Maintaining industrial correlation.

Emerging Challenges :

The last decade of the 20th century saw dramatic changes in business management practices globally. Its repercussions were felt in India as well. These changes have left entrepreneurs facing many challenges in adopting new strategies in business management. Human resource management has a key role to play in managing people in the workplace and thus brought human resource management to meet the changes and challenges posed by the open economy and globalization. Objectives were forced to implement a further 128 effectively. The following emerging trends at the global and Indian levels have a profound effect on human resource management practices.

1. Globalization of economy
2. Corporate restructuring of business
3. New organizational designs.
4. Emphasis on total quality management
5. Special importance to Kaizen system
6. Changing job profile
7. Changing workforce profile
8. Increasing role of working women role of woman employees.
9. Special importance to knowledge management

Globalization of economy is a challenge nowadays in the path of development and management of Human resources. The borders of countries are limited to political affairs and economic matters have never been crossed. The classification of the market is not based on national standards but on international standards. Due to globalization, many international bad products have come to India and the IT sector in India has spread its wings across the national border in the international market. Human resource management has a big responsibility as they have to have in-depth knowledge about the manpower, their skills, their culture, the way they work, etc. In the same way, personal attention has to be paid to the personal needs of the people e.g. Housing needs, health, education, entertainmentetc.

Business Restructuring

Business restructuring is a relatively new technique. In this, entrepreneurs reorganize their entire business in line with the core strengths of their business which is the core of the core. Business restructuring involves getting out of the less important or weaker side of your business or selling that business or industry. At the time when such developments take place, there is a state of panic in the business manpower. Can your job be gone? Can wages be reduced? Do I have to relocate or relocate? Etc. The fear of nature arises in their minds. This is where manpower resource management has to focus on satisfying and trusting their human resources so that people don't quit their jobs. The organization's new blueprint for today's reshuffle of manpower in the business is based on departmental responsibilities, authority, location in the establishment, skills, adaptation and adaptation to modern human resource-based human resources. Restructuring is done in the direction of bringing. Instead of a straightforward system of authority in management, each person is delegated authority according to his or her responsibilities.

In short, this can be called decentralization of power. Human Resource Management thus requires to make a careful effort to redesign the organization and increase its responsibility. Special importance to overall quality management Globalization has created a need for high quality in both the manufacturing and service sectors. High quality is used to impress on the mind of the customer how your product or service is superior to your competitor as the customer has a large selection in the market. The Indian Institute of Statistics defines overall quality management as follows.Overall quality management is the company's approach adopted by the organization to ensure that the work of the customer and all the employees will be of high quality to meet its expectations. To strive for that goal is to adopt the right method of problem solving to achieve the goal.

Change in the nature of the total workers

Due to the change in the nature of work, it is natural that the nature of the workers also changes. In the old days, the working class was uneducated and trained in any kind of technology. Once in the establishment, they used to be trained according to the needs of the company and today the situation has changed completely. Today's worker is well educated and trained in modern technology and then comes to work. At the same time, the expectations of these relatively young workers are high. Similarly, younger officers are being recruited in the officer class as well. Such young manpower is constantly looking for new jobs with the expectation of higher salaries, so the big challenge for human resource management is to keep the experienced and trained manpower out and prevent it by adopting various measures. **Growing Role of Working Women**

Globalization and free market system have raised the standard of living of men and as such a rising standard of living cannot meet the needs of one member of the family, women in the family have also been deprived of employment. The role of women in management and non-management is becoming more and more important as the impact of women's education has increased. Some companies in India have implemented separate recruitment programs for women only. The former president of Hindustan Lever had announced in 2005 that Hindustan Lever's companies would have about 20 per cent women in the management sector in the next five years. Thus the number of female employees is increasing worldwide, female employees are facing their own unique problems. Women have to take care of household responsibilities along with their personal careers. When children are young, female employees are under a lot of stress and they cannot deal with these issues alone. Another important issue is sexual harassment of women in the workplace. The human resource management department has to look at the issue of female employees very sensitively. If possible, the husband and wife need to get a job in the same organization or at least in a village. Human resource management has the primary responsibility to ensure that women workers are not sexually harassed and that they do so as soon as possible.

ISSN : 2278-9308
February, 2022

Importance to Knowledge Management

In many establishments, human resource management has come to be referred to as knowledge resource. The main reason for this is that knowledge is very important in today's economy. The economy is divided into two parts. In order for the old economy and the new or knowledge-based economy to survive in the current competitive environment in the global market, businesses need to be identified with the knowledge in their organization and entrepreneurs need to consider their organization as a resource by managing smart and intelligent manpower.

Conclusion

The concept of human resource management and development is needed to studied at a theoretical level, in addition to adoption of practical approach. After getting detailed information about the nature of resources in the industry, what is the meaning of human resource, its importance as well as its management, what exactly is the concept and its function becomes clear. The above discussion of how the human resource management process has evolved, all the stages in the human resource management process have been proved a big asset of support to the authority. The above discussion has provided an in-depth look at the workings of human resource management and discusses how it works. It answered the issues like what is the current Indian framework for human resource management. Likewise the complete information about the whole nature and concept of human resources has a suggestive value.

References:

- Frederick W. Taylor. *Scientific Management.* New York Harper, 1911.
- Leon C.Megginsoon, *Personnel and Human Resource Administration*, Homewood Ill Richard D.lrrwin, 1982.
- George R.Terry. *Principles of Management.* Homewood, Ill Richard D.Irwin, 1988.
- Pat Loery. (1909) "Personnel Management", Plus, December 1909.
- Michal Armstrong (1987) Human Resource Management - A Case of the Emperor's New Clothes", Personnel Management, August 1987.

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B.Aadhar' International Peer-Reviewed Indexed Research Journal
Impact Factor -(SJIF) –8.572 Issue NO, 337(CCCXXXVII) A
ISSN : 2278-9308
February, 2022

Cryptocurrency and Digital Assets

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Abstract:
our daily lifehave been merged online and they become more flexible and more effective. A huge growth in number of online users has activated virtual word concepts and created a new business phenomenon which is cryptocurrency to facilitate the financial activities such as buying, selling and trading. The use of virtual currency has become widespread in many different systems in recent years. Virtual money is not fully controlled and regulated hence most of the countries have not admitted this currency in their economic activities. This paper investigates about cryptocurrency present legality as well as future government moves impact on these currencies. The paper also analyses investment risks in both Bitcoin and Gold countries have responded in terms of regulations & legislations towards crypto currencies to develop a clear picture of its impact on various laws in India in order to regulate it".
Key Words: Bitcoin, Cryptocurrency, Challenges in Cryptocurrency, Government future move on Cryptocurrency, Uses of Cryptocurrency.

The objective of study:
1.To understand the concept of Bitcoin and it's functioning in regular trading.
2.To know legality and trading of Bitcoin in India.
3.To compare investment risk in between Bitcoin and gold

Introduction:
Today's economies are all money economies, because all economies have accepted certain currencies (money) as medium of exchange. The money supply causes inflation as well as deflation in economies by its excess supply and contraction in money supply, hence currencies of different countries regulated by government in order to combat inflation or deflation situations. Now a day's many countries in the world have focusing towards digital currency and transactions. Even some one doesn't want to regulate their currencies and transactions. this brought greater innovation in new currency that is crypto currency, One of the most advanced, ambiguities, regulation free currency. In this article I made an attempt to study regarding crypto currency and its development and transactions in India.Bitcoin cryptocurrency. It is a decentralized digital currency without a central bank or single administrator that can be sent from user to user on the peer-to-peer Bitcoin network without the need for intermediaries. Transactions are verified by network nodes through cryptography and recorded in a public distributed
ledger called a block chain. Bitcoin was invented in 2008 by an unknown person or roup of people using the name Satoshi Nakamoto and started in 2009when its source code was released as open-source software. Bitcoins are created as a reward for a process known as mining. They can be exchanged for other currencies, products, and services. Research produced by University of Cambridge estimates that in 2017, there were 2.9 to 5.8 million unique users using a cryptocurrency wallet, most of them using Bitcoin.

Research and Methodology :
Researcher have been selected analytical research methodology for the this study. To satisfy the objectives of the research, researcher used secondary data from various publications by financial websites, government of India, journals, news papers, books and magazines etc…..
digital currency is nothing but the digital representation of the physical currency of a country. Digital currency can be used for transactions and all other utilities that normally would be carried out using physical currency. They are regulated by the government and can be used through debit/credit cards or online payment.

2.virtual currency :
Virtual currency is neither issued by the government nor is it regulated by the government. Virtual currencies can be used for transaction in apps and games and are issued by the developers. They do not

hold any real value and can only be used digitally, i.e, they cannot be converted to fiat currency (digital or physical form). Virtual currency and digital currency is used interchangeably, but the difference in the two is clear from the motioned fact.

Cryptocurrency: Crypto currencies are not regulated by any authorities and are a decentralized form of currency. They are created using cryptography which makes it even more secure as double spending can be avoided. Moreover, there are no intermediaries so they can be directly transferred to the receiver in their digital wallet.

How Dose Bitcoin Works ?

Each Bitcoin is basically a computer file which is stored in a 'digital wallet' app on a smart phone or computer. People can send Bitcoins (or part of one) to your digital wallet, and you can send Bitcoins to other people. Every single transaction is recorded in a public list called the blockchain

Conclusion:

Cryptocurrency seems to have move past the early adoption phase that new technologies experience. Even motor vehicles experienced this phenomenon. Bitcoin has begun to carve itself a niche market, which could help advance cryptocurrencies further into becoming mainstream; or be the main cause of it failing. Cryptocurrencies are still in their infancy, and it is difficult to see if they will ever find true mainstream presence in world markets.

Suggestion:

Cryptocurrency can serve as a great tool from the financial point of view.

¬ As the study reveals that, there are some firms accepting Bitcoin, the investigation has begun about the transparency, business module of those firms and the people who deal with Bitcoin.

¬ Legalisation of cryptocurrency can take the Indians and India as a nation at a platform which promises progressive growth.

REFERENCES

www.rbi.org.in.
www.buyBitcoinworldwide.com.
www.Bitcoinprice.com
www.bbc.co.uk.com.
www.yahoofinance.com'
www.walletinvestors

Peer Reviewed Journal for M.Phil., Ph.D. & Appointment of Teacher in Universities & College

ISSN : 2454-4655 VOLUME - 8 No. : 1, Feb. - 2022

International Journal of Social Science & Management Studies

Peer Reviewed & Refereed Journal

Indexing & Impact Factor 5.2

International Journal of Social Science & Management Studies

IJSSMS ISSN:2454-4655 In Hindi or English

International Journal of Social Science & Management Studies

M/s Ninai Agro Privet Limited, District Satara & Its Working Capital

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Abstract :- Management of working capital is related with the difficulties that arise in attempting to manage current assets, current liabilities and the interrelationship that exists between them. This paper tries to make an attempt to study the working capital, components of working capital that is liquidity of **M/s Ninai Agro Privet Limited, District Satara.**

The research paper also efforts to study the correlation between liquidity of **NAPLDS** fertilize unit. The study is bases on secondary data only which was collected from annual report of this fertilizer unit for the period of 5 years on website of ministry of company affair of India. In this paper, an application of correlation analysis for identity the significant of working capital management and it include the current ratio and quick ratio on the quiddity positon of **NAPLDS** fertilizer unit.

Key Words :- NAPLDS, Working Capital Management, Objectives, Hypothesis, Data Collection, Limitation, NWC, Current Ratio, Liquid Ratio, Findings, Suggestion and Conclusion.

Introduction :- M/s Ninai Agro Privet Limited, District Satara (NAPLDS) and study of its working capital is major significance of internal & external analysis because of its relationship with the current day to day operations of business. Funds are collected from different sources and it invested in the business for the acquisition of assets. These assets are employed for earning revenue. The basic problem facing the finance manager of an enterprise is to trade-off between conflicting but equally important goals of liquidity and profitability and vice versa.

Need of Study :-

1. To study the need of maintain sufficient working capital of fertilizer units.
2. To check balance between liquidity and short term.

Objectives of the Study :-

1) To study the position of working capital of selected fertilizer units.
2) To make suggestions for the better working capital management of fertilizer units.

Hypothesis :-

H0: Insufficient working capital has adverse affected in the liquidity of fertilizer units under study.

H1: Insufficient working capital has not effecting in the liquidity of fertilizer units under study.

Period of Study :- The present study is undertaken for the period of five accounting year starting from 2012-2013 to 2016-2017. The researcher has selected 2012-2013 as **base year** for the purpose of analysis and evolution.

Data Collection :- Researcher has used **secondary data as main sources** for the presented research study. Annual accounting reports such as Income Statement and Position Statement are collected form website of Ministry of Corporate Affairs (MCA), Maharashtra Reginal Division, of Government of India.

Limitation of the Study :-

1. The study is limited to five year only.
2. Ratio analysis has its own limitations.
3. This study is based on only secondary data of fertilizer units.

Net Working Capital (NWC) :- The net working capital is qualitative that indicating the fertilizer units were ability to meet its operation expenses and currents liability. The term net working capital refers to the difference between current assets and current liabilities.

Net Working Capital = Current Assets – Current Liabilities

Current Assets : Cash balance + Banks Balance + short term Marketable Securitas + Sundry Debtors + Bill Receivables + Inventory + Prepaid Expenses + Short Term Loan and advances + Notes etc.

Current Liabilities : Sundry Creditors + Bill Payable + Outstanding Expenses + Short Term Loans + Short Term Borrowings + Dividend Payable + Provisions + Any Short Term Dues etc.

The following statistical table no. 1 and graph no. 2 shows that the amount of **Net Working Capital of M/s Ninai Agro Privet Limited, District Satara** for selected financial years. The total of five years NWC was Rs. **-53,15,471**, AM of NWC was Rs. -**10,63,094**, SD was Rs. **20,15,241** and CV it was -1.90%.

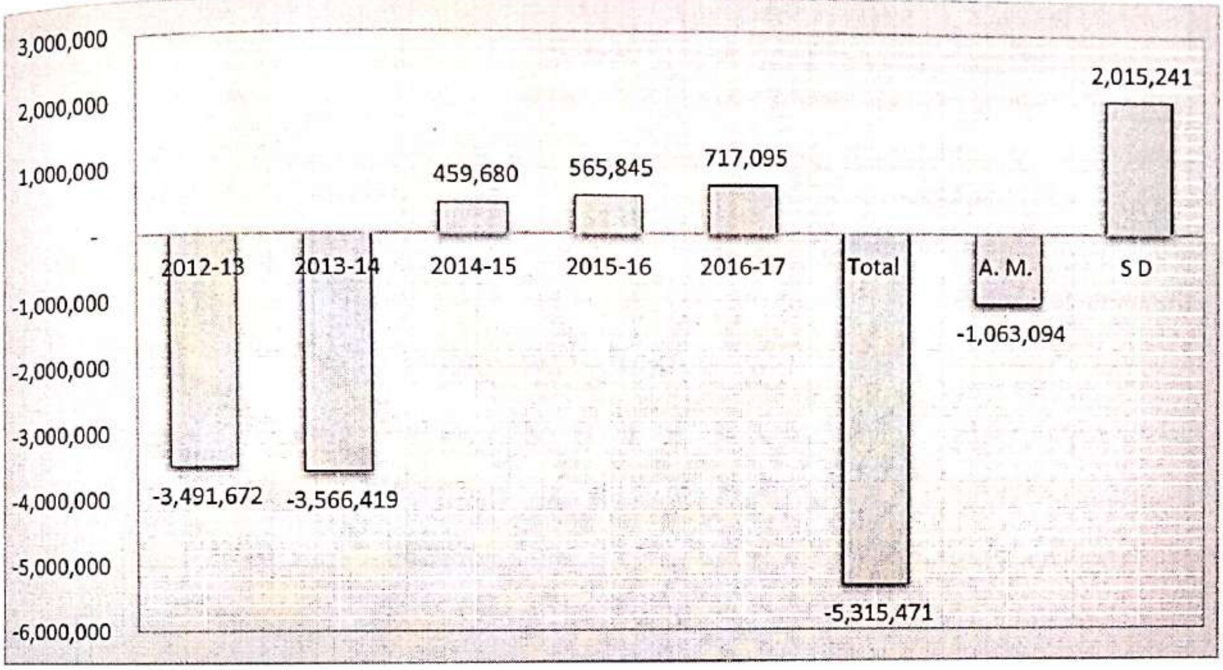
Table No. – 1

Net Working Capital of NAPLDS

12. F U (Satara D - 1)	Ninai Agro Pvt. Ltd.			Last 5 Years Figures	
Particulars	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**
A) Current Assets					
1. Current Investment	-	-	-	-	-
2. Inventories	24,69,919	17,90,984	23,75,330	42,20,219	45,28,414
3. Trade Receivables	38,73,557	44,82,530	57,17,188	48,08,943	41,47,953
4. Cash & Cash Equipment	3,05,603	2,03,277	9,40,498	3,77,889	1,62,971
5. Short Term Lone & Adv.	-	-	-	-	-
6. Other Current Assets	-	-	-	-	-
Total A)	**66,49,079**	**64,76,791**	**90,33,016**	**94,07,051**	**88,39,338**
B) Currents Liabilities					
1. Short Term Borrowings	76,48,972	77,94,981	67,61,340	63,85,167	58,16,853
2. Trade Payables	14,14,875	13,55,521	10,76,584	14,70,825	11,56,481
3. Short Term Provision	80,000	1,65,241	2,201	2,201	2,201
4. Other Current Liabilities	9,96,904	7,27,467	7,33,211	9,83,013	11,46,708
Total B)	**101,40,751**	**1,00,43,210**	**85,73,336**	**88,41,206**	**81,22,243**
Net Working Capital (A-B)	**-34,91,672**	**-35,66,419**	**4,59,680**	**5,65,845**	**7,17,095**
Total of Last 5 Years Net Working Capital		**-53,15,471**			
Arithmetical mean (A M)		**-10,63,094**			
Standard Derivation (S D)		**20,15,241**			
Coefficient of Variance (C V)		**-1.90**			

Chart No. – 2

Net Working Capital of NAPLDS



The chart shows that the bars of net working capital of **NAPLDS**. First two financial years the net working capital was minus and next three years it was positive. In financial year 2016-2017 the NWC was high and in 2013-2014 NWC low and minus as compare to other financial years. The bars of NWC are shown as non-uniformity. There was no any short-term investment, short term loan & advances and other current assets. **The net working capital was unsatisfactory in first two year there after it became positive in next three years.**

Current Ratio (CR) :- The current ratio also knows as current assets ratio and working capital ratio. This ratio expresses the relationship between current assets and current liabilities. The current ratio is calculated by dividing the current assets by current liabilities. Thus can be expressed as pure number or percentage ratio. And the idea current ratio id 2:1. The formulas of current ratio is follows:

Current Ratio = Current Assets / Current Liabilities

Higher Current Ratio:

Higher current ratio than the standard indicates that, an organisation is doing under trading and having over capitalization situation. It also indicates its short-term solvency position is satisfactory.

Lower Current Ratio : Lower current ratio than the standard indicates that, an organisation is doing over trading and having under capitalization situation. It also indicates its short-term solvency position is unsatisfactory.

The following table no. 3 and diagram no. 4 has reveal current ratio of **M/s Ninai Agro Privet Limited, District Satara**. The current ratio in financial year 2012-2013 was 0.66, in 2013-14 was 0.64, in 2014-2015 was 1.05, in 2015 - 2016 was 1.06 and in 2016-2017 was 1.09. Total of current ratio in five years was 4.51, arithmetic mean was 0.90, standard derivation was 0.21 and coefficient variance was 22.78%.

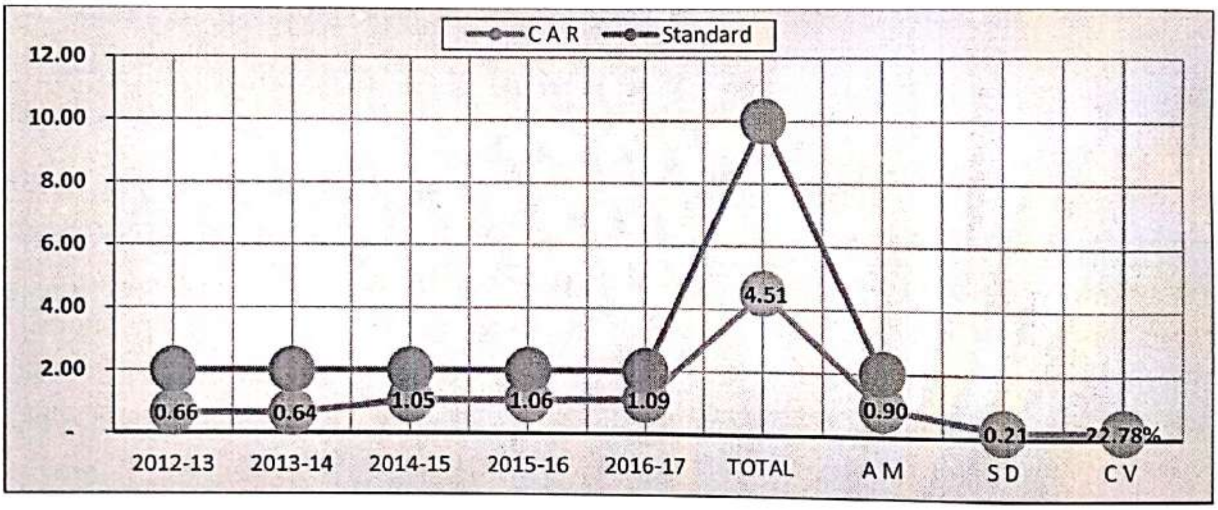
Table No. – 3

Current Ratio of NAPLDS

12. F U (Satara D - 1)	Ninai Agro Pvt. Ltd.			Last 5 Years Figures	
Financial Year	C A	C L	C A R	Standard	Remarks
2012 - 2013	66,49,079	101,40,751	0.66	2.00	-1.34
2013 - 2014	64,76,791	100,43,210	0.64	2.00	-1.36
2014 - 2015	90,33,016	85,73,336	1.05	2.00	-0.95
2015 - 2016	94,07,051	88,41,206	1.06	2.00	-0.94
2016 - 2017	88,39,338	81,22,243	1.09	2.00	-0.91
Total of last 5 Years	**404,05,275**	**457,20,746**	**4.51**	**10.00**	**-5.49**
Arithmetic Mean (A M)	**80,81,055**	**91,44,149**	**0.90**	**2.00**	**-1.10**
Standard Derivation (S D)	**12,54,090**	**8,07,889**	**0.21**	**-**	**0.21**
Coefficient of Variance (C V)	**15.52%**	**8.84%**	**22.78%**	**-**	**-18.68%**

Chart No. – 4

Current Ratio of NAPLDS



The chart displayed that orange curve line of standard ratio which is straight line and blue curve line indicated current ratio which went up in selected financial years. The current ratio of five financial years was increasing order but it was below the Standard ratio. In financial year 2016-2017 the current ratio was high i.e. 1.09 as compared to other years but it was less the standard ratio. **The average current ratio of five years was 0.90 which is lower than the standard, it means this fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory.**

Liquid Ratio (LR) :- Liquid Ratio also knows 'Quick Ratio', 'Acid Test Ratio' this ratio is concerned with the establishment of relationship between the liquid assets ad quick liabilities. The liquid assets refers to those assets which can be immediately or at a short notice, be converted into cash without loss or diminution value.

Liquid Ratio = Liquid Assets / liquid liabilities

- **Liquid Assets** = All Current Assets – Inventory & Prepaid Expenses
- **Liquid Liabilities** = All Current Liabilities – Bank Overdraft
- **Ideal Quick Ratio** = 1:1

Higher liquid ratio - High liquid ratio indicates that the fertilizer units having sound short-term liquidity and it may be able to pay its quick obligations without any difficulty hence its immediate liquidity position is satisfactory.

Lower liquid ratio - Lowe liquid ratio indicates that the fertilizer units having not sound short-term liquidity and it may be not able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

The following mathematical table no. 5 and graph no. 6 has shown Liquid Ratio of **M/s Ninai Agro Privet Limited, District Satara**. The liquid ratio in year 2012-2013 was 0.41, for 2013-2014 was 0.47, in 2014-2015 was 0.78, in 2015 - 2016 was 0.59 and in 2016-2017 it was 0.53. The total of liquid ratio in five years was 2.77, arithmetic mean was 0.55, standard derivation was 0.13 and co-efficient variance it was 22.66%.

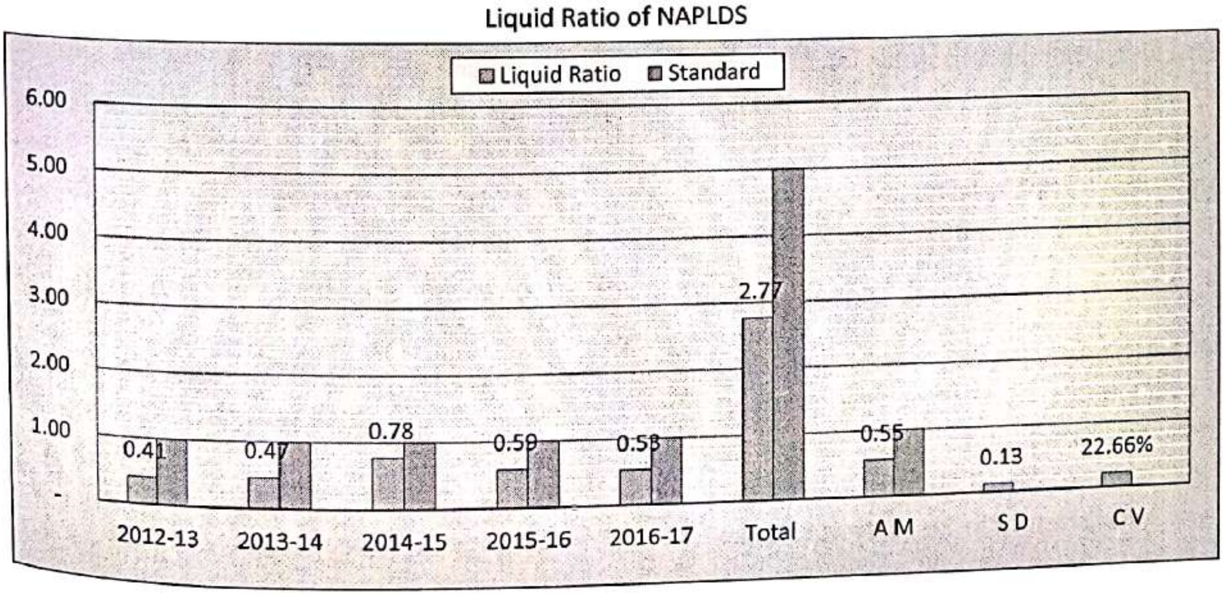
Table No. – 5

Liquid Ratio of NAPLDS

12. F U (Satara D - 1)	Ninai Agro Pvt. Ltd.			Last 5 Years Figures	
Financial Year	**L A**	**L L**	**LR or QR**	**STD.**	**Remarks**
2012 - 2013	41,79,160	101,40,751	0.41	1.00	-0.59
2013 - 2014	46,85,807	100,43,210	0.47	1.00	-0.53
2014 - 2015	66,57,686	85,73,336	0.78	1.00	-0.22
2015 - 2016	51,86,832	88,41,206	0.59	1.00	-0.41
2016 - 2017	43,10,924	81,22,243	0.53	1.00	-0.47
Total of last 5 Years	**250,20,409**	**457,20,746**	**2.77**	**5.00**	**-2.23**
Arithmetic Mean (A M)	**50,04,082**	**91,44,149**	**0.55**	**1.00**	**-0.45**
Standard Derivation (S D)	**8,97,782**	**8,07,889**	**0.13**	-	**0.13**
Coefficient of Variance (C V)	**17.94%**	**8.84%**	**22.66%**	-	**-28.20%**

Chart No. – 6

Liquid Ratio of NAPLDS



The chart indicated that grey bars represent the standard liquid ratio and the blue bars represent actual liquid ratio which is showing increasing trend. The liquid ratio first three years was increases after than next two years it was decreases but overall, it was lower than the standard ratio. In financial year 2014-2015 the liquid ratio was higher and in 2012-2013 it was lower as compared to other years.

The average liquid ratio was 0.55 in five years which was lower than the standard it means that this unit is not having sound short-term liquidity and it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

Testing of Hypothesis

Table No. 7

Correlation of Accounting Ratio

Accounting Ratio		NWC	NWCR	CAR	LR
NWC	**P.C.**	1	.557**	.365**	.436**
	S (2-T)		0.000	0.001	0.000
	N	75	75	75	75
NWCR	**P.C.**	.557**	1	**.738****	**.709****
	S (2-T)	0.000		0.000	0.000
	N	75	75	75	75
CAR	**P.C.**	.365**	.738**	1	.898**
	S (2-T)	0.001	0.000		0.000
	N	75	75	75	75
LR	**P.C.**	.436**	.709**	.898**	1
	S (2-T)	0.000	0.000	0.000	
	N	75	75	75	75
***. Correlation is significant at the 0.05 level (2-tailed) and **. Correlation is significant at the 0.01 level (2-tailed).**					
P.C = Pearson Correlation, S (2-T) = Sig. (2-tailed) and SND = Standard					

The Null (H0) hypothesis "Insufficient working capital has adverse effect in the liquidity and profitability position of fertilizer units under study" is accepted. And alternate Hypothesis (H1) "Insufficient working capital has not effecting in the liquidity and profitability position of fertilizer units under study" is rejected.

Finding :- The researcher has found the following some points in the study of working capital of **M/s Ninai Agro Privet Limited, District Satara.**

1. **Net Working Capital (NWC)** of this units was **unsatisfactory in first two year there after it became positive in next three years.** There was no any short-term investment, short term loan & advances and other current assets.
2. **The average Current Ratio (CR) of five years was 0.90** which is lower than the standard, it means this fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory.
3. **Average liquid ratio was 0.55** in five years which was lower than the standard it means that this unit is not having sound short-term liquidity & it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is

unsatisfactory.

Suggestion :- The researcher has given the following some suggestions on the basis of study of working capital of **Nvaratna Organic Manures Privet Limited, District Sangli.**

1. This fertilizer unit should investment at least 1% of their net profit in short-term investments and loan and advance as current assets.
2. This fertilizer unit should reduce at least 10% of short-term borrowings in every financial year.
3. This fertilizer unit should maintain the standard ratios of liquidity such as current assets ratio 2:1 and quick ratio 1:1.

Conclusion :- M/s Ninai Agro Privet Limited, District Satara has correlation exits between net working capital with liquidity such as current ratio, liquidity ratio. **But there is no statistically significant correlation between net working capital, current ratio and liquidity.**

References :-

1. 'Agricultural Statistics a pocket book of 2016', Ministry of Agriculture, Cooperation & Farmers Welfare, Government of India, new Delhi.
2. 'Annual report 2015-2016', Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilizers, New Delhi.
3. "Research Methodology – Method and Techniques" by C. R. Kothari & Gaurav Garg, Third Edition 2014, New age international Private Limited Publishers, New Delhi.
4. "Statistics For Management" by Mr. Eichard Levin, David Rubin, Sanjay Rastogi & Mr. Masood Siddiqui, Seventh Edition 2013, Dorling Kindersley (India) Private Limited.
5. Hrishikes Bhattacharya, 'Working Capital Management Strategies and Techniques', Second Edition September 2012, PHI Learning Private Limited, New Delhi.
6. http://www.krishi.maharashtra.gov.in
7. http://www.mca.gov.in

Peer Reviewed Journal for M.Phil., Ph.D. & Appointment of Teacher in Universities & College

ISSN : 2454-4655 VOLUME - 7 No. : 12, Jan. - 2022

International Journal of Social Science & Management Studies

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Peer Reviewed-Refereed Research Journal, Indexing & Impact Factor - 5.2, Ex - UGC S.N. 5351
ISSN : 2454 - 4655, Vol. - 7, No. – 12, Jan. - 2022

The Study of Cash Ratio of Private Limited Fertilizer Units, Kolhapur District

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Abstract :- Cash and equivalent of cash and working capital is concerned with the problems that arise in attempt to manage the cash, current assets and current liabilities. This paper tries to make an attempt to study the cash, the components of cash and cash ratio in the district of Kolhapur. The paper also tries to study the correlation between cash and liquidity of selected fertilize units in Kolhapur district. The study is bases on secondary data collected from annual report of this private limited fertilizer units in the district of Kolhapur, for the period of 5 years which are taken form the website of ministry of company affair of India. This paper is trying an application of cash, analysis for identity the significant of working capital management include the particularly cash ratio and the liquidity positon of this fertilizer units in the research area.

Key Words :- Cash & Equivalent of Cash, Cash Ratio, Objectives, Hypothesis, Data Collection, Limitation, PBSPLDK, CMPLDK & MAIDCLDK, Findings, Suggestion & Conclusion.

Introduction :- The cash and cash ratio shows the liquidity of an organisation that specifies capability to pay off short-term liability. The cash ratio is considered as liquidity ratio that measures the fertilizer unit's ability to pay off with highly liquid quick its short-term debts. Cash ratio is relation between cash and equivalents of cash with current liabilities.

Need of Study :-

1. To study the need of maintain sufficient cash and cash equivalents of the fertilizer units.
2. To maintained sufficient balance of cash for the short term debts.

Objectives of the Study :-

1) To study the position of cash, cash equivalents and cash ratio of selected fertilizer units.
2) To make suggestions for the better cash management of fertilizer units in research area.

Hypothesis :-

H0: Insufficient cash and equivalent of cash has adverse affected in the liquidity of fertilizer units under study.

H1: Insufficient cash and equivalent of cash has not effecting in the liquidity of fertilizer units under study.

Sample Size Selection :- At present, there are total 19 private limited fertilizer units in research area. **16% sample size has selected i.e. 3 form private limited fertilizer units in Kolhapur District.** It is covered on the basis of **'Geographically Random Sample'** from this districts.

Period of Study :- The present study is undertaken for the period of five accounting year

Table No. – 3

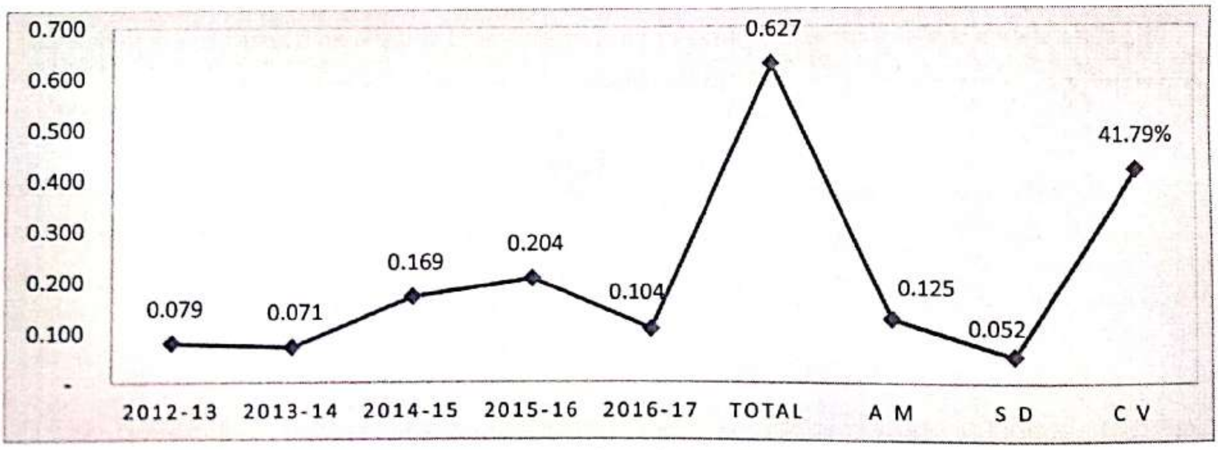
Cash Ratio of CMPLDK

2. F U (Kolhapur K-2)	Cyprium Micronutrients Pvt. Ltd.			5 Years Figures	
Financial Year	**Cash**	**S T Inv.**	**Total Rs.**	**C L**	**C R**
2012 - 2013	6,52,722	-	6,52,722	82,74,548	0.079
2013 - 2014	4,58,086	-	4,58,086	64,93,088	0.071
2014 - 2015	17,43,275	-	17,43,275	103,28,322	0.169
2015 - 2016	14,19,748	-	14,19,748	69,46,619	0.204
2016 - 2017	12,70,866	-	12,70,866	121,68,766	0.104
Total of last 5 Years	**55,44,697**	-	**55,44,697**	**442,11,343**	**0.627**
Arithmetic Mean (A M)	**11,08,939**	-	**11,08,939**	**88,42,269**	**0.125**
Standard Derivation (S D)	**4,81,030**	-	**4,81,030**	**21,31,121**	**0.052**
Coefficient of Variance (C V)	**43.38%**	-	**43.38%**	**24.10%**	**41.79%**

The chart shown that the curve line of cash ratio which went upward in all selected financial year except second year. In year 2015-2016 the cash ratio was higher and in 2013-2014 it was lower as compared to other years.

Chart No. – 4

Cash Ratio of CMPLDK



The average cash ratio was 0.125 times in the selected five years which is lower than standard, it means that this fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Cash Ratio of MAIDCPLDK :- The following numerical table no. 5 and graph no. 6 was shown Cash Ratio of **Maharashtra Agro Industries Development Corporation Limited, District Kolhapur (MAIDCLDK)**. The cash ratio in 2012-13 was 0.305, in 2013-14 was 0.360, in year 2014-15 was 0.372, in 2015-16 was 0.343 and in 2016-17 it was 0.480. Total of cash ratio in five years was 1.860, arithmetic mean was 0.372, standard derivation was 0.059 and coefficient variance was 15.73%.

Table No. – 5

Cash Ratio of MAIDCLDK

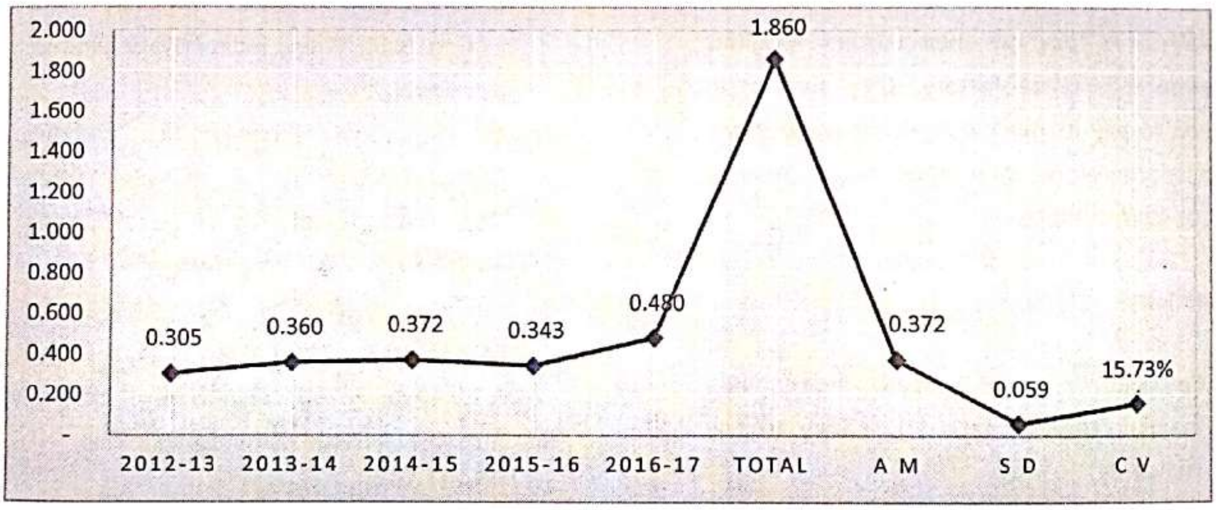
3 F U (Kolhapur K-3)	Maharashtra Agro Development Pvt. Ltd.			5 Years Figures	
Financial Year	**Cash**	**S T Inv.**	**Total Rs.**	**C L**	**C R**
2012 - 2013	11,165	-	11,165	36,556	0.305
2013 - 2014	20,436	-	20,436	56,774	0.360

2014 - 2015	27,237	-	27,237	73,312	0.372
2015 - 2016	30,743	-	30,743	89,626	0.343
2016 - 2017	35,200	-	35,200	73,305	0.480
Total of last 5 Years	**1,24,781**	-	**1,24,781**	**3,29,572**	**1.860**
Arithmetic Mean (A M)	**24,956.14**	-	**24,956.14**	**65,914**	**0.372**
Standard Derivation (S D)	**8,417**	-	**8,417**	**17,984**	**0.059**
Coefficient of Variance (C V)	**33.73%**	-	**33.73%**	**27.28%**	**15.73%**

In 2016-2017 the cash ratio was higher and in 2012-2013 it was lower as compared to other years. The chart shown that the curve line of cash ratio which went up in all selected financial years and shown increasing trend.

Chart No. – 6

Cash Ratio of MAIDCLDK



The average cash ratio was 0.372 times in the selected five years which is lower than the standard, it means that this fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Testing of Hypothesis :- The testing of hypothesis by Pearson Correlation of accounting ratios, the researcher observed that there is no statistically significant correlation between working capital and liquidity & Profitability. The testing of hypothesis as, **the Null (H0) hypothesis "Insufficient cash and equivalent of cash has adverse effect in the liquidity and profitability position of fertilizer units under study" is accepted.** And alternate Hypothesis (H1) "Insufficient cash and equivalent of cash has not effecting in the liquidity and profitability position of fertilizer units under study" is rejected.

Findings :-

1. **Phenix Bio Science Private Limited, District Kolhapur's** arithmetic mean cash ratio was 0.613 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.
2. **Cyprium Micronutrient Private Limited, District Kolhapur's** arithmetic mean cash ratio was 0.125 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

3. **Maharashtra Agro Industries Development Corporation Limited, District Kolhapur's** arithmetic mean cash ratio was 0.372 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Conclusion :- Entire selected fertilizer units were having cash ratio less than the standard that is 1.00 in the study area. The Cash and equivalent of cash concern these fertilizer units were not having enough funds in form of cash and cash equivalents to pay off their current liabilities therefore it is unsatisfactory. They are not in position to pay its quick obligations without any difficulty therefore their short term liquidity position is unsatisfactory.

Suggestion :-

1. Fertilizer units in research area should maintain the cash ratio 1:1 as they are the standard.
2. Fertilizer unit should investment at least 1% of their net profit in short-term investments and loan and advance as current assets.
3. Fertilizer unit should reduce at least 10% of short-term borrowings in every financial year.

References :-

1. 'Agricultural Statistics a pocket book of 2016', Ministry of Agriculture, Cooperation & Farmers Welfare, Government of India, new Delhi.
2. 'Annual report 2015-2016', Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilizers, New Delhi.
3. "Research Methodology – Method and Techniques" by C. R. Kothari & Gaurav Garg, Third Edition 2014, New age international Private Limited Publishers, New Delhi.
4. "Statistics For Management" by Mr. Eichard Levin, David Rubin, Sanjay Rastogi & Mr. Masood Siddiqui, Seventh Edition 2013, Dorling Kindersley (India) Private Limited.
5. Hrishikes Bhattacharya, 'Working Capital Management Strategies and Techniques', Second Edition September 2012, PHI Learning Private Limited, New Delhi.
6. Mr. Ken Black 'Business Statistics for Contemporary Decision Making', Fifth Edition 2010, Wiley, India Private Limited, New Delhi.
7. Mr. Solanki Ashvinkumar H., "Working Capital Management in Selected Small Scale Industries of Gujarat State", Thesis Ph. D., 2019, Saurashtra University.
8. Mr. V. K. Bhalla, 'Working Capital Management', First Edition 2014, S. Chand & Company Private Limited, New Delhi.
9. http://www.krishi.maharashtra.gov.in
10. http://www.mca.gov.in

Study of Cash, Cash Equivalent and Cash Ratio of Fertilizer Units in Sangli District

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ABSTRACT:
Working capital management particularly cash and cash equivalent that is concerned with the problems that arise in attempting to manage the cash, current assets and current obligations and its debts. This paper tries to make an attempt to study the cash, the components of cash and cash ratio in the District of Sangli.

The paper also tries to study the correlation between cash and debts of selected fertilize units in Sangli district. The study is bases on secondary data collected from annual report of this private limited fertilizer units in the district of Sangli, for the period of 5 years which are taken form the website of ministry of company affair of India. In this paper, there is an application of cash, analysis for identity the significant of working capital management the particularly cash ratio and the liquidity positon of this fertilizer units in the research area.

KEY WORDS:
Cash & Equivalent of Cash, Cash Ratio, Objectives, Hypothesis, Sample Size, Data Collection, Limitation, ABTIPLDP, DLOFPLDP, MEBTPLDP, VCPPLDP, Findings, Conclusion & Suggestion.

Introduction
The cash, equivalent of cash and cash ratio shows the liquidity of an organisation that specifies capability to pay off short-term liability with its liquidity. The cash ratio is a liquidity ratio that measures the fertilizer unit's ability to pay off short-term debts with highly liquid or quick assets. Cash ratio is relation between cash and cash equivalents with current liabilities.

Need of Study
1. To study the need of maintain sufficient cash and cash equivalents of the fertilizer units.
2. To maintained sufficient balance of cash for the short term debts.

Objectives of the Study
1) To study the position of cash, cash equivalents and cash ratio of selected fertilizer units.
2) To make suggestions for the better cash management of fertilizer units in research area.

Hypothesis
H0: Insufficient cash and equivalent of cash has adverse affected in the liquidity of fertilizer units under study.

H1: Insufficient cash and equivalent of cash has not effecting in the liquidity of fertilizer units under study.

Sample Size Selection

There are total 14 fertilizer units in research area that is Sangli District. Out of them, 21% sample size from private sector has selected of the total population i.e. 3 private limited fertilizer units in Sangli District. It is covered on the basis of 'Geographically Random Sample' from this districts.

Period of Study

The present study is undertaken for the period of five accounting year starting from 2012-2013 to 2016-2017. The researcher has selected 2012-2013 as **base year** for the purpose of analysis and evolution.

Sources of Data Collection

Researcher has used secondary data as main sources for the presented research study. Annual accounting reports such as Income statement and position statement are collected form website of Ministry of Corporate Affairs (MCA), Maharashtra Reginal Division, of Government of India.

Limitation of the Study

1. The present study is carried out only for five financial year
2. Cash ratio analysis has its own limitations.
3. This study is based on only secondary data of fertilizer units in research area.
4. The study is related only to private limited fertilizer units operating in Pune District.

Cash Ratio

Cash ratio (CR) is also used to measure liquidity of selected fertilizer units and it is known as the 'Cash Asset Ratio' or 'Absolute Liquidity Ratio'. The cash ratio shows the liquidity of an organisation that specifies capability to pay off short-term liability with its cash and cash equivalents. The cash includes legal cash i.e. coins, currency, bank balance, checks, bank drafts, etc. and cash equivalents are able to convert into cash quickly such as savings accounts, trade-bills and money market instruments. Current liabilities are responsibilities of organisation to pay within one year for examples short-term debt, accounts payable and accrued liabilities. Cash ratio is relation between cash and cash equivalents with current liabilities. The ideal or standard cash ratio is 1:1.

Formulas of Cash Ratio:

$$\text{Cash Ratio (CR)} = \frac{\text{Cash} + \text{Bank balances} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

Cash & Cash Equivalents : Cash + Bank Balance + Cheque + DD + Marketable Securities.

Current Liabilities: Sundry Creditors + Bills Payable + Outstanding Expenses + Short Term Loans + Short Term Borrowings + Dividend Payable + Provisions + Others Short Term Dues etc.

Interpretation of the Cash Ratio

CR Equals to 1 = Cash and cash equivalents are equal to the short-term liabilities.

CR Grater than 1 = Cash in the system is sufficient for payments of short-term liabilities.

CR Lower than 1 = Cash in the system is insufficient to pay for short term liabilities.

Higher Cash ratio:

Higher cash ratio was indicated that enough funds available in form of cash and cash equivalents to pay off its current liabilities.

Lower Cash ratio:

Lower cash ratio was indicated that not enough funds available in form of cash and cash equivalents to pay off its current liabilities.

Cash Ratio of SQPPLDS

The following mathematical table no. 1 and graph no. 2 has shown Cash Ratio (CR) of **Sanghavi Quality Products Privet Limited, District Sangli (SQPPLDS)**. The cash ratio in financial year 2012-2013 was 0.270, in 2013-2014 was 0.190, in 2014-2015 was 0.103, in 2015-2016 was 0.133 and in 2016-2017 it was 0.049. Total of cash ratio in five years was 0.745, arithmetic mean was 0.149, standard derivation was 0.076 and coefficient variance it was 51.01%.

Table No. – 1

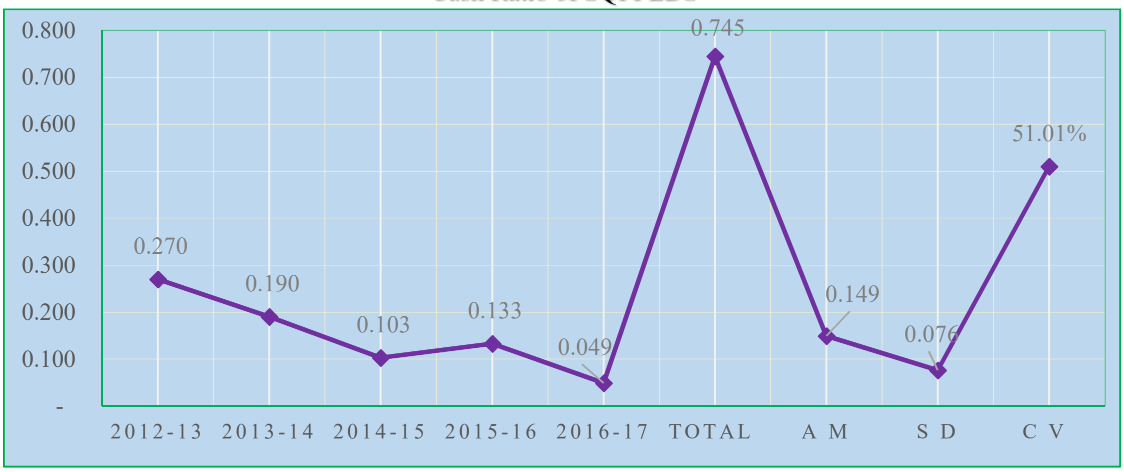
Cash Ratio of SQPPLDS

Fertilizer Unit (Sangli - 1)	Sanghvi Quality Products Pvt. Ltd.			5 Years Figures	
Financial Year	Cash	S T Inv.	Total Rs.	C L	C R
2012 - 2013	105,15,129	1,52,067	106,67,196	394,63,330	0.270
2013 - 2014	93,41,762	1,52,067	94,93,829	498,67,773	0.190
2014 - 2015	72,57,033	1,54,936	74,11,969	721,27,620	0.103
2015 - 2016	103,60,115	1,62,558	105,22,673	792,13,546	0.133
2016 - 2017	37,21,884	1,69,710	38,91,594	798,61,378	0.049
Total of last 5 Years	411,95,923	7,91,338	419,87,261	3205,33,647	0.745
Arithmetic Mean (A M)	82,39,185	1,58,268	83,97,452	641,06,729	0.149
Standard Derivation (S D)	25,40,259	6,890	25,35,519	164,36,572	0.076
Coefficient of Variance (C V)	30.83%	4.35%	30.19%	25.64%	51.01%

The chart show that the curve line of cash ratio continuously went down in all selected financial years and shown decreasing trend. In financial year 2012-2013 the cash ratio was higher and in 2016-2017 it was lower as compare to other years.

Chart No. – 2

Cash Ratio of SQPPLDS



The average cash ratio was 0.149 times in the selected five years which is lower than standard, it means that this SQPPLDS fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Cash Ratio of NOMPLDS

The above statistical table no. 3 and chart no. 4 has shown Cash Ratio (CR) of **Nvaratna Organic Manures Privet Limited, District Sangli (NOMPLDS)**. The cash ratio in financial year 2012-13 was 0.004, in 2013-2014 was 0.018, in 2014-2015 was 0.226, in 2015-2016 was 0.266 and in 2016-2017 it was 0.265. Total of cash ratio in five years was 0.779, arithmetic mean was 0.156, standard derivation was 0.119 and coefficient variance it was 76.36%.

Table No. – 3

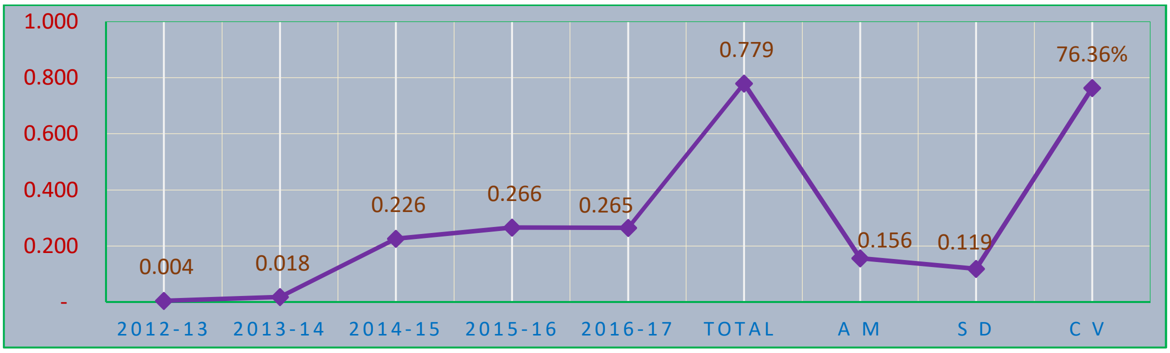
Cash Ratio of NOMPLDS

Fertilizer Unit (Sangli - 2)	Navratna Organic Manures Pvt. Ltd.			5 Years Figures	
Financial Year	Cash	S T Inv.	Total Rs.	C L	C R
2012 - 2013	7,833	-	7,833	18,47,017	0.004
2013 - 2014	33,784	-	33,784	18,52,696	0.018
2014 - 2015	5,04,380	-	5,04,380	22,26,997	0.226
2015 - 2016	5,72,721	-	5,72,721	21,54,622	0.266
2016 - 2017	5,83,047	-	5,83,047	22,03,573	0.265
Total of last 5 Years	17,01,765	-	17,01,765	102,84,905	0.779
Arithmetic Mean (A M)	3,40,353	-	3,40,353	20,56,981	0.156
Standard Derivation (S D)	2,62,433	-	2,62,433	1,70,731	0.119
Coefficient of Variance (C V)	77.11%	-	77.11%	8.30%	76.36%

The chart show that the curve line of cash ratio continuously went up in all selected financial years and shown increasing trend. In financial year 2015-2016 the cash ratio was little higher and in 2012-2013 it was lower as compare to other years.

Chart No. – 4

Cash Ratio of NOMPLDS



The average cash ratio was 0.156 times in the selected five years which is lower than standard, it means that this NOMPLDS fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Cash Ratio of NCFPLDS

The above numerical table no. 5 and diagram no. 6 has shown Cash Ratio (CR) of **Nature Care Privet Limited, District Sangli (NCPLDS)**. The CR in financial year 2012-2013 was 0.172, in 2013-2014 was 0.278, in 2014-2015 was 0.196, in 2015-2016 was 0.245 and in year 2016-2017 it was 0.221. Total of cash ratio in five years was 1.113, arithmetic mean was 0.223, standard derivation was 0.037 and coefficient variance it was 16.62%.

Table No. – 5

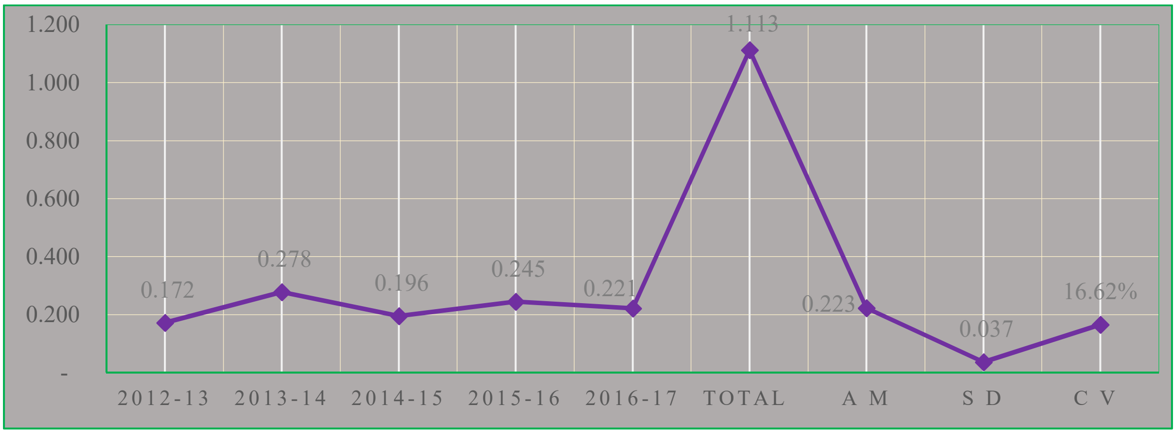
Cash Ratio of NCFPLDS

Fertilizer Unit (Sangli - 3)	Naturecare Fertilizers Pvt. Ltd.			5 Years Figures	
Financial Year	Cash	S T Inv.	Total Rs.	C L	C R
2012 - 2013	20,89,506	-	20,89,506	121,20,743	0.172
2013 - 2014	41,42,390	-	41,42,390	148,85,004	0.278
2014 - 2015	34,40,618	-	34,40,618	175,84,303	0.196
2015 - 2016	40,09,870	-	40,09,870	163,82,897	0.245
2016 - 2017	49,10,754	-	49,10,754	221,72,406	0.221
Total of last 5 Years	185,93,138	-	185,93,138	831,45,353	1.113
Arithmetic Mean (A M)	37,18,628	-	37,18,628	166,29,071	0.223
Standard Derivation (S D)	9,39,882	-	9,39,882	33,18,687	0.037
Coefficient of Variance (C V)	25.27%	-	25.27%	19.96%	16.62%

In year 2013-2014 the CR was little higher and in 2012-2013 it was lower as compare to other years. The chart show that the curve line of cash ratio, went up in second year and there after it went down but in the last two years it shown some improvement hence it showed fluctuating trend.

Chart No. – 6

Cash Ratio of NCFPLDS



The average cash ratio was 0.223 times in the selected five years which is lower than standard, it means that this NCPLDS fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Testing of Hypothesis

The testing of hypothesis by Pearson Correlation of accounting ratios, the researcher observed that there is no statistically significant correlation between working capital and liquidity & Profitability. **The Null (H0) hypothesis "Insufficient cash and equivalent of cash has adverse effect in the liquidity and profitability position of fertilizer units under study" is accepted.** And alternate Hypothesis (H1) and "Insufficient cash and equivalent of cash has not effecting in the liquidity and profitability position of fertilizer units under study" is rejected.

Findings

1. **Sanghavi Quality Products Privet Limited, District Sangli** concern, arithmetic mean of cash ratio was 0.149 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.
2. **Nvaratna Organic Manures Privet Limited, District Sangli** concern, arithmetic mean of cash ratio was 0.156 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.
3. **Nature Care Privet Limited, District Sangli** concern, arithmetic mean of cash ratio was 0.223 times in the selected five years which is lower than the standard. This fertilizer unit is not having enough funds in form of cash and cash equivalents to pay off its current liabilities.

Conclusion

Entire selected fertilizer units were having cash ratio less than the standard that is 1.00 in the research area i.e. Sangli District. The Cash and equivalent of cash concern these selected fertilizer units were not having enough funds in form of cash and cash equivalents to pay off their current liabilities therefore it is unsatisfactory. They are not in position to pay its quick obligations without any difficulty therefore their short term liquidity position is unsatisfactory.

Suggestion

1. Fertilizer units in research area should maintain the cash ratio 1:1 as they are the standard.
2. Fertilizer unit should investment at least 1% of their net profit in short-term investments and loan and advance as current assets.

3. Fertilizer unit should reduce at least 10% of short-term borrowings in every financial year.

References

1. C. R. Kothari & Gaurav Garg, "Research Methodology - Method and Techniques", New age international Private Limited Publishers, New Delhi, Third Edition (2014)
2. Bhalla V. K. 'Working Capital Management' Chand & Company Pvt. Ltd. New Delhi. (2018)
3. Mr. Vijay B. Kadam, 'An accounting study of working capital and its impact on profitability with special reference western Maharashtra', Ph.D. Thesis
4. http://www.krishi.maharashtra.gov.in
5. http://www.mca.gov.in

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NAVARATNA ORGANIC MANURES PRIVET LIMITED, DISTRICT SANGLI & IT'S WORKING CAPITAL

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Abstract

Working Capital Management is related with the difficulties that arise in attempting to manage current assets, current liabilities and the interrelationship that exists between them. This paper tries to make an attempt to study the working capital, components of working capital and liquidity of 'Nvaratna Organic Manures Privet Limited, District Sangli'. The research paper also efforts to study the correlation between liquidity and profitability of NOMPLDS fertilize unit. The study is bases on secondary data collected from annual report of this fertilizer unit for the period of 5 years on website of ministry of company affair of India. In this paper, there is an application of correlation analysis for identity the significant of working capital management include the current ratio and quick ratio on the quiddity positon of NOMPLDS fertilizer unit.

Keywords: NOMPLDS, Working Capital Management, Objectives, Hypothesis, Data Collection, Limitation, NWC, Current Ratio, Liquid Ratio, Findings, Suggestion and Conclusion.

Introduction

Nvaratna Organic Manures Privet Limited, District Sangli (NOMPLDS) and study of its Working capital is major significance of internal & external analysis because of its relationship with the current day to day operations of business. Funds, collected from different sources are invested in the business for the acquisition of assets. These assets are employed for earning revenue. The basic problem facing the finance manager of an enterprise is to trade-off between conflicting but equally important goals of liquidity and profitability and vice versa.

Need of study

To study the need of maintain sufficient working capital of fertilizer units.
To check balance between liquidity and short term.

Objectives of the study

To study the position of working capital of selected fertilizer units.
To make suggestions for the better working capital management of fertilizer units.

Hypothesis

H0: Insufficient working capital has adverse affected in the liquidity of fertilizer units under study.
H1: Insufficient working capital has not effecting in the liquidity of fertilizer units under study.

Period of study

The present study is undertaken for the period of five accounting year starting from 2012-2013 to 2016-2017. The researcher has selected 2012-2013 as base year for the purpose of analysis and evolution.

Data Collection

Researcher has used secondary data as main sources for the presented research study. Annual accounting reports such as Income Statement and Position Statement are collected form website of Ministry of Corporate Affairs (MCA), Maharashtra Reginal Division, of Government of India.

Limitation of the study

The study is limited to five year only.

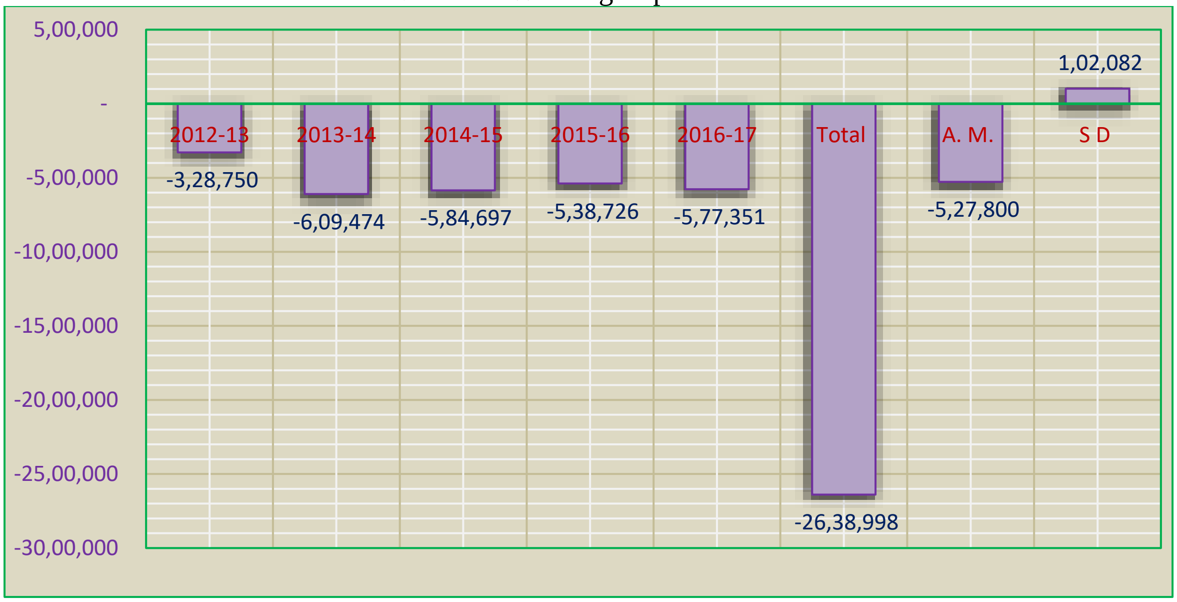
Ratio analysis has its own limitations.
This study is based on only secondary data of fertilizer units.
NET WORKING CAPITAL (NWC)
The net working capital is qualitative that indicating the fertilizer units were ability to meet its operation expenses and currents liability. The term net working capital refers to the difference between current assets and current liabilities.
Net Working Capital = Current Assets – Current Liabilities
Current Assets:
Cash balance + Banks Balance + short term Marketable Securitas + Sundry Debtors + Bill Receivables + Inventory + Prepaid Expenses + Short Term Loan and advances + Notes etc.
Current Liabilities:
Sundry Creditors + Bill Payable + Outstanding Expenses + Short Term Loans + Short Term Borrowings + Dividend Payable + Provisions + Any Short Term Dues etc.
The following statistical table no. 1 and graph no. 2 shows that the amount of Net Working Capital (NWC) of Nvaratna Organic Manures Privet Limited, District Sangli for selected financial years. The total of five years NWC was Rs. -26,38,998, AM of NWC was Rs. -5,27,800, SD was Rs. 1,02,082 and CV it was -19.34%.

Table No. – 1 Net Working Capital of NOMPLDS

14. F U (Sangli E - 2)	Navratna Organic Manures Pvt. Ltd.			Last 5 Years Figures	
Particulars	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
A) Current Assets					
1. Current Investment	-	-	-	-	-
2. Inventories	11,41,900	5,91,280	2,79,045	-	-
3. Trade Receivables	3,21,085	5,57,195	7,97,912	9,82,212	9,82,212
4. Cash & Cash Equipment	7,833	33,784	5,04,380	5,72,721	5,83,047
5. Short Term Lone & Adv.	-	-	-	-	-
6. Other Current Assets	47,449	60,963	60,963	60,963	60,963
Total A)	15,18,267	12,43,222	16,42,300	16,15,896	16,26,222
B) Currents Liabilities					
1. Short Term Borrowings	12,69,911	15,44,911	15,44,911	14,54,911	15,05,911
2. Trade Payables	2,01,443	1,43,645	31,469	31,469	31,469
3. Short Term Provision	2,15,698	39,652	48,079	65,704	6,02,538
4. Other Current Liabilities	1,59,965	1,24,488	6,02,538	6,02,538	63,655
Total B)	18,47,017	18,52,696	22,26,997	21,54,622	22,03,573
Net Working Capital (A-B)	-3,28,750	-6,09,474	-5,84,697	-5,38,726	-5,77,351
Total of Last 5 Years Net Working Capital		-26,38,998			
Arithmetical mean (A M)		-5,27,800			
Standard Derivation (S D)		1,02,082			
Coefficient of Variance (C V)		-19.34%			

UGC Care Group 1 Journal
ISSN : 0005-8807

Chart No. – 2 Net Working Capital of NOMPLDS



The chart shows that the bars of net working capital of NOMPLDS. In all financial years the NWC was minus and in 2013-2014 NWC was bad and minus as compare to other financial years. There was no short-term investment and net working capital was constantly negative in selected financial years which is unsatisfactory.

Current Ratio (CR)

The current ratio also knows as current assets ratio and working capital ratio. This ratio expresses the relationship between current assets and current liabilities. The current ratio is calculated by dividing the current assets by current liabilities. Thus can be expressed as pure number or percentage ratio. And the idea current ratio id 2:1. The formulas of current ratio is follows:

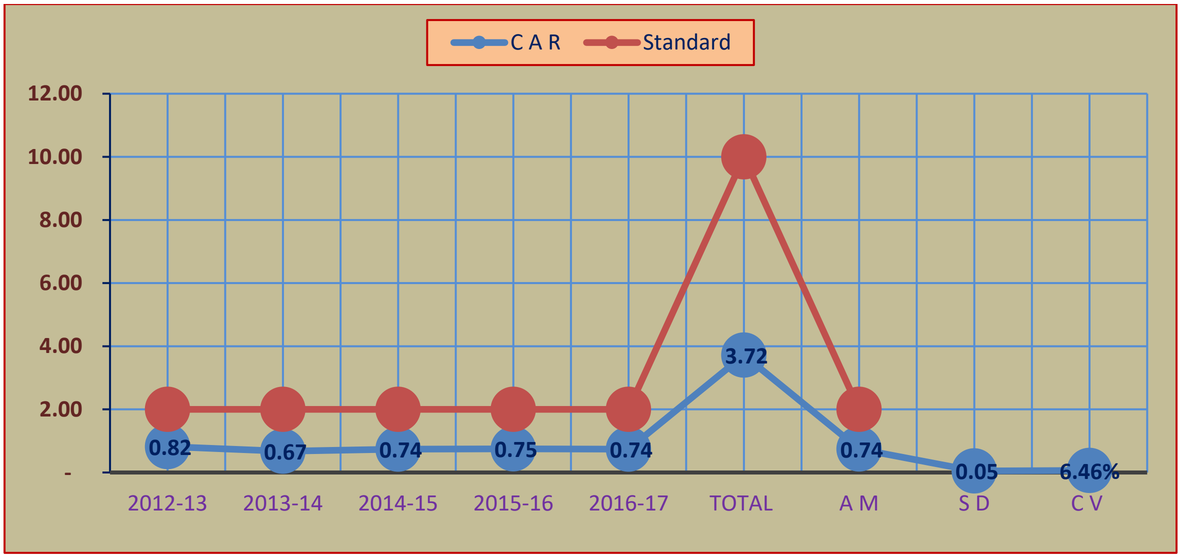
Current Ratio = Current Assets / Current Liabilities

The following table no. 3 and diagram no. 4 has reveal current ratio of Nvaratna Organic Manures Privet Limited, District Sangli (NOMPLDS). The current ratio in year 2012-2013 was 0.82, in 2013-2014 was 0.67, in 2014-2015 was 0.74, in 2015-2016 was 0.75 and in financial year 2016-2017 it was 0.74. Total of current ratio in five years was in 3.72, arithmetic mean was 0.74, standard derivation was 0.05 and coefficient variance was 6.46%.

Table No. – 3 Current Ratio of NOMPLDS

14. F U (Sangli E - 2)	Navratna Organic Manures Pvt. Ltd.			Last 5 Years Figures	
Financial Year	C A	C L	C A R	Standard	Remarks
2012 - 2013	15,18,267	18,47,017	0.82	2.00	-1.18
2013 - 2014	12,43,222	18,52,696	0.67	2.00	-1.33
2014 - 2015	16,42,300	22,26,997	0.74	2.00	-1.26
2015 - 2016	16,15,896	21,54,622	0.75	2.00	-1.25
2016 - 2017	16,26,222	22,03,573	0.74	2.00	-1.26
Total of last 5 Years	76,45,907	102,84,905	3.72	10.00	-6.28
Arithmetic Mean (A M)	15,29,181	20,56,981	0.74	2.00	-1.26
Standard Derivation (S D)	1,49,415	1,70,731	0.05	-	0.05
Coefficient of Variance (C V)	9.77%	8.30%	6.46%	-	-3.82%

Chart No. – 4 Current Ratio of NOMPLDS



The chart display that orange curve line of standard ratio which in straight line and blue curve line indicates current ratio of NOMPLDS which is went down all selected financial years. The current ratio of five financial years was Straight increasing order and it was below the Standard ratio that is 2. In year 2012-2013 the current ratio was high i.e. 0.82 as compare to other years but it too much less of standard ratio.

The average current ratio of five years was 0.74 which is lower than the standard, it means this fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory.

LIQUID RATIO

Liquid Ratio also knows 'Quick Ratio', 'Acid Test Ratio' this ratio is concerned with the establishment of relationship between the liquid assets ad quick liabilities. The liquid assets refers to those assets which can be immediately or at a short notice, be converted into cash without loss or diminution value.

Liquid Ratio = Liquid Assets / liquid liabilities

Liquid Assets = All Current Assets – Inventory & Prepaid Expenses

Liquid Liabilities = All Current Liabilities – Bank Overdraft

Ideal Quick Ratio = 1:1

The following mathematical table no. 5 and graph no. 6 has shown Liquid Ratio of Nvaratna Organic Manures Privet Limited, District Sangli. The liquid ratio in year 2012-2013 was 0.20, in 2013-2014 was 0.35, in 2014-2015 was 0.61, in 2015-2016 was 0.75 and 2016-2017 it was 0.74. And total of liquid ratio in five years was 2.65, arithmetic mean was 0.53, standard derivation was 0.22 and co-efficient it was 40.95%.

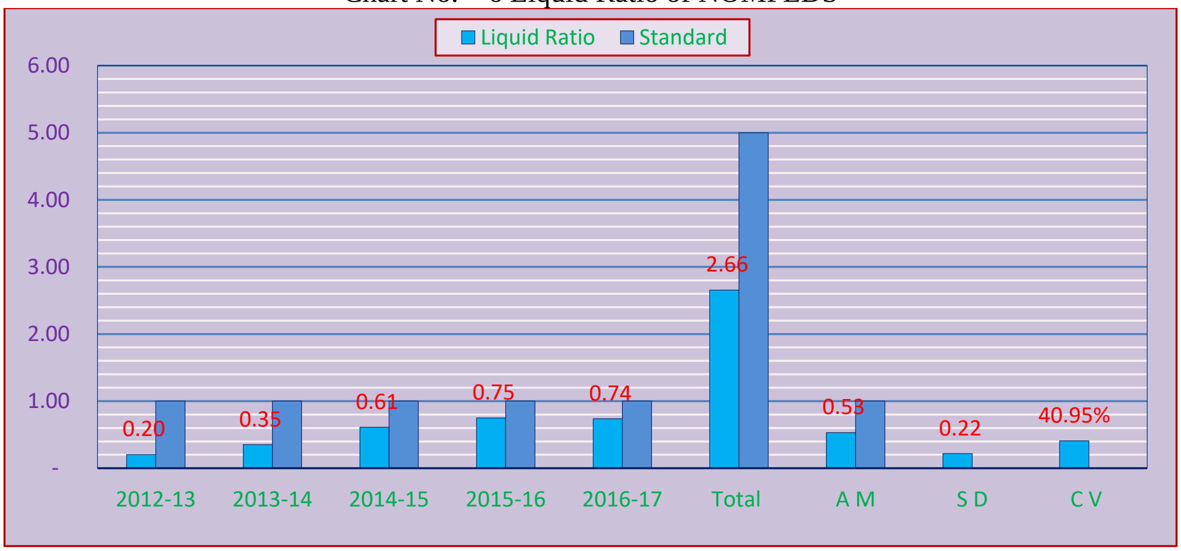
Table No. – 5 Liquid Ratio of NOMPLDS

14. F U (Sangli E - 2)	Navratna Organic Manures Pvt. Ltd.			Last 5 Years Figures	
Financial Year	L A	L L	LR or QR	STD.	Remarks
2012 - 2013	3,76,367	18,47,017	0.20	1.00	-0.80
2013 - 2014	6,51,942	18,52,696	0.35	1.00	-0.65
2014 - 2015	13,63,255	22,26,997	0.61	1.00	-0.39
2015 - 2016	16,15,896	21,54,622	0.75	1.00	-0.25
2016 - 2017	16,26,222	22,03,573	0.74	1.00	-0.26
Total of last 5 Years	56,33,682	102,84,905	2.66	5.00	-2.34
Arithmetic Mean (A M)	11,26,736	20,56,981	0.53	1.00	-0.47
Standard Derivation (S D)	5,16,370	1,70,731	0.22	-	0.22
Coefficient of Variance (C	45.83%	8.30%	40.95%	-	-46.39%

V)						

The quick ratio of NOMPLDS in five years was increases and it was higher than the standard ratio except last year. In financial year 2015-2016 the LR was higher and in 2012-2013 it was lower as compare to other years. The chart indicate that grey bars represents the standard liquid ratio and the blue bars represented actual LR which is showing increasing trend.

Chart No. – 6 Liquid Ratio of NOMPLDS



The average liquid ratio of NOMPLDS was 0.53 in five years which was lower than the standard it means that this unit is not having sound short-term liquidity and it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

Testing of hypothesis

Table No. 7 Correlation of Accounting Ratio

Accounting Ratio		NWC	NWCR	CAR	LR
NWC	P.C.	1	.557**	.365**	.436**
	S (2-T)		0.000	0.001	0.000
	N	75	75	75	75
NWCR	P.C.	.557**	1	.738**	.709**
	S (2-T)	0.000		0.000	0.000
	N	75	75	75	75
CAR	P.C.	.365**	.738**	1	.898**
	S (2-T)	0.001	0.000		0.000
	N	75	75	75	75
LR	P.C.	.436**	.709**	.898**	1
	S (2-T)	0.000	0.000	0.000	
	N	75	75	75	75
*. Correlation is significant at the 0.05 level (2-tailed) and **. Correlation is significant at the 0.01 level (2-tailed).					
P.C = Pearson Correlation, S (2-T) = Sig. (2-tailed) and SND = Standard					

The Null (H0) hypothesis “Insufficient working capital has adverse effect in the liquidity and profitability position of fertilizer units under study” is accepted. And alternate Hypothesis (H1) “Insufficient working capital has not effecting in the liquidity and profitability position of fertilizer units under study” is rejected. The Null Hypothesis (H0) accepted and alternate Hypothesis (H1) is rejected.

Finding

The researcher has found the following some points in the study of working capital of Nvaratna Organic Manures Privet Limited, District Sangli.

Net Working Capital (NWC) of this units was minus and in 2013-2014 NWC was bad. There was no short-term investment and net working capital was constantly negative in selected financial years.

The average Current Ratio (CA) of selected five years was 0.74 which is lower than the standard. This fertilizer unit is doing over trading and having under capitalization hence its short-term solvency position is unsatisfactory.

The average Liquid Ratio (LR) was 0.53 in selected five years which was lower than the standard. This unit is not having sound short-term liquidity and it may not be able to pay its quick obligations without any difficulty hence its immediate liquidity position is unsatisfactory.

Suggestion

The researcher has given the following some suggestions on the basis of study of working capital of Nvaratna Organic Manures Privet Limited, District Sangli.

This fertilizer unit should investment at least 1% of their net profit in short-term investments and loan and advance as current assets.

This fertilizer unit should reduce at least 10% of short-term borrowings in every financial year.

This fertilizer unit should maintain the standard ratios of liquidity such as current assets ratio 2:1, quick ratio 1:1 and standard of cash ratio.

Conclusion

As per table number 7 of accounting ratio of Nvaratna Organic Manures Privet Limited, District Sangli (NOMPLDS), there is significant correlation exits between net working capital with liquidity such as current ratio, liquidity ratio of this fertilizer unit. But there is no statistically significant correlation between net working capital and liquidity.

References

‘Agricultural Statistics a pocket book of 2016’, Ministry of Agriculture, Cooperation & Farmers Welfare, Government of India, new Delhi.

‘An accounting study of working capital and its impact on profitability with special reference western Maharashtra’ Ph.D. Thesis, The researcher Prof. Vijay B. Kadam.

‘Annual report 2015-2016’, Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilizers, New Delhi.

“Research Methodology – Method and Techniques” by C. R. Kothari & Gaurav Garg, Third Edition 2014, New age international Private Limited Publishers, New Delhi.

“Statistics For Management” by Mr. Eichard Levin, David Rubin, Sanjay Rastogi & Mr. Masood Siddiqui, Seventh Edition 2013, Dorling Kindersley (India) Private Limited.

Hrishikes Bhattacharya, ‘Working Capital Management Strategies and Techniques’, Second Edition September 2012, PHI Learning Private Limited, New Delhi.

http://www.krishi.maharashtra.gov.in

http://www.mca.gov.in

https://en.wikipedia.org/wiki/Maharashtra

https://www.mapsofindia.com/indiaagriculture

राष्ट्रहिताय संस्कृतम्

Shodhsamhita
शोधसंहिता

ISSN No. 2277-7067

Certificate of Publication

This is to certify that

Dr. Sheetal Laxman Shendkar, Amruteshwar Arts, Commerce & Science college, vinzar, Savitribai Phule Pune University, Maharashtra, India

For the paper entitled

STUDY OF TRANSPORTATION, TIME BARRIERS IN PHYSICAL ACTIVITY SPECIAL REFERENCE VELHE TAHSIL.

ज्ञान-विज्ञान विमुक्तये

Volume- IX, Issue-I (IX), Jan-June 2022

in

Shodhsamhita

Impact Factor: 4.95

UGC Care Group 1 Journal

Editor-in-Chief

INTERNATIONAL RESEARCH JOURNAL OF HUMANITIES AND INTERDISCIPLINARY STUDIES
(Peer-reviewed, Refereed, Indexed & Open Access Journal)
DOI : 03.2021-11278686 ISSN : 2582-8568 IMPACT FACTOR : 5.71 (SJIF 2021)

Physical Health effects in Women working at Home after Covid Pandemic and efforts taken to optimize Health

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Abstract:

Covid Pandemic has affected the whole world. From last many months most of the employees has changed their working bases from office to home. New culture of work from home is been adopted by many offices and most probably will continue for few more months and in some sectors it might the permeant working culture. For many works from home finds to be one of the effective tools for the optimizing workers out put but when it comes to health and physical activities the situation needs to be focus on. In this entire scenario major challenge is to promote the health of the employees working from home. Aim of this study was to find out the impact of Work form Home on women's physical health and efforts taken by women to optimize their health. Z test two samples for mean was applied to test the null hypothesis.

Keywords: *Pandemic, Work form Home, women's physical health*

Introduction:

The current covid pandemic has put whole world in a unprecedented situation facing wide range of health and economic problems. [1,2] The drastic change in work from home environment and loss of thousands of jobs especially women .Employees worked in sectors able to work remotely, their homes have become their workplace, places of meetings, school, and place for relaxation. Ebbing of the 2nd wave, resumption of normal activities and economy begins to reopen, possibility of beginning of formal office environment is expected.[3] But some organizations would continue working form home for the foreseeable future to avoid the further risk.[4,5]

New technologies has mandated employees working patterns which has enabled work from any part of the world Work from home has range of positive benefits like better-quality family atmosphere, work integration, improved productivity However, the blurring of physical and organizational boundaries between work and home can also negatively impact an individual's mental and physical health due to extended hours, lack of or unclear delineation between work and home, and limited support from organizations The mandatory WAH situation is complex and requires a systematic examination to identify the impact of organizational, physical, environmental and psychosocial factors on individuals' mental and physical health.[6]

Proper guide lines and policies to protect employee's health and well being are required to continue the work from home. The study was undertaken to understand the current situation of women working from home, their wellbeing and daily efforts taken to optimize their health.

Method:

For Inclusion in the current study the focus was on the women working from home on regular basis and that also for more than 6 months. Women excluded were domestic workers, self-employed workers, informal working from home (working from home after hours to catch up on work), productivity outcomes, chronic illness/disability, or pregnancy/breast feeding. Data collection was done using google form and was forwarded on what's app or by email to very women shortlisted for the study. Question regarding the profession, time since engage in work from home, self-evaluated health before and after work from home, and types and daily physical activities undertaken after work from home mandated. If yes then the duration and if no then the reason.

Data Collection:

Data of women working form was collected using google forms. The link of the google form was circulated in and mailed to the women, who are working from home on regular basis from last 6 months. Total 187 women responded for by filing up the google form, in which 27 responses were rejected due to improper filling of the form. For this study data of women working in Pune and Suburbs was taken in consideration. Questions like marking of the self-reported health after Work From Home mandated, Present health status (In general), Stress full movements in the daily working hours, Physical activities in the whole day and its duration were included in the google form.

Table 1 and Table 2

	Self-Reported health Profile After Work from Home was mandated N= 160						
worst	High Risk	Poor	Satisfied	Better	Good	Excellent	Can't say
9%	1%	36.70%	10%	10 %	11%	12%	10 %

Efforts taken to optimize health Physical activity for More than 15 Minutes) N= 160							
Walking on the road	Yoga/ Stretching	Aerobics/ gym Home	Running		Cycling	Any specific sports	No Physical Activity
20%	13%	3%	5%		NIL	1%	58%

Table 3

Code of the Physical Activity and self-reported health			
Variable 1		Variable 2	
Walking On the road	1	Excellent	1
Yoga /Stretching	2	Good	2
Aerobics /gym	3	Better	3
Running	4	Satisfied	4
Cycling	5	Poor	5
Any specific sports	6	High Risk	6
No physical Activity	7	worst	7

Table 4

z-Test: Two Sample for Means		
	Variable 1	*Variable 2*
Mean	4.893081761	4.094339623
Known Variance	6.86777	3.13172
Observations	159	159
Hypothesized Mean Difference	0	
Z	3.185049847	
P(Z<=z) one-tail	0.000723645	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.001447291	
z Critical two-tail	1.959963985	

Analysis and Result:

Data expressing self reported health and daily physical activity was collected using google form. Table 1 and table 2 specifies the collected information. Table 3 shows the codes applied to every variable. Z test two samples for means tool with known variance was applied to test the null hypothesis. This was to understand the difference between the means of two independent variables.

Discussions:

P value (0.001) is lesser than significant level (0.05) there for it accepts the null hypothesis. Overall finding from the statistical analysis shows that the Work from home impact the health of the women employee. It also suggest from the calculation that those women how have kept them self in any of the physical activity has help to have positive impact on the health. Those adopted sedentary behavior shows the negative impact.

Longitudinal research is required, which systematically considers all factors in the relationship between employees and their organizations whilst WAH; this can inform the development of guidelines to facilitate the creation of optimal WAH conditions to reduce any negative impacts of employees' health and well-being'.

References:

1. The Lancent Public Health COVID -19 puts societies to the test. Lancent Public health 2020 5(5) n 235.
2. Doug;es M Katikireddi S. V., Taulbut M, Mckee M, Mccartney, G. Mitigating the wider healh effects of covid 19 pandamic response . 2020.
3. Wenham C, Smith J, Morgan R., Covid -19 the gendered impact of the outbreak Lnct 2020
4. Alon T. M, Deopke M, Olmstead, rumsey J, Tertilt M, the impact of covid -19 on gender equality: National Bureau of economic research 2020.
5. Shimazu A, Nakata A, Nagata T, Arakawa, Y , Kurdoda S, Inamizu N, et al Psychosocial Impact OF COVID -19 for general workers . J. Ocuup Health. 2020.
6. A rapid review of mental and physical health effects of working at home: how do we optimize health?