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Proceedings of 10th National Conference

on

Society 4.0: A Futuristic Perspective on Nature of Work, Jobs and Skills - Post COVID - 19

5th December, 2020

Editors:
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Dr. Mukta Sharma
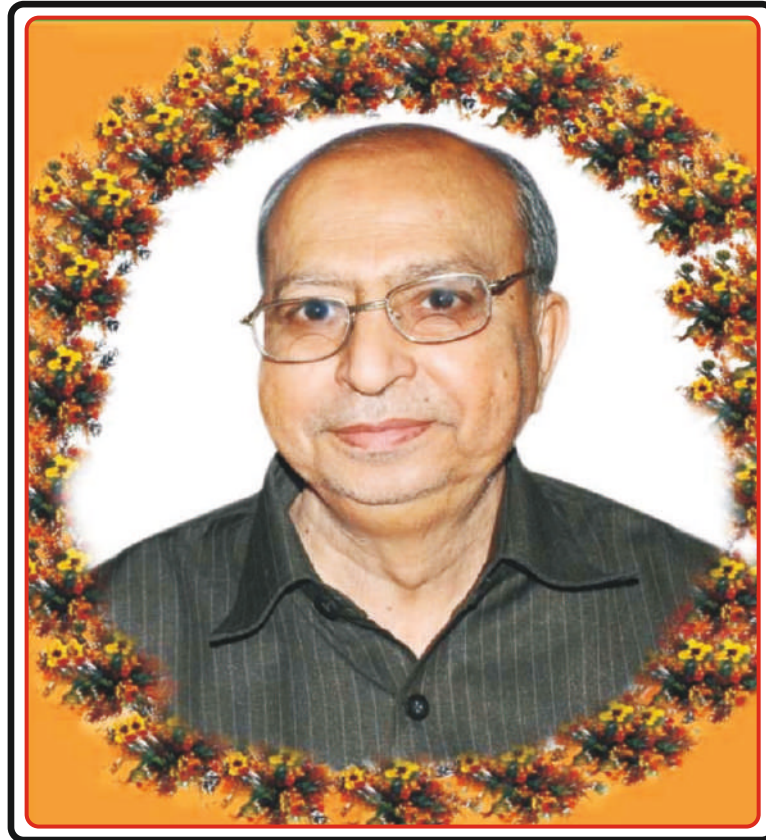Dr. Pramod Kumar Nayak
Dr. Shashi Bala

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MESSAGE FROM VICE CHANCELLOR

It brings me immense pleasure to learn that Trinity Institute of Professional Studies is organizing its 10th National Conference on a progressive theme of "Society 4.0: A Futuristic Perspective on Nature of Work, Jobs and Skills- Post Covid-19".

I believe that the conference is centered on a significant ground keeping in view the current scenario of global pandemic COVID-19. It becomes imperative for the researchers, consultants, corporates and academicians to deliberate upon the issues and challenges on nature of work, jobs and skills. As India is progressive towards becoming a developed economy, in the prevailing situation the in-depth analysis of nature of job vis-à-vis skills in all the disciplines which are influencing the fast paced and forward looking generation is inevitable.

I believe the inferences drawn from the research shared on the theme of the conference would certainly benefit all the stakeholders of the society.

Furthermore, I can anticipate a positive impact of this conference in designing a blue print for future course of actions in uplifting jobs and enhancement of skills post COVID - 19.

I wish great success to the Trinity Institute of Professional Studies team in organizing this national conference.

Prof. (Dr.) Mahesh Verma
Vice Chancellor, GGSIPU

MESSAGE FROM REGISTRAR

I am delighted to learn that Trinity Institute of Professional Studies is organizing its 10th National Conference on a progressive theme of "Society 4.0 : A Futuristic Perspective on Nature of Work, Jobs and Skills- Post COVID-19".

I am confident the conference will be a great benefit to the society in these testing times of pandemic COVID-19 all over the world.

The changing scenario of technological advancements, economy, media and mass communication, Indian legal system and innovation in education aroused with the current pandemic will significantly impact the nature of jobs, work and skills. Hence, the deliberation on these issues will surely contribute to pave the way for policy making and further research in respective areas.

In future prospective, this conference will bring insight into the development of skills which are required for nation building.

I wish great success to the Trinity Institute of Professional Studies team in organizing this national conference.

Sh. Ravi Dadhich
Registrar, GGSIPU

MESSAGE FROM CHAIRMAN

The ascent of technology has enabled every sector of economy to make a shift from physical to digital platform in recent times. The COVID-19 pandemic has made people realize the significance of technology and they are employing it to perform work digitally. At the same time, technology has penetrated deeply into our lives and human dependence on machines has increased immensely. In such a scenario it is pertinent to analyse the nature of work, jobs and skills required to face the issues and challenges aroused due to global pandemic COVID-19. Accordingly, Government policy makers and different institutions should take initiative to maintain societal balance by gainful collaboration between people and technology.

The National Conference on "Society 4.0: A futuristic perspective on nature of work, jobs and skills- Post Covid-19" being organized on December 5, 2020 by Trinity Institute of Professional Studies (TIPS) focuses on inviting contributions from individuals from different disciplines to deliberate upon the issues and challenges in work, job and skills in the different sectors like management, commerce, media, law, education etc. The Conference outcome will surely be beneficial for all the participants pan India.

I with great pride and pleasure appreciate the publication of conference proceedings which have been quirted by the efforts of the Conference Convenor, Dr. Barkha Bahl, Director, TIPS, Dr. Mukta Sharma, Dr. Shashi Bala and Dr. P.K.Nayak, Co-Convenors. I am delighted with the overwhelming response from authors and thankful to them for their contributions.

I believe that these initiatives of TIPS shall prove to be a great force enlightening people towards the importance of transformation of jobs, skills according to the challenging situation in the coming future as well in the society. I wish all the faculty members, staffs and students of TIPS a grand success of the Conference.

Dr. R.K.Tandon

Chairman, Trinity Group of Institutions

MESSAGE FROM DIRECTOR

Society 4.0 is an information society. We live in a technologically driven economy, where people are surrounded by gadgets. All major activities can be performed digitally these days during pandemic. Information and Communication Technology has influenced the functioning of different sectors. Whether it is marketing, law, education or media, all sectors have employed technology in some form or other to accomplish their functions. Technology has made life easier, but it has to be seen that technology assists our existence and not controls it. The need of an hour is to enhance our skills and make ourselves suitable for the changing job scenario.

The aim of this conference is to deliberate on "Society 4.0: A Futuristic Perspective on Nature of Work, Jobs and Skills- Post Covid-19". It is important to discuss the effect that technology is expected to have on human activities, the employment opportunities available to people and the skill required for gainful employment in coming times.

We have to keep up with the pace at which technology is transforming society. The conference proceedings contain research papers contributed by academicians, students, research scholars and experts from different fields, giving a holistic perspective on the theme "Society 4.0".This conference will aid policy makers, legislators , other organizations and educationists in making meaningful steps in this direction and will lay down guidelines .
I offer my wishes to all those who are a part of this Conference for their valuable contributions. I am confident that the National Conference will provide an opportunity to highlight the research being carried out in the emerging areas post Covid-19.

I wish to congratulate the contributions of the organizing team of Conference for bringing out the proceedings of the Conference for wider discriminate of knowledge.

Dr. Barkha Bahl
Director

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Dr. R.K. Tandon (Chairman)

Dr. R.K. Tandon (Ph.D. Jamia Millia Islamia) is an award Winner in Excellence in Education, Peace and Tolerance. Awarded With Avantika Rajiv Gandhi Excellence in Education Award and honoured by World Environment Congress and Global Assembly with Peace, Tolerance & Mercy Award.

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Editors

Dr. Barkha Bahl

Dr. Barkha Bahl is Ph.D in IT. She has almost three decades of teaching, research and admirative experience out of which more than two decades of experience in higher education institutes. She has numerous publications to her credit in the National/International Journals of the repute.

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Dr. Mukta Sharma has more than 16 years of teaching experience. Currently, she is working as an Associate Professor and HOD-CS & IT Department with Trinity Institute of Professional Studies, Dwarka. To her credit, she has more than 25 research papers published both in national and international journals/conferences.

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PREFACE

The paradigm shift in technology and economy during pandemic has prompted us to move forward in a progressive direction to hold 10th National Conference on the theme "Society 4.0: A Futuristic Perspective on Nature of Work, Jobs and Skills- Post COVID-19",

The concept of 'Society 4.0' is being understood as the societal implications of living with, adapting to, and securing well-being in, the digital economy. The digital economy, characterized by convergence of a cluster of technologies- Artificial Intelligence, Machine Learning, Virtual Reality, Advanced Robotics, Augmented Reality, Cloud Computing and the Internet of Things etc. These Technologies have changed the way we work and do business, production processes, business models, employment conditions, service delivery mechanisms etc. and are being reconfigured; thus forcing businesses, organizations and societies to transform in order to adapt to the fast changing scenario.

These disruptions are changing the way we work, study and do business along with how we live in the society. The anxiety about the future of work and jobs is not new but with 4th Industrial Revolution, the speed with which change is taking place is unprecedented. It is expected that, in near future, many jobs and skills will become redundant while many will be created new. Some of the pertinent questions to which answers are being sought include -Do we work along with machines? or Do Machines replace us? As a society and global community we need to answers to the above questions, while also being responsible for solving problems like poverty and attainment of Sustainable Development Goals – especially Goal 8 of 2030 Sustainable Development Agenda. Emerging economies like India are particularly concerned with the aspects like being able to provide 'decent work' to the young population while also not being left out in the race of adoption of Industry 4.0. The changing technological landscape in various arenas makes skilling and labor demands unpredictable and variable. Also, the future requires the youngsters to be equipped with 'Skills of the Future'– which poses a challenge for the academia. The World Economic Forum in its report titled "The Future of Jobs -2018" has pointed out the top 10 skills like- creativity, complex problem solving, critical thinking, people management etc. that would be critical to survive in the future work environment.

The global pandemic COVID-19 has devastated the world economy and put a break on the growth cycle of every progressive endeavours all over the world. It has forced to think about 'New Normal' and has compelled each stakeholders of the society to move in a alternative way to attain the sustainability in work, jobs with innovative ideas and skills.

The role of educational institutions is paramount in this regard. It is essential that a collaborative approach is adopted between academic institutions, industry and government agencies to tackle the challenge erupted due to the global pandemic crisis.

This Conference is aimed to provide a platform for the deliberations on the above issues like employment trends in future with special reference to emerging economies, the challenge of skilling the youth, need for collaboration between academic, industry, government and regulatory bodies that are responsible for quality assurance and enhancement.

In a constructive perspective this conference has invited research papers in diverse domains such as management, commerce, media, law, economics, and allied disciplines and also received research papers from across the domains. The Conference has brought together eminent academicians, corporate executives, researchers, technocrats and experts from all strata of academics and Industry for exploring and discussing the disruptions in business environment; particularly in the nature of work with respect to disruptions being caused by Industry 4.0 vis-à-vis Society 4.0 amid the COVID-19 situation for better preparedness towards future endeavours.

Contents

Recovery of Debts Due to Banks -
Debt recovery mechanism in Selected Developed Countries in the World

K.Manikyamba* Rupendra Prakash Yadav**

ABSTRACT

The financial health of a developing country depends upon financial sectors as well as the allocation of financial resources. The wellbeing of a financial sector like Banks is a matter of policy concern for a developing country like India. The COVID-19 pandemic and lockdown has mounted Non-performing Assets problem for Governments around the world. Reserve Bank of India (RBI) in its financial stability report in July had indicated that due to COVID-19 Pandemic the asset quality of Indian Banks would worsen.

The major focus of the paper is to analyse legal trends in various developed countries having effective debt recovery mechanism.

The World Bank report 2019, on Doing Business ranked India at 108th of 190 countries on resolving insolvency which has improved from 16th in 2017. It is also noted by World Bank that insolvency procedure takes 4 to 3 years and costs about 9 percent of the sale proceeds of debtor's estate. The meter of insolvency index has increased from 6 in 2017 to 8.5 in 2018.

An Analysis of Insolvency regime in practice in various developed countries to promote economic stability and maximization of asset value, equitable distribution of proceeds, ensure transparency and predictability, recognition of existing creditor rights and establishment of clear rules for priority of ranking. The developed countries like Australia, Canada, U.K, and USA are having less than 2 per cent of NPA ratio (2015- 2019) whereas India's NPA ratio is more than 8 per cent. These countries are having an effective debt recovery mechanism to tackle the Non-performing Assets. Indian economy falls under top economy category but it's NPA ratio is more.

Keywords: NPA/NPL; Debt Recovery Mechanism; Developed countries; Insolvency; Bankruptcy; liquidation reorganization.

1.0 Introduction

The Primary goal of a country for health economic growth is stability of Banking Industry. Economic development of a country is directly connected with entrepreneurship through various dimensions of lending. Both Public Sector and Private Sector are involved in lending process as per the norms laid down by regulating authorities. Now in modern times, for both the Public and Private Banks lending and recovery through various instruments for resolving the disputes is a major barrier.

The Indian Insolvency and Bankruptcy Code 2016(IBC), was enacted to refurbish the complex debt recovery laws in respect of corporate and personal debtors. After the enactment of IBC, India has jumped to 77th rank from 155th rank on ease of doing the business after the enactment of IBC . More than Rs.2lakh crores worth of NPA's are recovered. It is reported that most corporate borrowers (1/3rd of the total borrowers) are facing substantial balance sheet distress, leading the banking industry to dissipate good money after bad lending, hampering the credit cycle adversely.

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There are no research papers on comparative study of in the field of analysis of Debt recovery laws in various countries. The major focus of the paper is to analyse legal trends in various developing countries whose recovery rate is high and recovery rate of Non-performing Loans(NPL) is high.

This Research paper mainly to compare the Insolvency and Bankruptcy laws and procedure of India with other countries such as Australia, USA, UK, and …. The study of these developed countries would bring more insights to improve the Insolvency and Bankruptcy regime in India.

2.0 Review of Literature

The recovery of NPA is a major problem faced by financial sector. Before 1991, creditors used to file debt recovery cases before the Civil Court of Competent jurisdiction[1]. There after various laws like RDDBFI Act, 1993, SARFAESI Act 2002 and IBC 2016 were enacted with the recommendations of various committees, to ease debt recovery for particular class of creditors and empowering the Banks to recover their debts through enforcement of their secured interest[2].

The bankruptcy framework prevailing in India can be traced back from colonial rule. The legal framework has seen number of amendments over the last 200 years, which created a plethora of overlapping of legislations. Various laws were enacted to resolve the NPA problem through liquidation and reorganization of assets(Ben Branch, 2016). [3]The Insolvency timelines in various countries have changed drastically to tackle the delay in settlement of cases. The International Insolvency and Bankruptcy laws have been successful for a long time and taking insights from these laws bring more insights for improving the Insolvency regime in India[4].

3.0 Comparative Study of Insolvency Laws

An Analysis of Insolvency regime in practice in various developed countries to promote economic stability and maximization of asset value, equitable distribution of proceeds, ensure transparency and predictability, recognition of existing creditor rights and establishment of clear rules for priority of ranking.

Developed countries have a sound legal system or Debt recovery Laws for addressing the resolution of Corporate as well as Personal insolvencies. Most of the countries have laid down a comprehensive legal mechanism to deal with Corporate and Personal Insolvencies.

4.0 Legal Framework of Debt recovery Laws in India

At present Insolvency in India is governed by various Recovery of Debts due to Banks and Financial Institutions Act 1993, SARFAESI Act 2002, and Insolvency and Bankruptcy Code 2016. The main aim of Insolvency laws is to address the recovery of debts through easy resolution system,

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[1] Ravi, A., (2015). Indian Insolvency Regime in Practice. Economic & Political Weekly, 50(51), p.47

[2] Singh, C. and Brar, J., (2016). Stressed assets and banking in India. IIM Bangalore Research Paper, (507).

[3] Branch, B. and Khizer, A., (2016) Bankruptcy practice in India. International Review of Financial Analysis, 47, pp.1-6.

[4] Binoy J. Kattadiyil (2020) Corporate Insolvency in India and other countries – a comparative Study, International Journal of Multidiciplinary Education Research, ISSN: 2277-7881, Pg.no. 149-162

reorganization and liquidation[5].

The Insolvency and Bankruptcy Code, 2016 ('IBC'), has brought into reality the long awaited expectation of industries, corporates, banks and financial institutions on a self-contained legal framework to deal with the insolvency and bankruptcy process. It is to be notes that IBC is enacted after the enactment of the new Companies Act, 2013. Justice V Balakrishna Eradi committee gave recommendations 16 years back on 'Law Relating to Insolvency and Winding up of Companies'. The new law has been enacted on the basis of Report of the Bankruptcy Law Reforms Committee[6].

The IBC is enacted to provide expert professional forum to improve all insolvency and liquidation framework. It is enacted with the objective of improving the "ease of doing business" in India, a country alleged to have a weak insolvency framework and where the law is abused by defaulting debtors. It's main objective is refurbishment of laws in respect of reorganization   of insolvency resolution of corporate persons, part Limited Liability Partnership Act 2008, companies governed by any Special Act, Partnership firm and Individuals insolvency, liquidation or bankruptcy[7].

5.0 International Trends in respect of Debt Recovery Laws relating to Debt Recovery

An Analysis of Insolvency regime in practice in various developed countries to promote economic stability and maximization of asset value, equitable distribution of proceeds, ensure transparency and predictability, recognition of existing creditor rights and establishment of clear rules for priority of ranking.

Table 1: Work Rank of Selected countries on Resolving Insolvency[8]

Country	Ease of Doing Business Rank In 2019	Time Taken to Resolve Insolvency in 2019	Resolving Insolvency Rank in 2019	NPA Ratio				
				2015	2016	2017	2018	2019
India	63	4.3	52	5.9	9.2	10.0	9.5	9.2
Australia	14	1.0	21	0.9	1.0	0.9	0.9	1.0
Canada	23	0.8	14	0.5	0.6	0.4		
United Kingdom	8	1.0	15	1.0	0.9	0.7	1.1	-----
United States	6	1.0	3	1.5	1.3	1.1	0.9	0.9

Source: Compiled from World Bank's reports

The above Table No. 1 signifies, countries Rank on Ease of Doing business, Resolving Insolvency Rank, time taken to resolve Insolvency and NPA Ratio (2015 – 2019). Indian NPA ratio is more compared to other countries. The NPA Ratio of these countries is consistently stable during this period. The stable NPA ratio is the result of an effective Insolvency and Bankruptcy regime in these

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[5] Aparna Ravi "Indian Insolvency Regime in Practice An Analysis of Insolvency and Debt Recovery Proceedings" Economic and Political Weekly Vol. 50, Issue No. 51, 19 Dec, 2015 ISSN (Print) - 0012-9976 ISSN (Online) - 2349-8846

[6] Baldev Bhinder, "Fastest Fingers First", 36 International Finance Law Review 31 (2017). ISSN No.0262-6969
[7] ANKEETA GUPTA "Insolvency and Bankruptcy Code, 2016: A Paradigm Shift within Insolvency Laws in India, "The Copenhagen Journal of Asian Studies" 36(2) – 2018, ISSN No. 1395-4199
[8] https://www.ceicdata.com/en/indicator

countries. The Ease of doing business Rank of India is far away from that of the other countries. The time taken to resolve Insolvency in 2019 of India is at an average of 4.3 years whereas in other countries it is at an average of less than an year.

Table 2: Resolving Insolvency Index[9]

Location	Resolving Insolvency rank	Resolving Insolvency score (per cent)	Recovery rate (cents on the dollar)	Time (years)	Strength of insolvency framework index (0-16)
India	52	62	71.6	1.6	7.6 (2016)
Australia	20	78.9	82.7	1	11
Canada	13	81.0	86.7	0.8	11.0
United Kingdom	14	80.3	85.4	1.0	8.5
United States	2	90.5	81.0	1.0	13.0

Source compiled from world Bank report on ease of doing business

According to World Bank Report, 2019, Table No. 2 shows that India rank on resolving insolvency is 52 whereas United States is 2, Germany is 4, Canada is 13, UK is 14. Indian rank on resolving Insolvency needs more improvement. The score of resolving insolvency of India is 62 whereas that of other countries is more than 80 per cent. The recovery rate of India is at 71.6 per cent which is comparatively less than other countries. The average time taken for resolving Insolvency is 1.6 years in India whereas in other counties it is at an average of less than an year. The strength of Insolvency framework far less than other countries.

The strength of insolvency framework index measures the legal framework applicable to judicial liquidation and reorganization proceedings and the extent to which best insolvency practices have been implemented in each country covered by Doing Business[10].

Basing on the above data it is pertinent to examine the legal regime of these countries in spite Indian rank is improving but still Indian Insolvency regime needs more reforms.

The key features of Insolvency Indicators of Corporate and Personal Insolvency regime

Treatment of failed entrepreneurs:	1. Time of discharge 2. Exemptions
Prevention and streamlining:	1. Early warning mechanism 3. Pre-Insolvency regime 4.Special Insolvency procedures for SMEs
Restructuring Tools:	1. Creditor ability to initiate restructuring 2. Availability and length of stay on assets 3. Possibility and priority of new financing 4. Possibility to cram-down on dissenting creditors 5. Treatment of management during restructuring
Other Factors:	1. Degree of Court Involvement 2. Distinction between honest and fraudulent bankrupt 3. Rights of creditors

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[9] https://www.doingbusiness.org/en/data/exploretopics/resolving-insolvency
[10] https://datacatalog.worldbank.org/resolving-insolvency-strength-insolvency-framework-index-0-16

The debt recovery is characterized by recovery rate, time taken and cost of insolvency proceedings[11]. The data on Insolvency proceedings in many countries basing on economic efficiency of Banks Non-performing Assets/Loans (NPA) and enforcement of debt recovery law. The parameters for assessment of efficiency of Insolvency system are NPA recovery rate[12], time taken (duration of insolvency proceedings), and costs of proceedings[13].

6.0 Australia

Statutory Framework of insolvency and reorganization in Australia[14]

The Australian government in order to align the Corporation Act 2001 and the Bankruptcy Act 1966 with common rules for both corporate and personal debt recovery process has introduced new legislative reforms through the Insolvency Law Reforms Act 2016. The Australian legal regime of Debt recovery focuses more on punitive measures than on rehabilitation of corporate debtors[15].

7.0 Debt Recovery in Australia

Corporation Act 2001: The Debt recovery from Corporate Debtors is dealt under the Australian primary legislative framework of Corporation Act 2001 (the Corporation Act) deals with registration, insolvency and reorganization of companies incorporated in Australia. Debt recovery deals under insolvency under the Corporations Act recommends the way in which an Australian Company can enter into conventional insolvency process and how its assets are finally distributed to creditors.

The main aim of the Australian insolvency law is to maintain balance of interest of the primary stake holders in an insolvent estate, who include debtors and creditors. In the event of insolvency, a number of prescribed procedures are available under the Corporation Act. The Corporate insolvency procedure include receivership(private and court-ordered), voluntary administration, deeds of company agreements, provisional liquidation, liquidation (voluntary and involuntary and solvent and insolvent) and scheme of arrangement (court-sanction).[16]

In order to promote better restructuring, innovative reorganizations the Corporations Act introduced Section 588GA which provides that, a director will not be liable for debts incurred by a company while it is insolvent if 'at a particular time after the director starts to suspect that the company may become or be insolvent, the director starts developing one or more courses of action that are reasonably likely to lead to a better outcome for the company' than the immediate appointment of an administrator or liquidator to the company'.[17]

The Corporation Amendment(Strengthening Protections for Employee Entitlement) Act 2019 (the SPE Act) introduced new amendments to Corporation Act 2001 Criminal offence for the employers using "Sharp corporate practices" to avoid employee entitlements during winding up of company[18].

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[11] Arltová M., Smrčka L., Louda L., Mateos-Planas X. (2016), An attempt to compare the efficiency of insolvency proceedings in various countries in the world, Journal of International Studies, Vol. 9, No 2, pp. 25-47. DOI: 10.14254/2071-8330.2016/9-2/2

[12] Recovery Rate means the return on envestment in percent in case insolvency proceedings take place.

[13] Costs of proceedings means the price creditors pay for the collection of debt.

[14] The Insolvency Review - The Law Reviews

[15] Ali, P., O'Brien, L. and Ramsay, I., 2016. Bankruptcy and debtor rehabilitation: An Australian empirical study. Melb. UL Rev., 40, p.688.

[16] Edelman, J., Meehant, H. and Cheung, G., 2019. The evolution of bankruptcy and insolvency laws and the case of the deed of company arrangement. Lloyd's maritime and commercial law quarterly, (4), pp.571-602.

[17] Section 588A of the Corporations Act 2001

[18] Section 596AB of the Corporation Act 2001

Australian Courts accords with the foreign courts decisions and insolvency practitioners. The Australian Law on Cross-border Insolvency (the Model Law) was codified through the Cross-Border Insolvency Act 2008 (the Cross-Border Act). The main objective of the UNCITRAL Model Law is to Recognize and enforce of Insolvency Related Judgments of 2018 and to clarify uncertainties arising from the Model Law[19].

8.0 Personal Debt Recovery framework

The Debt recovery of individual/personal insolvency is dealt under the Bankruptcy Act 1966 (the Bankruptcy Act) which recommends the manner in which an individual may enter into a personal insolvency agreement or a prescribed bankruptcy procedure.

The formal procedure of restructuring are[20]:
  a. Receivership (both private and court appointment
b. Voluntary administration
c. Deeds of company arrangement;
d. Provisional liquidation;
e. Liquidation;
f. Court-sanctioned schemes of arrangement between creditors and the company

9.0 United States of America

Statutory Framework of insolvency and reorganization in USA[21]:
The United States Constitution has placed bankruptcy under federal jurisdiction, empowering congress to enact uniform laws throughout USA in respect of Bankruptcy and Insolvency Laws.
In August 2019, the USA adopted many changes to the Bankruptcy Code. Most notable was the Small Business Restructuring Act of 2019(SBRA), which came into effect from February 2020. It was enacted to expedite and reduce Bankruptcy cost for small business debtors with a debt of approximately $2.7 million.

Debt Recovery in USA[22]:
Bankruptcy helps a person for discharging debt or making a repayment plan. In USA bankruptcy case is filed by the debtor with the Bankruptcy Court. The Petition may be either filed by an individual or spouses together or by a corporation or other entity.
Federal Courts has the Jurisdiction to Bankruptcy cases under the rules outlined in the U.S. Bankruptcy Code[23].

Different types of bankruptcies under the U.S. Bankruptcy Code are[24]:
Chapter 7: A corporation may voluntarily be liquidated by a trustee for the administration of estate

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[19] https://www.legislation.gov.au/Details/C2017C00063
[20] https://thelawreviews.co.uk//digital_assets/707e3adc-4263-4aad-84a6-0a59125e2013/The-Restructuring-Review---13th-Edition.pdf
[21] United States - The Insolvency Review - The Law Reviews
[22] http://restructuring.bakermckenzie.com/wp-content/uploads/sites/23/2016/12/Global-Restructuring-Insolvency-Guide-New-Logo-United-States.pdf
[23] https://www.uscourts.gov/services-forms/bankruptcy#:~:text=A%20bankruptcy%20case%20normally%20begins,in%20the%20U.S.%20Bankruptcy%20Code.
[24] ibid

comprised of estates of the company. The trustee shall be responsible for liquidation and distribution of proceeds to creditors holding claims against the estate. It is the most common form of Bankruptcy in USA.

Chapter 11: The company may choose to be restructured and reorganized by filling a voluntary petition. The need not be insolvent in order to file petition under Chapter 11. In allows reorganization plan to help repay loan over a time used by small and large corporations

Chapter 13 : Individual Insolvency plan or reorganization of loan and propose a repayment plan over three or five years. The payment is made to creditors through court trustee. It helps to protect the assets of debtor by giving time to repay over a period of time.

Chapter 15: The United Nation Commission on International Trade Law (UNICITRAL) Model Law on Cross border Insolvency is adopted in 2005 under Chapter 15 of the Bankruptcy Code. It allows recognition of foreign proceedings in US

10.0 Canada

Statutory Framework of insolvency and reorganization in Canada:

Debt recovery Laws are classified under Insolvency Laws in Canada. Debt recovery Laws are governed by the Bankruptcy and Insolvency Act. The bankruptcies are supervised by the office of the Superintendent of bankruptcy for fair and efficient administration[25].

Debt Recovery in Canada[26] :

Insolvency and Bankruptcy is governed under three federal statutes.

1. **The Bankruptcy and Insolvency Act 1985(BIA):**

The Act deals with restructuring and liquidation of assets of Individuals, partnership, corporations (exclude certain types of corporations) and other business entities that meet residency and nominal debt requirements. The act provides for receiverships in which an insolvent's assets and rights are given for custody and care of third party called receiver. The receiver though continues operation, but in certain cases the assets are liquidated.

The BIA is the complete code which provides substantive provisions scope and breadth of stays of proceedings, distributional priorities, fraudulent transfers, the sale of assets, the contract treatments, interim financings, cross-border proceedings and penalities and sanctions against debtors and their directors for violations under the act. It also deals with appointment of receivers and the rules related to their conduct. Restructuring procedure is by way of proposal to creditors. These proposals bind all affected creditors, if approved by the requisite double majority and subsequently by the court.

2. **The Companies Creditors Arrangement Act 1985(CCAA):**

The act deals with the only restructuring of the debts of corporations and income that meet certain residency requirements and meet higher minimum debt requirements than those found under the Bankruptcy and Insolvency Act 1985. It is a more better statute than the BIA, which gives more discretionary powers to court in respect of restructuring corporations.

3. **The Winding-up and Restructuring Act 1985 (WURA):**

The Act deals with liquidation and restructuring of certain definite entities like banks and trust

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[25] https://www.ic.gc.ca/eic/site/bsf-osb.nsf/eng/br01467.html
[26] Insolvency- Law Review 7th Edition- Canada pg no.50, 51

companies, those excluded under The Bankruptcy and Insolvency Act 1985 and The Companies Creditors Arrangement Act 1985.

11.0 United Kingdom

Statutory Framework of insolvency and reorganization in UK:

Debt Recovery in United Kingdom:
      The legal framework of in most of the countries is based on English Common Law. Further the IBC is close mirror of UK Insolvency regime, but customized to Indian scenario.

The UK Insolvency Laws are:
1. The Insolvency Act 1986:
2. The Insolvency Rules 2016

      The UK Insolvency Act 1986[27] deals with personal and corporate insolvency. The act deals with winding up of company, appointment of receiver, insolvency proceedings etc.

The Insolvency provisions adopted from UK are:
- The doctrine of debtor in possession is shifted to Debtor in possession.
- Appointment of Insolvency Resolution Professionals.
- Moratorium period
- The waterfall mechanism in distribution of proceeds after the completion of liquidation.
- UNCITRAL Model of Cross-border insolvency is subject to Government of India agreement with any country. But Cross-border insolvency has not yet been adopted.

12.0 Conclusions and Suggestions
- ✓ India needs a proper legal framework in the aspect of cross border insolvency in order to tackle foreign investors to invest in India.
- ✓ Pre-packaged insolvency process is successfully implemented in USA and UK. Amendment has to be made to the IBC as and when need arises or felt necessary, for better and cost effective recovery process.
- ✓ The debt recovery rate in India is very less as compared to Australia, Canada, USA and UK countries which is more than 80 per cent whereas Indian recovery rate is less than 70 per cent.
- ✓ The turnaround time taken to recover the debts needs to be considerably improved.
- ✓ Liquidation is most resorted option in India wherein assets are sold in a piecemeal and not as going concern. Whereas in other countries reorganization is given more importance.
- ✓ After the introduction of IBC India's ability to resolve insolvency on par with the International trends
- ✓ UNCITRAL Model Law on Cross border Insolvency but me adopted under IBC.

      Australia, Canada, USA and UK are having a sound Insolvency Resolution system for addressing the resolution of Corporate as well as Personal insolvencies. They have laid down a comprehensive legal mechanism to deal with Corporate and Personal Insolvencies.

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[27] https://www.lexisnexis.co.uk/legal/legislation/uk-parliament-acts/insolvency-act-1986-c45#:~:text=An%20Act%20to%20consolidate%20the,two%20subject%20matters%2C%20including%20the

Role of Information Technology in Legal Education

Disha Dagar*

ABSTRACT

Information and Communication Technologies (ICT) has influenced all the field of knowledge in the world. The influences are felt more and more in education. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs. ICTs have revolutionised the way people work today and are now transforming education systems. Legal education cannot exist in vacuum, therefore development in legal education is necessary in accordance with new means of ICTs. This paper discussed the importance of Information and Communication Technologies in legal Education and the changes it brought in traditional teaching of law.

Keywords: *Information and communication technologies; ICTs; Legal education; Computers; Legal research; Internet.*

1.0 Introduction

"Education is the most powerful weapon which you can use to change the world."

-Nelson Mandela

In the lap of globalisation, with the blessings of information and communication technology, the term 'Legal Education' touches multi-dimensional streams of education all around the world. Legal education is not a subject that covers the scope of the law alone but it extends its arms to the social, political, historical, and economic arena. The term 'legal education' cannot be understood with a determinate set of definitions, as the law cannot be understood without imbibing the social segments in its ambit. Legal education is a human science which furnishes the relationship of law with society. Education in law equips the future lawyers, judges, administrators, counsellors, and legal scientists to fashion and refashion ways of peace and order attainment of the ideals of human governance. The Law Commission of India has also identified legal education as a science which imparts to students the knowledge of certain principles and provisions of law intending to enable them to enter into the legal profession. Legal education is a concept of great importance and also plays a vital and significant function in the implementation of the cherished ideals of Justice, liberty, equality, and fraternity as laid down by the framers of the constitution.

Computers made their entry into the education sector in the late 1970s. With computers, other devices like printers, floppy disk drives, scanners, and the first digital cameras also made their way into the education sector. In those times, the term Information Technology (IT) was used to describe computers and these various peripheral devices. Then with the arrival of the internet and the World Wide Web, emails, and search engines, a complete transformation occurred in almost every field including education. A new term ICT emerged in the language which is short for Information and Communication Technologies. It embraces many technologies that enable us to receive information and communicate or exchange information with others. According to UNESCO the term "Information and Communication Technologies (ICT) refers to forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. ." This broad definition of ICT includes any communication device or application, encompassing: radio, television, cellular phones, computers, satellite systems as well as various services and applications associated with them, such as video conferencing and distance learning.

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ICT can be used to support the educational content, the educational process as well as the organisation and Administration of education.

The encyclopaedia of education defines legal education as a skill for human knowledge that is universally relevant to the lawyer's art and which deserves special attention in educational institutions. The first thing which the lawyer must always bear in mind is that he/she must spiritualise the practice of law for service to the country. There are instances of eminent lawyers in all countries who led a life of self-sacrifice, who devoted their brilliant legal talents entirely to the service of their country.

The primary goal of legal education is to:

(i) provide a platform where legal scholars can contribute to enhancing in-depth understanding of the law,

(ii) explore vacuum areas of law where the law is needed,

(iii) participate in growth, evolution, and improvement of legal rules,

(iv) inculcate law students with the knowledge of operative legal rules, both substantive and procedural,

(v) equip the law students with sufficient knowledge of the historical and sociological background of the country's legal system, and

(vi) to provide students with knowledge of the other legal systems of the world so that the students do not find themselves at a complete loss when it comes to adopting a comparative approach.

Thus, legal education is essentially a multi-disciplined, multi-purpose education that can develop the human resources and idealism needed to strengthen the legal system. A lawyer, a product of such education, can contribute to national development and social change in a much more constructive manner with their legal education.

2.0 Significance of the Legal Education in India

The effectiveness of the administration of justice can only be reaped if the legal education is governed not only for the person who wishes to take the law as a profession but for those who wish to be a responsible and enlightened citizen. In developing society, the importance of legal education has assumed great significance. The object of the legal education is not restricted only to producing legal practitioners who are experts in litigation-oriented skills but also to play a vital role in which the lawyers are equipped with divergent skills, prospective, and tools with a view to making them policy-makers, administrators and social engineers.

"Law without education is a dead letter. With education the needed law follows without effort and, of course, with the power to execute it; indeed, it seems to execute itself."

-Rutherford B. Hayes

The aim of legal education is much higher than merely securing technical proficiency and material progress. The legal profession and judiciary have, therefore, an important role to play in facilitating the management of change. The law makes us "citizens", legal education makes us "ideal citizen". If legal education is aimed at grooming, social engineers, it would have been easier to achieve peace in society.

Legal education is a vital link in the creation of knowledge, concepts as well as in the application of such concepts in society. The object of legal education is primarily to create professional lawyers. With the passage of time, the spectrum of this term has widened. It has absorbed within its scope all these employments which are mainly dependent on their degree in law. When the seminars are conducted on the topic like, "Legal Education: Challenges Ahead", it is observed that the whole focus is on those who impart education in law in universities, law schools, and law colleges. The object of the paper is to highlight the need of imparting knowledge to coming generations. In order to provide legal education as the yardstick of social empowerment, it is necessary that teachers/

lecturers in law should lay special emphasis on three points which are as follows:

To reveal the process through which law can introduce significant changes in the social and economic organisation of society leading to the improved standard of living

To emphasise the study of principles, institutions, and proceedings that are fundamental in safeguarding the promotions of the rights of individuals and groups and

To imbue students with rule of law and to develop the personal qualities required to uphold the noble ideals of the profession and secure the effective enforcement of the law in the community.

Legal education cannot exist in a vacuum, therefore, developments within higher education are necessitated. Necessary changes can be explained by many reasons, but prominent reasons that have acted as a catalyst for changes are the:

(a) Emerging new social-economic challenges,

(b) the focus is not merely to maintain standards of legal education but to improve standards.

It is arguable that there is a conflict between legal education and general educational policymaker. The conflict revolves around the manner in which both groups perceive how the challenges of the 20th century should be met. The main thrust of legal education policy is that legal education needs to prepare students not just for a career in law, but should equip students to extend the range of carriers leading from legal education beyond the narrow choice of becoming a barrister or solicitor. Therefore, legal education should be an "all-around preparation for a wide range of occupational destinations".

3.0 Application of Icts in Legal Education

From the very beginning, the Legal Profession is considered a noble one. Hence, it is necessary to have the best Education System in Law. For many years the use of ICTs to teach law has been a minor concern among law schools and colleges. Due to this, they face various difficulties such as decline enrolment, decline job prospects for law graduates, the inability of fresh law graduates to present their cases before courts, etc. leading to the shutting down of many law colleges. Against these backdrops, technology offers attractive possibilities of making legal education more efficient and more effective. This is the reason that now a day's every law college is trying to be equipped with ICT facilities as much as possible. Some examples of the application of ICTs in the Legal field are as under:

3.1 Electronic books

E-books are nothing but the digital version of printed books. In addition to textual matters, the e-books consist of hyperlinks, search facilities, and multimedia capabilities. E-books compilers compile also the source files into an easy one to distribute life formats like HTML, PDF, and RTF files. In other words, an e-book has electronic text and that text is showed to the readers visually.

3.2 E-journals

An e-journal is a periodical publication that is published in electronic format, usually on the Internet. Electronic journals have several advantages over traditional printed journals. Students can search the content page of the full text of the journal to find the article of their choice. They can read it anywhere on their laptops or even on mobiles so they don't have to be in the library. Students can save the journal on their desktops or laptops for future reference.

3.3 Electronic legal data bases
3.3.1 Manupatra online legal database

Manupatra provides legal, taxation, corporate and business policy database which contain

primary documents and analytical content covering commentaries, digests, bare acts, judgements, and articles. It is a fee based database having different subscription policies for different members of the legal fraternity. It provides privileged access to its users and empowers them with in-depth legislative regulatory and procedural information critical for decision making in a single online platform. It may be useful for law students for preparing their moot court problems as well as doing legal research as a part of their curriculum.

3.3.2 Lexis nexis database

LexisNexis is a worldwide provider of content-enabled workflow solutions designed specifically for professionals in the legal, risk management, corporate, government, law enforcement, accounting, and academic markets. It provides customers with access to billions of searchable documents and records from more than 45,000 legal, news, and business sources.

3.3.3 SCC online web edition

It provides top quality information with an interface which makes legal research a quicker, easier, and more effective process for the students or other legal professional. It has a collection of over 380 databases, with more than 3.4 million documents and over 16.7 million pages.

3.3.4 Judgement information system (JUDIS)

Judgement Information System Consists of the judgements of the Supreme Court of India and several other High Courts. All Supreme Court reported judgments which are published in Supreme Court Reporter Journal since its inception i.e. 1950 till date are available.

4.0 Challenges to Legal Education in the Era of Information and Communication Technology

Globalisation is the consequence of the interdependence amongst nations in the context of economic dependence. Economic interdependence among nations can be traced back to ancient history, even to the beginning of mankind. Yet the degree of interdependence and the sphere thereof is very much different in the 21st century. Globalisation means a strategically developed world where boundaries of countries do not matter for the movement of commodities, services, capital, finances, technology, and information. This strategy has converted the entire world into a global village. The backbone is the ever evolving Information and Communication Technology. This growth in globalisation and free economy has given rise to the basket of problems before legal luminaries i.e. lawyers, judges, magistrates, law professors, and administrators.

The sphinx to legal education is reflected where a galaxy of legal luminaries are not able to bring the cyberspace or the world of electronic-magnetic into the clutches of the law and within the ambit of legal education. The new millennium has dawned an environment of computerisation in which- www., electronic media, internet, foreign investment, mergers, acquisitions, e-commerce, e-banking, M-commerce, Blue-Commerce has become part and parcel of our lives. New methods of committing frauds, cheating, cyber defamation, pornography, computer crimes, cyber crimes, cyber terrorism, transnational organised crimes, white-collar crimes, frauds relating to intellectual property like copyright, patents, domain names, copy theft, etc., have come into existence. Let us visualise the situation of a novice lawyer in the galaxy of these newly – born e-crimes were even laws are at a nascent stage and implementation of the law is merely a formality. The need of the hour is adequate and skilful law in the area of information technology. There are some prominent questions before legal education providers:

(1) Can we say no to the benefits of Information and Communication Technology?
(2) Can we deny our entrance into the cyberspace or e-world?

(3) Is the education of law adequate to keep cyberspace in the protected palm of the law?

The obvious answer is that we cannot say no to the achievements and the fruits of cyber space. The answer to the third question is the greatest challenge before the whole world. The nature of cyberspace and the internet is an open system of communication and interaction. Since the computerised environment is more process-based than personalisation, it thus becomes, necessary to have an environment of integration, confidentiality, and authentication of communication. Cyber law is the domain at the intersection of technology, networking, and law for checking risks. Cyber law is the area of law dealing with the use of computers and the internet. To check the cyber offences, India has only one enactment namely the Information Technology Act, 2000 as amended in 2008. In order to pave the way for the development of e-commerce and an internationally acceptable level of legal uniformity and compatibility of rules and practices, the United Nations Commission on International Trade Law (UNCITRAL) established by the United Nations General Assembly in 1996, adopted the Model Law of Electronic Commerce in 1966. It intended to facilitate the use of EDI, e-mail, telegram, telex or telegraphy, etc., by providing standards by which their legal value can be assessed. The UNCITRAL Model Law, 1996 has seventeen Articles that cover different functions performed by the parties for transacting trade and commerce in the paper based business. The Model Law, 1996 as adopted by U.N. General Assembly on January 1997 provides the broad framework on the basis of which the member nations are expected to formulate their cyber laws and regulations for a synchronised approach towards the legal framework of electronic commerce. In order to protect the interests of the consumers, it has been provided that this law does not override any rule of law intended for the protection of consumers. A legal instrument that is particularly geared toward the 'harmonisation' of democratic trade law is UNCITRAL's Model Law concept. The Model Law creates a legal framework for the individual states to follow when adopting new trade laws or modifying the existing laws.

5.0 Suggestions to Conquer the Challenges Ahead

Legal education is required to cater to the needs of a variety of unanswered questions. It is high time to take a fresh look at the quality of legal education in the country in general and in academics (Universities) in particular. Legal education needs to be modified by increasing global exposure, achieved by adding courses, hiring more qualified faculty, sponsoring more international academic programs, opening research centres with global connections, and augmenting the number of formal international linkages. Due to privatisation and globalisation, there is an immediate need to conduct in-depth research into the subjects like Intellectual Property Rights, Cyber Law, Transnational Crimes, International Human Rights, Alternative Dispute Resolution, and International Business Transactions.

i. The classic ingredients of legal training consists of qualified faculty, dedicated students, research centres, sound infrastructure, and update legal literature; that is demanded by the new world paradigm.

ii. The law imparting institutions or law schools must connect themselves with the outside world and reconstruct their academic agendas to work with actors in the international community, such as NGOs, multinational corporations, governments, and legal systems of other countries.

iii. Clinical programs, moot court competitions, study-abroad courses, debate clubs, and an increased reliance on non-legal disciplines such as economics, psychology, political science, anthropology, and sociology have made the study of law very wide. Teaching must focus on building up the skills of analysis, language, drafting, and argument in law students.

iv. Accreditation and quality assessment of law schools must be done by the UGC & BCI quickly to build up a sense of competition between the different law schools.

v. The law profession is a highly competitive sector and, therefore, the highest qualifications and abilities demand from aspirant students. There are two distinct branches11 of the legal system that of solicitors and barristers. There is, therefore, a need to articulate a clear long term vision on legal education in India, where such a vision will be guided by a focusing commitment to excellence.

vi. In Private Law Colleges and Universities, the well qualified and young aspirants must not feel that the teaching profession is lesser than litigation in any respects. It is the need of time to give a better pay scale and handsome increments even to teachers in private institutions.

Law and Legal education are facing fundamental changes. Many assume that these changes will force law schools to give upon theory and focus more on training students about the practice of law. The legal academics must review their performances for the achievement of excellence in the journey of education. The legal, educational journey can be best reached at the destination with a strategic step towards this journey. Perhaps, a more direct route is D7. It means:

(1) Dedication;

(2) Determination;

(3) Destination clarity;

(4) Decision Making;

(5) Determined and efficient law faculty;

(6) Disciplined and regulated life and

(7) Dependence on willpower.

India's legal education system needs "Dramatic Reform" to improve the economic environment and ensure citizens get speedy and affordable access to justice.

6.0 Conclusion

Legal education is a hidden wealth. Law is the cement of the society which fertilises a barren land and makes the lives of people worth living in society. A sacred intergovernmental obligation of the present generation is required to transmit this wealth of knowledge to the next generation so that it is preserved for the benefit of prosperity. Professional competence is required to transmit such knowledge. Indian Parliament has enacted a number of laws for social reforms and social changes as required by the need of the hour. The fact is that the mere enactment of laws will not be sufficient in the delivery of effective social justice. The roots of imparting good education lie in experts in the law.

The scheme of legal education should be such as would make the students socially conscious lawyers when they go out of the portals of the law universities. Law Colleges should not prepare them to sit in air-conditioned offices, but to serve as a social asset. The teaching of law should not be restricted only to the production of the professionals either in the form of lawyers or judges, but the teaching of law should have a much wider role to serve the society in disseminating knowledge for making people aware of their rights, duties, and privileges. Legal education has to cover a long distance to reach its destination and the destination is peace, justice, equality, integrity, and confidence in the virtual or e-world by educating young lawyers in various fields of law. To achieve this destination, it is important that competent legal education must be imparted to young law students, which are at their novice stage in various law institutes. Legal education must be competent enough to tackle all the upcoming challenges before the law.

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Online Dispute Resolution: Virtual Justice as Reality

Vinish Phoghat*

ABSTRACT

If the world could be crystallized into one space-it is the virtual world devoid of territorial boundaries where conventional offline laws may have no application. With the growth of Internet & e-commerce, disputes of diverse nature have surfaced including social, commercial, intellectual property related and cultural or political conflicts, involving multiple territorial jurisdictions. In such a scenario, 'Online Dispute Resolution', robotic by software or by appointing a neutral third party and conducted online seems to be the most viable and practicable solution. In this Paper, I aim to discuss the meaning and scope of application of ODR, efficiencies and challenges in the applicability of ODR. The role of government and judiciary in developing ODR techniques will also be elucidated. Several pertinent issues such as resolving jurisdiction and enforcement issues, privacy and confidentiality concerns interlinked with successful adoption of ODR techniques will be considered and recommendations made to eliminate the possible hurdles for effective deployment of ODR in India.

Keywords: *Online dispute resolution (ODR); alternate dispute resolution; technology e-Commerce and judiciary.*

1.0 Introduction

The proliferation of internet brought together people from different parts of the country to engage in virtual business transactions. This eventually led to a large number of cross border disputes and consequently, the advancement of technology has made it possible to use information and communication technologies to resolve disputes between parties irrespective of their location. The first such platform introduced in 1999 was eBay which allowed a customer to file a complaint online and initiate a settlement process. In the event of the failure of the settlement an online mediation process would commence. Basically this platform was designed to diagnose the problem and conduct automated negotiation followed by mediation or arbitration. This model, which has since then evolved into more sophisticated variants which are widely used by other private organizations and states alike, has popularly been termed as ODR. The ODR as defined by UNCITRAL is a mechanism for resolving disputes facilitated through the use of electronic communications and other information and communication technology. Basically ODR is simply e-ADR where interactions take place online using technology. In practice, ODR offers more advantages than the traditional offline ADR mechanisms as ODR is cost effective and more useful for resolving cross-border disputes and issues that may arise because of multiple jurisdictions. While the adoption for ODR has been in resolving e-commerce disputes where parties are in different jurisdictions, now it has since been adopted to resolve a wider variety of disputes viz. consumer disputes, family disputes, insurance claim, intellectual property/ domain name dispute etc.

2.0 ODR in India

In India where courts are overburdened and the backlog of cases clogging court rooms,

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access to justice in India is a challenge and resolving disputes is evidently a pain point, considering the time, money and efforts involved. There have even been some instances where the courts identifythe need for having ODR mechanisms across courts, for example, hon'ble Justice N.V. Ramana has stated that ODR can be used successfully to resolve consumer, family, business and commercial disputes.[i] The Ministry of Law and Justice has recently issued a list of agencies and organizations, which have online dispute resolution services and also advised various government departments to avail of such online services. During the COVID-19 pandemic, the present Chief Justice of India, Justice S.A. Bobde has noted the need for steps to be taken to make courts virtual in order to prevent the shutdown of the top courts and emphasised on the need to have international arbitration (IA) and artificial intelligence ("AI") as a leading alternative to the current status quo: IA to traditional methods of dispute resolution, AI to traditional methods of performance.[ii] He has also cited the recent launch of the official mobile app of the Supreme Court, which provides information on cause lists, case status, daily orders, judgments and circulars, among other and also mentioned the artificial intelligence-powered translation engine "Suvas (Supreme Court Vidhik Anuvaad Software)" that translates judgments from English to Indian languages.[iii]

However the Nilekani panel in 2019 has already been initiated the setting up of online dispute resolution systems to handle complaints arising out of digital payments. The high level committee suggested that such ODR platform should have two levels – one automated and one human, with a provision for appeal.[iv] Recently NITI Aayog, in association with Agami and Omidyar Network India, organised a meeting on 'Catalyzing Online Dispute Resolution in India' where it brought together key stakeholders to work collaboratively to ensure efforts are taken to scale online dispute resolution in India. It was also recognised that ODR can enhance access to justice and as efficient dispute resolution will be key in reviving the economy from the challenges posed by the COVID-19.

3.0 ODR and Judiciary

The Supreme Court has sought to ensure access to justice during the ongoing pandemic and has issued orders stating that it would hear urgent matters via video conferencing and prescribed standard operating procedures, for advocates and parties for mentioning cases, e-filing and hearings. The ongoing pandemic Covid-19 has created an unprecedented need for courts, arbitral institutions and organisations to adapt at short notice to new and different ways of working and offer solutions to parties and practitioners that will enable dispute resolution in a time of quarantine and enforced social distancing. The Supreme Court has been laid down the foundation for ODR in to the country and held that if consultation could be achieved through electronic media and remote conferencing, it was not necessary for people to sit with each other in the same physical space.[v] The Apex Court also observed that there was a need to consider categories of cases which can be partly or entirely concluded "online" without physical presence of the parties and recommended the resolution of simple cases like those concerning traffic challans and cheque bouncing.[vi] Further, the court has recognised the validity of online arbitration and held that an online arbitration agreement is valid as long as it is compliant with Section 4 and 5 of the Information Technology Act ("IT Act"), 2008 read with Section 65B of the Indian Evidence Act, 1872 and provisions of the Arbitration and Conciliation Act, 1996. The simultaneous movement to integrate technology in dispute resolution and reliance on ADR mechanisms is a clear indicator that India is gearing itself to logically transition towards ODR.[vii]

4.0 Challenges in Adoption of ODR

Though ODR provide for efficient and effective dispute resolution, its integration in the mainstream dispute resolution ecosystem holds several challenges. A successful implementation of

ODR depends on several factors such as availability of reliable and secure technology tools, digital infrastructure to enable usage, willingness of parties, co-operation and support from lawyers, Judiciary, Government to ensure enforcement of awards and agreements etc.[viii] Based on extensive literature review there are following challenges that need to be addressed in a phased manner for successful implementation of ODR:

5.0 ODR and Legislation

The present legislative framework has certain provisions have enabled the accommodation of online processes, especially sharing of virtual documents and virtual hearings. As mentioned earlier, Indian Evidence Act, 1872 under Section 65-A and 65-B allows for the recognition of electronic evidence. Similarly, the IT Act accords recognition to digital signatures under Section 4, 5, 10-A and 11-15 to provide validity to online contracts. This has been made possible by adopting the UNCITRAL Model Law on Electronic Commerce in 1996 and the Model Law on Electronic Signatures in 2001. This framework can be used to implement ODR in practice.

6.0 ODR and technology

Important variant in making ODR a reality in India is the technological capacity and internet perforation across population. However India might have a large number of internet users but still it accounts for only 50 percent of its population. This limited internet access and lack of infrastructure problems would require large-scale resource intensive intervention to ramp up capabilities which can enable ODR adoption in India. Apart from technological barriers, ODR also faces mental barrier since people may not be comfortable with online communication as opposed to face to face communication. However, there is a shift in India's relationship with online technology with reliance on e-commerce. There are certain prerequisites for an effective ODR mechanism viz:

7.0 Digital literacy

ODR requires a basic level of digital literacy as a prerequisite to ensure that ODR is adopted by the society at large and not remain limited to urban areas only. Recently the Government of india has taken initiated measures to impart digital literacy amongst citizens. In March 2019, Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA) was launched with an objective to expand digital literacy in rural India and make 6 million people in rural India digitally literate.[ix] Under this project, the Government has set up 3,06,975 training centres and has conducted 2,98,00,507 digital literacy trainings.

8.0 Lack of awareness regarding ODR

It is essential that apart from strengthening ADR processes, initiatives should be taken to build awareness regarding ODR as usage of technology to connect disputing parties with Neutrals to resolve disputes, is at a very nascent stage in India. At present, the lack of awareness having low confidence in ODR processes and restricted application of ODR in sectors with huge potential for such as MSME, consumer disputes etc. As with any technology services, comfort and trust is built overtime with continuous usage, individuals become accustomed to ODR with its increased usage. Therefore, apart from increasing awareness through systematic campaigns, there is need to provide more avenues for continuous usage of ODR.

9.0 Legal culture

It is often difficult to introduce ODR in countries where people rely more on courts and there is low filtration of ADR mechanisms for dispute resolution. However, it is necessary to create capacity to provide quality ADR services through mediation and arbitration which will help in transitioning faster towards ODR.

9.1 Jurisdiction issue

When dispute entirely resolved online through ODR, the question as to applicability of substantive law to resolve the dispute will arise, as parties are at distinct places. In traditional arbitration, place of arbitration is decided by the parties as per section 20 of the Arbitration and Conciliation Act, 1996 which is subject to convenience of both the parties. But during online proceedings, conflict may arise with respect to place or seat of arbitration as they do not have to go anywhere physically. It may lead to ambiguity with respect to jurisdiction.

9.2 Enforcement of the outcome of ODR process

A key challenge towards meeting the implementation of ODR is the existing uncertainty regarding enforcement of ODR outcomes. The Supreme Court in Afcons Infrastructure case[x] held that the court-initiated mediation proceedings will be deemed as Lok Adalat and settlements reached through such proceedings are enforceable under S. 21 of Legal Services Authorities Act, 1987. However, there seems to be a legal vacuum when mediation processes are not initiated by the courts. For these proceedings, settlements can only be enforced as an agreement between the parties and any breach of such agreement will result in further judicial processes. Further, the process for enforcement of arbitral award in India is complex and burdensome. The arbitration awards require stamp duties in most of the states and the archaic requirement to attach eStamp certificate to the document create barriers in an end-to-end online process. The Arbitration and Conciliation Act, 1996 provides for enforcement of the arbitral award in the same manner as if it were a decree of the court. However it is required that the signed copy of the arbitral award passed online can be provided to the parties by arbitral tribunal electronically via email and the actual signed copies can be simultaneously sent through post or the arbitrators can also put their digital signatures and provide accuracy and integrity to the award. The original signed copy received either received by post or it's a digitally signed awards, can be filed before the courts, for the enforcement of the arbitral award. There won't be any change in the procedure for enforcing an online award. Pursuant to passing of valid award online, it can be enforced in accordance with procedure outlined in the Arbitration Act read with the execution procedure enshrined under Code of Civil Procedure, 1908 (CPC).

9.3 Suggestion and recommendations

➢ ODR is still in its infancy stage in India and ODR is required to introduce on a wide scale to rescue the courts from backlog of cases. In order to make ODR mechanism more effective, mass awareness and training through social media is required.

➢ It is also suggested to introduce a tiered dispute resolution framework for cases, which can be resolved through negotiation, mediation and arbitration in a time-bound manner, for all disputes below a certain monetary limit as model used in Hong Kong.

➢ It is also suggested to introduce a 24*7 legal help to educate the public regarding their rights and obligations under law.

➢ It is also required to collaborate and co-opt existing expertise and resources from grass-root organisations and private sector ODR service providers.

➢ Governments can play a pivotal role in granting financial aids to ODR projects in India and work

towards building robust technical infrastructure.

➤ More recognition should be given to ODR mechanism for expedient resolution in coming times.

➤ More Advocates and Legal Experts should be encouraged to come forward to register themselves as mediator on online platforms such as SAMA.

➤ E-arbitral awards in our opinion would have an equivalent effect as that of traditional arbitral awards and would be final and binding upon parties.

Thus the need of the hour is to maximize the reach of access to justice delivery system to all the sections of the society. For that a strong infrastructure, for easy access and for ensuring the justice delivery within minimal time and in adequate manner by increasing literacy rate, reducing language and cultural barriers, creating awareness, manpower training in technology, funding for projects and codification of ODR law and practice and easy access to e-courts might be the stepping stone towards achievement of the same.

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A Study on Roles and Functions of Entrepreneurship Development Cells in Arts and Science Colleges of Madurai District

R. Ramachandran* and P. Kannadas**

ABSTRACT

India, a developing economy with huge population faces a major problem called Unemployment. The development of an economy purely depends upon a highly motivated people who are called as "Entrepreneurs" who are ready to take risk for achieving the growth of the country. Entrepreneurs are the person who initiates the business concern, organize and controls all the activities. The ultimate goal for the economic development is to bring about the improvement in quality of life among the citizens of the country. The role of entrepreneurs is to create an environment which is productive by optimum utilization of resources like men, machine, money and materials. To initiate the Entrepreneurship Quality among the students, Government of India announces to start Entrepreneurship Development cells in schools and colleges. The present paper focuses on consequences of Entrepreneurship Development Cells among colleges in Madurai District.

Keywords: Economy; Unemployment; Entrepreneurs; Risk; Growth; Concern; Economic development; Optimum utilization; Productive; Environment.

1.0 Introduction

Definition of Entrepreneurship:

Entrepreneurship involves a huge number which includes:
(a) Perception of an Opportunity
(b) Organizing a business concern
(c) Running a business concern with ever going and growing profit organization

Entrepreneurship involves a wide range of capabilities of a person who bears risk, to forecast the future prospects of an organization, to organize the various factors involved in the production such as land, labour and capital, to innovate new ideas and opportunities and to compete and meet the unforeseen and adverse situation of the business.

Entrepreneurship in India

The Government of India encouraged Entrepreneurship by providing assistance through import substitution policy, credit facilities etc… by set up of various agencies such as:
1. Small Industries Service Institute (SISI)
2. District Industries Centre (DIC)
3. Tamil Nadu Industrial Investment Corporation (TIIC)
4. Small Industries Development Organization (SIDCO)
5. Entrepreneurship Development and Innovation Institute (EDII)

The Government Setup the above mentioned agencies to promote the small industries and enterprises apart from large industries.

Entrepreneurship Development Cells

Entrepreneurship Development Cell (ED Cell) is created for the purpose to create awareness about entrepreneurship in the minds of young Indians.

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The Entrepreneurship Development Cell organizes many entrepreneurship development programmes to eliminate those who do not possess the basic capabilities for entering into business ventures, weed out such persons and help develop latest facilities of those who possess potential for becoming entrepreneurs.

2.0 Need for the Study

Government spends huge amount for the purpose of developing entrepreneurs in India. Most of the funds are funds are spent through DST (Department of Science and Technology), AICTE (All India Council for Technical Education), UGC (University Grants Commission), etc… to the educational institution to set up Entrepreneurship Development Cells. The role and functions of Entrepreneurship Development Cells are to develop the entrepreneurs in the colleges and universities. This study focuses to identify the consequences of Entrepreneurship Development Cells of Colleges at Madurai District in the present scenario

3.0 Statement of the Problem

The entrepreneurs are compelled to face the many challenges in the modern business world. To bring a start up for the product, it is a very big task for the entrepreneurs. There is a rapid development   in small scale industries like manufacturing and service sectors. The basic initiation is the process of making a prospect into an entrepreneur is identification of skilled capable youngsters who possess the courage, confident and willingness to face and take risks. This study analyses the roles and functions of Entrepreneurship Development Cells in Arts and Science Colleges of Madurai District, which were created with an intention of promoting entrepreneurship among the students.

4.0 Review of Literature

1. Saif Siddiqui "In the rural area, the development plan should be made on the basis of vocational pattern and a plan should not be imposed on all segments".
2. Srinivas, G. "the importance of entrepreneurial education among the students is to spread the message of entrepreneurship as one of the career option, teachers and mentors are very important to play the role".
3. Neal E. Thomberry "Large organizations focused on the term called corporate entrepreneurship and organizes management development programs to identify the managers can act as an indeed and being trained to act like entrepreneurs to create new value for the business".
4. Ahmed, K. "the need of the various training programme is to create awareness and also to inculcate the entrepreneurial opportunities and to develop entrepreneurial behaviour among the students".
5. Ranade "The success rate was reduced due to business environment deficiencies but not due to entrepreneurial inadequacy among the entrepreneurs. He also mentioned that the Entrepreneurship Development Programme models will be more dynamic, flexible, to meet the requirements of different economic, social and infrastructure strata existing in the country".

5.0 Objectives of the Study

1. To study about the profile of Entrepreneurship Development Cells
2. To study about the various programmes organized by the Entrepreneurship Development Cells
3. To know about the working style of various Entrepreneurship Development Cells
4. To suggest the policy recommendations based on the objective findings.

6.0 Research Methodology

Research Design used for the study	Descriptive Research Design
Data Collection Method	Data is collected through primary as well as secondary sources. • Through, questionnaire for the purpose of collecting primary data from the Entrepreneurship Development Cells in Arts and Science Colleges, Madurai. • Secondary sources consist of books, periodicals, newspapers and online resources.
Sample Size	In Madurai District, there are 15 Arts Colleges having Entrepreneurship Development Cells are taken as samples
Sampling Method	Census Sampling

7.0 Data Analysis, Interpretation and Hypothesis Testing:

The framed questionnaires were distributed to 25 Arts Colleges which are having Entrepreneurship Development Cells. The statistical tools like Chi-square, One way ANOVA, Factor analysis were used to analyze the study to bring out the significant relationship between variables.
Data Analysis and Interpretation:
• Demographic profile
• Reasons for not starting the business
• No. of Programmes organized
• Functions of ED Cells
• Types of Training provided by ED Cells
• Responsibilities of ED Cells
• Role of ED Cells
• Difficulties faced by ED Cells

Correlation between the Duration of Functioning of the ED Cells and Total number of programmes organized

Variables	R²	Statistical Inference
Duration of Functioning of the ED Cells	0.462**	P<0.01, Significant
Total number of programmes organized	0.470**	P<0.01, Significant

**- Correlation is significant at 0.01level.

There is significant relationship between duration of functioning of the Entrepreneurship Development Cell and the total number of programmes organized. Hence, the hypothesis is accepted.

8.0 Findings

1. Majority of the Colleges have been functioning the Entrepreneurship Development Cells less than 2 years.
2. The major funding agency for the colleges with ED Cells is University Grants Commission (UGC) and Entrepreneurship Development and Innovation Institute (EDII).
3. There is a significant relationship between total number of programmes organized and the funds

received by the EDII Cell.

4. There is a significant relationship between the ED Cells and ED programs which includes Faculty Development Programme, E-Leader Workshop and Tamil Nadu Student Innovators Camp which are organized by the ED Cells

5. The total number of Arts and Science Colleges in Madurai is 35. But only 15 Arts and Science Colleges are having Entrepreneurship Development Cells and they actively organizes the programme with a motive to create entrepreneurs.

6. The factors such as creativity ability of the trainers during the training programme, and their experience, communication skills are extracted from the colleges that are having Entrepreneurship Development Cells and they are grouped together based on the analysis and finally termed as best quality of trainers during the training programme.

9.0 Suggestions

1. Participants (Students) involvement level in the programme shows the success of the training programme. The ED Cells makes a proper planning and design the programme according to the profile of the participant.

2. Proper advertisement for the programme should be made to make an outreach about the programme to the participants.

3. Training programmes organized by the ED Cells should focuses on methodology of the training, quality / capability of the trainers, infrastructural facilities and real practical exposure about the environment.

4. Entrepreneurship is also acting a base tool for Economic Development. So, every college planned to set up an ED Cell and organize valuable programme to develop the students as Entrepreneurs to the Society.

10.0 Conclusion

Unemployment is a major problem in our country. The rate of unemployment is growing day by day. The overcome the problem and also to develop the economy, the colleges and schools should create awareness of Entrepreneurship among the students. All the Entrepreneurs are not born but they can be made by inculcating the entrepreneurial skills.

The role of ED Cells is more important to develop the entrepreneurial quality among the students. This research has concluded that the roles and functions of ED Cells should be functioned effectively to make the students as entrepreneurs for developing the society and nation.

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Online Education: Perception of College Students

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ABSTRACT

Virtual learning the newest method in the field of education. Since the pandemic started all the universities have moved towards the virtual platforms so that the education is not hampered in these tough times. The main objective for this study was to know about the impact of online education on students. The research is based on the quantitative analysis from respondents. The close ended questionnaire was used as a method for collection for responses of respondents. The quantitative responses figured out that the students are willing to move to traditional learning method as soon as they can. They found themselves more motivated, involved and creative in traditional learning method than in the virtual learning method. The study concludes that traditional learning is better than virtual learning. Though virtual learning has some positive impact on students and their education.

1.0 Introduction

Learning virtually has become an integrated part of our lives. With this pandemic colleges and universities have been shut down. Leading for everyone to move towards virtual platform to learn in any filed. Education has been an area which is growing with a rapid speed in means of everything starting from lower level to higher level of education. Distance learning had been in culture from a long time. For students wanting and willing to learn something new with a great enthusiasm and energy to do something different.

Moving from traditional method to a modern method had been a great challenge eventually for teachers and students, educators and learners. Where traditional method refers to face to face communication among teachers and students. Teachers delivering lessons orally in the classroom with number of students with both of their physical presence in a classroom. And modern method refers to virtual platforms being used by all, through help of various applications made and used to provide notes, assignments, projects, tests, and deliver a lesson over internet.

With the advancement in technology and every individual using various applications over internet, irrespective of a person's qualification had made virtual learning a possible means to continue education. Many applications like WhatsApp, Twitter, Facebook and many other applications help learners connect from different parts of world, from different countries and different culture. These virtual learning platforms introduce learners to large variety of learning in different fields. Virtual learning had made it more flexible for educators and learners to teach and learn with no boundation of time and mode of education is it formal or informal.

Virtual programs create an overwhelming response for learners to learn what they desire to learn which would have to be persuaded in traditional method of learning. With easy to access resource materials for the learning that may not be available physically. Virtual learning had made it more of self-directed, self-disciplined, creative and dynamic learning approach.

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Virtual learning also opens the doors for the weaker socio-economic students or learners who have limited number of resources to be accessed. They are easily accessible to resource materials and large number of students leading them to be not limited to a particular number of students in a blended learning environment. Through virtual learning the students are exposed to large number of opportunities and career options which helps them in further growth and development in them. Also, virtual learning helps students become more independent than they were exposed to before. Though it requires a proper mentorship and guidance from teachers and parents to what kind of educational content are learners exposed to.

A blended learning environment consists of traditional method of learning with virtual assistance. This makes it interactive with teachers delivering the lessons with students being interactive and attentive. Virtual learning means that learners have variety of chances to enhance their knowledge and convert them to opportunities.

2.0 Research Objective

The main objective to conduct this research is to study the perception of college students towards online education.

3.0 Literature Review

A good literature review doesn't just summarize sources – it analyses, synthesizes, and critically evaluates to give a clear picture of the state of knowledge on the subject. Muhammad Adnan and Kainat Anwar (2020) described how this pandemic had affected the students with the education on a virtual platform. They stated how virtual learning has not been providing with the desired result compared to the traditional learning. Though this step was taken in consideration of health and safety of teachers and students. Their study also revealed how students face difficulty with the online education mode of learning. Whereas, Lubna Salamat, Dr. Gulzar Ahmad, Mohammad Iftikhar Bakht and Imran Latif Safi (2018) says that virtual learning provides flexibility of time, source and opportunity for students and teachers. Virtual learning though has been tough to access in initial stage but had significantly shown a great impact in a positive view light for students and teachers to develop new skills in themselves with a great exposure to new technological developments and easy to share material for their study with access to different social media.

In addition, Nguyen VIET Anh (2017) states that in a blended learning the students to student interactions leave a great impact on the learnings of students. The blended learning includes traditional learning with virtual assistance for students to have a better clear idea about the content they study. It showed diversified and creative self-actualization skills in learners. Though according to John M. Krieg and Steven E. Henson (2016) it reveals that the students who were enrolled for the online courses in pre pandemic situation tend to drop their courses more than the students enrolled in traditional courses. It also revealed that students who enroll themselves in face to face course in a traditional learning method tend to perform better than the students doing virtual learning for the same course.

4.0 Research Methodology

This research is exploratory in nature. In order to fulfill the objective of the research, a questionnaire was framed and distributed among college students. The data had been analyzed using excel tools.

Analysis and Interpretation

Sr. No.	Statements	Percentage
1	Want continuation of online classes even after situation comes back to normal?	
	Yes	83.30%
	No	16.70%
2	Online classes help with proper schedule?	
	Yes	40%
	No	60%
3	Is virtual learning more effective than traditional learning?	
	Yes	13.30%
	No	86.70%
4	Have you found yourself participating less in virtual classes than traditional classes?	
	Yes	76.70%
	No	23.30%
5	Virtual learning enhances creativity?	
	Yes	26.70%
	No	73.30%

*Note: The percentage is based on number of responses from the data collected.

A study of 30 respondents shows the following analysis of impact of online education on students. The data shows that majority of students 73% belong to age group of 18 years – 25 years group and 27% belong to below 18 years age group. This includes that 53% of students are female and 47% of students are male. The study also indicates that 63.3% of the students find it difficult to attend virtual lessons as there is lack of interactions with teachers, whereas, 56.7% of the students find it difficult to attend virtual lessons due to bad internet connection and 26.7% of the students face problem with their laptops or PC's and only 3.3% of respondents haven't faced any of the problem while attending virtual lessons.

The study also revealed that 83.3% of respondents does not find virtual learning effective and would not like to continue with the virtual learning if the situation comes back to normal, whereas, 16.7% of respondents would like to continue with the virtual learning even after the situation comes back to normal and find virtual learning effective. The majority of 70% of respondents were having all means to attend the online classes when the pandemic started and 30% of respondents were not having all the means to attend the online classes when pandemic started.

On an average the majority of 36.7% of respondents spend 1 – 3 hours on online education daily, with 30% of students spending 3 – 6 hours on an average daily on online education, and 26.7% of respondents spending 6 – 9 hours daily on an average on online education and only 6.7% of respondents spending more than 9 hours on online education. The majority of 43.3% of respondents find online education moderately effective way of learning, whereas, 36.7% of respondents find online education slightly effective way of learning and 20% of respondents do not find online education an effective way of learning whereas none finds online education an extremely effective way of learning.

The study revealed that majority of 60% respondents believe that virtual learning does not help with their proper schedule and only 40% of respondents believe that virtual learning has been helpful in their proper schedule. The majority of 53.3% respondents prefer once in a while one on one conversation with their teachers, whereas, 26.7% of respondents does not prefer one on one conversation with their teachers, and 16.7% of respondents prefer more often of one on one

conversation with their teachers and only 3.3% of respondents always prefer one on one conversation with their teachers.

The study indicated that majority of 63.3% of respondents sometimes enjoy virtual learning, whereas, 30% respondents do not enjoy virtual learning at all and only 6.7% of respondents enjoy virtual learning. The study reveals that 43.3% of respondents say that they get sufficient time to complete their projects and assignments virtually, whereas, 30% of respondents say that they sometimes get sufficient time to complete their projects and assignments virtually and only 26.7% of respondents says that they do not get sufficient time to complete their projects and assignments virtually.

The study also indicated that majority of 86.7% of respondents do not find virtual learning more effective and useful than traditional learning and 13.3% of respondents find virtual learning more effective and useful than traditional learning. The majority of 56.7% of respondents find it extremely important to have a face to face communication while learning, whereas, 23.3% of respondents find it moderately important to have a face to face communication while learning and 20% of respondents find it slightly important to have face to face communication while learning and none of the respondents does not find it important to have face to face communication.

The majority of 73.3% of respondents think virtual learning provides time flexibility and 26.7% of respondents think that virtual learning does not provide time flexibility. The majority of 76.7% of respondents find themselves participating less in virtual classes than in traditional classes and 23.3% of respondents does not find themselves participating less in virtual classes than in traditional classes.

The majority of 73.3% of respondents does not think that virtual learning enhances creativity and 26.7% of respondents think that virtual learning enhances creativity. The majority of 73.3% of respondents feel comfortable over internet, whereas, 20% of respondents are not at all comfortable over internet and only 6.7% of respondents are extremely comfortable over internet.

The study reveals that 76.7% of respondents find that virtual learning does not helps to clear doubts faster than traditional learning and 23.3% of respondents find that virtual learning is helpful in getting their doubts cleared faster than traditional learning. The study also indicated that 43.3% of respondents are slightly satisfies with virtual learning, whereas, 33.3% of respondents are moderately satisfied with virtual learning and 23.3% of respondents are not at all satisfied with virtual learning and none of the respondents are extremely satisfied with virtual learning.

5.0 Implications

The virtual learning simply means study over internet on various platforms available for the same. The study also revealed that the virtual learning had somehow declined in the creativity of the students, also not being helpful in their schedule. The major limitation for this study is the sample size of respondents. The suggestion for future studies can be that they are framed upon the better sample ratio of respondents along with being on qualitative aspect. Though this study advocates for the traditional learning method being brought back for students. Despite the virtual learning method had open doors for many other opportunities for students but still lacking for building the creativity, innovation and involvement of students on a virtual platform.

6.0 Conclusion

The study concludes that though due to current pandemic situation students have to attend the virtual learning sessions but they are more willing to attend the traditional learning sessions as soon as they could. As the majority of students agrees with the statement that virtual learning does not helps

with proper schedule and enhancement of creativity in them. Though universities and educators have been taking measures to communicate and make it easier for learners to find the relevant content and material easily still learners remain unsatisfied due to several prevailing factors that stop them for learning something new virtually. The study also revealed that learners found themselves less effective in the virtual learning sessions than traditional learning sessions. The study concluded that students find traditional learning method more comfortable than virtual learning method.

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Role of CSR on environmental sustainability with respect to manufacturing industries in Chennai: employees' perspective

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ABSTRACT

Aim: In today's business world, where CSR is vital responsibility of organisations, many studies have contributed its importance, where as its role on environmental sustainability does not have adequate studies with respect to manufacturing industries in Chennai. So, the purpose of the paper is to examine the role of CSR on environmental sustainability of the manufacturing firms. The independent variable is CSR, and the factors considered are CSR to community, CSR to environment, CSR to consumers and CSR to employees. The dependent variable is Environmental Sustainability which is considered as univariable.

Research design: Data was collected from 100 respondents from manufacturing firms in Chennai through a structured questionnaire adapted from Farooq et al., (2014); and Turker, (2009) scale. The data was collected using simple random sampling technique. The collected data was analysed using SPSS software the statistical tools used were descriptive statistics, correlation and regression.

Findings: The findings of the study indicated that there is a strong relationship between the factors of CSR and Environmental sustainability. Among the CSR factors, we have gained CSR to consumers scored high mean scores (3.7680). CSR to community was higher correlated with environmental sustainability. The regression analysis shows that that there is 60% variance(r=0.600) which indicates that CSR is predicting 60% of environmental sustainability.

Practical implications and limitations: This study suggests important guidelines for the future researchers to understand the impact of CSR activities and the environmental sustainability development for the manufacturing firms in Chennai. The study also recommends extended study to the other cities in India and the financial impact of the environmentally sustainable development of the companies which can be examined in the future studies.

Keywords: CSR to community; CSR to environment; CSR to consumer; CSR to employees; Environmental sustainability; Manufacturing industries.

1.0 Introduction

Corporate Social Responsibility has become one of the most researched topics in the business world. In the advent of re-defining the process of business, the question of what is the contribution from a corporate to the society has risen. Firms are starting to invest in CSR activities not only as a part of the Government regulation but also as a part of business process. Bowen was the first to coin the term in his book titled "Social responsibilities of Business" in 1953, he defines CSR as "CSR refers to the obligations of businessmen to pursue those policies… which are desirable in terms of the objectives and values of our society". (1)

Corporate social responsibility as the name indicates is the social responsibility of the corporate towards the society in return of the resources that the corporate obtains from the society.

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Due to the advent of environmental damage, the focus of the international organisations like the United Nations, has turned towards environmental sustainability. Robert Goodland in 1995 defined the concept of Environmental sustainability as, "Environmental sustainability is the maintenance of natural capital". (2)

With the advent of changes in technology, CSR as a practise also has been subject to numerous changes. Now the definition of CSR has changed to include Environmental sustainability. It has now become mandatory for the firms to promote environment while carrying out their business. The companies have now begun to focus on sustainable development for the purpose of success, innovation and profitability. (3)

CSR in manufacturing industries is an emerging topic of study. As the manufacturing industries in their day to day operations to business, become a cause of environmental damage and pollution, CSR is seen as a way for the manufacturing industries to reduce the damage made by them to increase long term performance and stakeholder trust. (4)

The corporates are promoted to focus on Environmental Sustaianability development as a part of their CSR. The biggest challenge of Corporate Social Responsibility is Environmental sustainability (5). More focused is placed on the manufacturing industries as manufacturing industries are one of the major causes of environmental damage. In manufacturing industries where, high operational performance is required, the importance of CSR implementation in an uncertain and competitive market environment is highlighted. (6,7) The CSR activities towards environmental sustainability in manufacturing industries is a developing field of study. "As the manufacturing firms create a lot of pollution, for that green innovation is needed for the firms to reduce their pollution effects for the firms persuing CSR strategies this can increase profits, and the company can have a competitive advantage." (8,9,10). Manufacturing industries are researching various means by which they can promote environmental sustainability.

This study investigates the role of CSR on environmental sustainability with the respect to manufacturing firms from the perspective of the employees.

2.0 Objective

The objective of the study is to examine the role of CSR on environmental sustainability with respect to manufacturing industries in Chennai: employees' perspective.

3.0 Literature review

For the purpose of this study, CSR has been analysed from the aspects of CSR to community, CSR to environment, CSR to consumers and CSR to employees towards its impact on environmental sustainability.

3.1 CSR to community

Adewuyi and Olowookere (2010) examined the impact of CSR activities on sustainable community development for cement Industry in Nigeria Africa, the results indicated that there is a significant relationship between CSR activities and sustainable community development. The CSR activities of the cement industry led to the improvement in the sectors of health, education and electricity. (13)

Velva et al., (2003) analysed the impact of sustainable community development on environmental sustainability development for pharmaceutical companies following the Global Reporting Initiative. The results indicated that there is a strong relationship between sustainable community development and environmental sustainability development. (14)

H1a: CSR to community has a significant positive impact on environmental sustainability

3.2 CSR to environment

Reinhardt et al.,(2008) examined the impact of CSR activities on environment protection of manufacturing companies in USA. The results indicated that there is a significant positive relationship between CSR activities and environment protection. (15)

Woźniak et al., (2020) analysed the impact of CSR environmental activities on environmental sustainability development in the mining area of Zloczew municipality in Poland. The results indicated a significant relationship between CSR environmental activities on environmentally sustainable development. (16)

H1b: CSR to environment has a significant positive impact on environmental sustainability

3.3 CSR to consumers

Ramasamy and Yeung (2009), analysed the corporate social responsibility activities from consumer's perspective in China. The results indicated that economic responsibility activities by the companies are given more weightage by the consumers while considering corporate social responsibility activities. (17)

Fabinyi and Liu (2014) examined the role of consumer-oriented CSR on environmental sustainability development in seafood manufacturing companies in Beijing, China. The results indicated that there is a significant relationship between consumer-oriented CSR and environmental sustainability. (18)

H1c: CSR to consumers has a significant positive impact on environmental sustainability

3.4 CSR to employees

Ali et al., (2020), analysed the impact of CSR implementation on the employee performance in the manufacturing industries in the country of Pakistan. The study also analysed the intervening role of Employee Engagement (EE). The results indicated that CSR implementation has a significant relationship with the employee performance and the Employee engagement partially mediates CSR and employee performance. (19)

Farooq et al., (2019) examined the impact of employee participation in the CSR activities of the company with environmentally sustainable development. The results indicated a significant positive relationship between employee participation in CSR activities and Environmental Sustainability development. (20)

H1d: CSR to employees has a significant positive impact on environmental sustainability

3.5 Environmental sustainability

Orlitzky et., al (2011) analysed the impact of voluntary CSR activities on environmental sustainability. The results indicated that voluntary CSR activities in a company has a positive significant influence on environmental sustainability. (21)

Babiak and Trendafilova (2011) examined the diffusion of environmentally sustainable CSR activities in a company and the motivation to perform those activities and indicated that strategic motive was the primary reason for adopting of environmentally sustainable CSR activities. (22)

H0: There is no significant relationship between CSR and environmental sustainability

4.0 Research methodology

The variables of the study were measured through questionnaire adapted from the survey of Farooq et al., (2014) (10); Turker, (2009) (11) for CSR and Bansal (2005) (23) for Environmentally

sustainable development.

The questionnaire was distributed to employees engaged in CSR of 30 manufacturing firms in Chennai, using simple random sampling technique. The initial number of respondents were 120 but after testing for validity of the responses 100 responses were deemed to be fit for the study.

5.0 Analysis and interpretation

5.1 Descriptive statistics

The questionnaire is designed from these research articles and their standard deviation are given below:

Corporate Social Responsibility (CSR) (Farooq et al., 2014; Turker, 2009) CSR is measured to what extent do you agree or disagree with the following statements on a 7-point Likert-scale (7–Strongly Agree, 1–Strongly Disagree)	
CSR to Community (CSRComm)	
CSRComm1-Our organization gives adequate financial contributions to charities	0.66142
CSRComm2- Our organization supports the non-governmental organizations working in the problematic areas	0.56237
CSRComm3- Our organization contributes to the campaigns and projects that promote the well-being of the society	0.75852
CSR to Environment (CSREnv)	
CSREnv1- Our organization participates to the activities which aim to protect and improve the quality of the natural environment	0.68785
CSREnv2- Our organization makes investment to create a better life for the future generations	0.89188
CSREnv3-Our organization implements special programs to minimize its negative impact on the natural environment	0.75015
CSREnv4- Our organization targets a sustainable growth which considers to the future generations	0.30151
CSR to Consumer (CSRCons)	
CSRCons1-Our organization protects consumer rights beyond the legal requirements	0.30151
CSRCons2-Our organization provides full and accurate information about its products to its customers	0.49686
CSRCons3-Customer satisfaction is highly important for our organization	0.65905
CSR to Employees (CSREmp)	
CSREmp1- Our organization encourages its employees to participate to the voluntary activities	0.71092
CSREmp2-Our organizational policies encourage the employees to develop their skills and careers.	0.7321
CSREmp3-The management of our organization primarily concerns with employee's needs and wants.	0.69126
CSREmp4-Our organization implements flexible policies to provide a good work and life balance for its employees	0.665284
CSREmp5-The managerial decisions related with the employees are usually fair	0.66901
CSREmp6-Our organization supports employees who want to acquire additional education Environmentally Sustainable Development (ESD) (Bansal, 2005)	0.62356
Environmental Sustainability Development (Envsus) is measured to what extent do you agree or disagree with the following statements on a 7-point Likert-scale (7–Strongly Agree, 1–Strongly Disagree)	
Envsus1- Our organization manufactured products that have a less environmentally harmful impact than in previous years or than its competitors	0.782
Envsus2- Our organization manufactured products with less environmentally damaging inputs than in previous years or than its competitors	0.747
Envsus3- Our organization handled or stored toxic waste responsibly	0.57654
Envsus4- Our organization reduced waste by streamlining processes.	0.47869
Envsus5- Our organization reduced likelihood of environmental accidents through process improvements	0.85628
Envsus6- Our organization reduced environmental impacts of production processes or eliminated environmentally damaging processes	0.67841

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Csrcommunity	100	2.00	4.20	3.5860	.46732
Csrenvironment	100	2.00	4.20	3.4280	.56068
Csrconsumer	100	3.00	4.20	3.7680	.28101
Csremployee	100	1.80	4.20	3.5560	.47104
Environmentsustainability	100	2.80	4.20	3.6560	.32793
Valid N (listwise)	100				

It can be seen from the descriptive statistics that CSR to consumers are given a higher weightage by the employees as compared to other aspects of CSR. Higher ratings are given for the questions concerning the consumer protection which the employees feel that their companies are implementing

5.2 Correlation analysis

Then, correlation analysis is done to find the impact of the independent variables on Environmental sustainability

5.2.1 CSR to community

H1a: CSR to community has a significant positive impact on Environmental sustainability

Independent variable	Dependent variable	Significance level	Correlation co-effecient
CSR to community	Environmental sustainability Development	0.00	0.572**

From the correlation analysis, it can be concluded that CSR to community has a positive significant impact on Environmental sustainability for 57.2%, at 1% level of significance. Hence, H1a is accepted.

5.2.2 CSR to Environment

H1b: CSR to Environment has a significant positive impact on Environmental sustainability

Independent variable	Dependent variable	Significance level	Correlation co-effecient
CSR to Environment	Environmental sustainability Development	0.00	0.510**

From the correlation analysis, it can be concluded that CSR to environment has a positive significant impact on Environmental sustainability for 51% at 1% level of significance. Hence, H1b is accepted.

5.2.3 CSR to consumer

H1c: CSR to consumer has a significant positive impact on Environmental sustainability

Independent variable	Dependent variable	Significance level	Correlation co-efficient
CSR to Consumer	Environmental sustainability Development	0.00	0.331**

From the correlation analysis, it can be concluded that CSR to consumer has a positive significant impact on Environmental sustainability for 33% at 1% level of significance. Hence, H1c is accepted.

5.2.4 CSR to employees

H1d: CSR to employees has a significant positive impact on Environmental Sustaianability development

Independent variable	Dependent variable	Significance level	Correlation co-efficient
CSR to Employees	Environmental sustainability Development	0.00	0.422**

From the correlation analysis, it can be concluded that CSR to Employees has a positive significant impact on Environmental sustainability for 42.2% at 1% level of significance. Hence, H1d is accepted.

5.3 Regression analysis

Regression analysis was done to determine the variance of the model and how much CSR predicts environmental sustainability.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.666ᵃ	.444	.440	.29520

a. Predictors: (Constant), EMPL, CONS, Community, ENV

The regression analysis shows that that there is 60% variance(r=0.600) which indicates that CSR is predicting 60% of environmental sustainability. The employees perceive that CSR predicts 60% of environmental sustainability.

6.0 Discussion

Thus, based on the analysis, it can be concluded that all the aspects of CSR have a significant positive impact on environmental sustainability. The results are related to the previous study of Shahazad et al., (2019) further strengthening their study.

Among the factors, CSR to community has the highest positive impact on environmental sustainable development. The employees perceive the contribution made towards the society The employees feel that the activities provided by the manufacturing companies to the local community such as local Clean up initiative, Water resources development, Youth environmental awareness initiative, and promoting anti plastic initiatives have a higher impact on environmental sustainability which the companies should carry on to promote environmental sustainability. This supports the study of Velva et al., (2003).

Even though CSR to consumers has the highest mean, it is the lowest correlated with environmental sustainability as the employees feel that by focusing on consumer development, Environmental sustainability will not be given much importance which can be seen as an area of improvement for the companies. The companies can promote consumer development by promoting activities such as Green production which will reduce the cost for the consumers and promote environmental sustainability, producing durable products with lesser wastage that increases the

durability for the consumers and reduces wastage for the environment and coming with smaller initiatives like rewarding discounts for the consumers for avoiding plastic bags. This is in contrast to the study of Fabinyi and Liu (2014).

In the regression analysis, it is found that from the perspective of the employees, CSR predicts 60% of environmental sustainability. Thus, when the companies provide CSR to community by providing services and help improve the local community, promote environmental development through activities providing loan to the farmer background employees, saving farm lands CSR to employees by improving employee welfare with the activities such as, educating the employees on environmental sustainability, offering incentives to employees for taking public transportation, rewarding employees for engaging in activities that promote the environment like recycling. CSR to consumers by promoting consumer development with activities like providing loyalty points for the consumers for recycling the products, CSR to environment with activities like conservation of the local environment, pollution level reduction initiatives, planting of trees around the factory area and avoiding the usage of paper. There will be an increase in environmental sustainability development by 60%. The result is supported by the study of Olitzky et., al (2011).

Thus, with the aspects of CSR, the companies can carry out environmental sustainability activities like green manufacturing initiatives, re-using scape products to avoid wastage.

7.0 Conclusion

The author examined the relationship between role of CSR on environmental sustainability with respect to manufacturing industries in Chennai and concluded that CSR activities make the industries cautious about environment and promote environment sustainability which is the need of the hour.

8.0 Practical implication

There is not much studies showing the impact of CSR on environmental sustainability in Chennai. This paper removes that barrier for the researchers trying to analyse the impact of the aspects of CSR on environmental sustainability the study will be useful for the researcher to understand the role of CSR on environmental sustainability. The corporates will be able to identify the activities that promote environmental sustainability. The study also reveals the awareness of the CSR activities of the firm among the employees. Based on the ratings provided the corporates can identify how much awareness the employees have about the CSR activities. The study also indicates the aspects of CSR the researcher can focus upon when examining the CSR activities of companies in Chennai.

9.0 Limitations

The study only focuses on the Chennai City. The study takes into account only the perspective of the employees. The study only analyses the four aspects of CSR community, employees, consumers and environment.

10.0 Suggestions and Recommendations

The study can be further extended with a bigger number of respondents and adding variables like CSR regulations, financial impact. The future studies can include any other aspect to measure CSR. The study pertains only to the manufacturing industries in Chennai, the study can be further

expanded to agricultural, garments, chemicals and engineering industries.

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Social Security Through Life Insurance in Society: A Study on Perceived Risk Mitigation While Buying Insurance Policy

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ABSTRACT

Uncertainties and Risks are the part of Human life and are now aggravated due to the increasing exposure of human being to the world of different uncertain and riskier situations. For a peace of mind and to cover the unforeseen eventualities, Life Insurance plays major role. The Life Insurance buyer purchases the insurance product keeping in mind that it will help in reducing the burden or liability in the case of loss of life and will help the family and survivors and will also cover the risk. While taking decision to buy an insurance policy a lot of questions hover around the mind of the buyer that whether the company from whom the policy to be purchased is trustworthy or the person who is selling the policy is not misleading or concealing the facts about the product and/or company. Whether the reduction of insurance buyers perceived risk and decision to buy the product depends upon the brand of the insurance and the reliability of the agent/company has been examined in this paper. This paper aims to know the categories of Perceived Risks associated with buying of life insurance product and to find out the factors associated with the mitigation of perceived risks and the methods by which the customer might reduce the perceive risk. This paper also examines whether there exist any relationship between the demography of the buyer and decision making to purchase the life insurance product. and also assess the relationship between the demographic characteristics of the buyer of life insurance and the buyer's perceived risk. Suitable statistical methods and tools are used for analyzing the data and for drawing the inferences for better result of the study.

Keywords: *Perceived risk; Uncertainty; Decision; Mitigation; Life insurance.*

1.0 Introduction

The consumer always passes through a decision making process, whenever the situation where there is a payment involved and it becomes more decisive in case of risk coverage or securing the future through insurance. It is obvious that the consumer should assess the situation in front of him/her and take a better decision. Uncertainties and Risks are the part of Human life and are now aggravated due to the increasing exposure of human being to the world of different uncertain and riskier situations. For a peace of mind and to cover the unforeseen eventualities, Life Insurance plays major role. The Life Insurance buyer purchases the insurance product keeping in mind that it will help in reducing the burden or liability in the case of loss of life and will help the family and survivors and will also cover the risk. While taking decision to buy a Life Insurance policy a lot of questions hover around the mind of the buyer, such as: Is the Insurance Company is trustworthy? Will there be hassle-free claim settlement procedure in case of any eventuality? Will the survival benefit or the death benefit will be adequate for the survivors? Is the premium to be paid have any hidden charges included and will the desired sum assured as promised by the Insurance will be disbursed back correctly at the time of maturity to the claimant etc. Consumer awareness on Insurance is not adequate in India and most of the consumers are unaware about the terms and conditions of the Insurance. The consumer also have a fear in mind that the policy document are so lengthy to understand and if, not understood properly at the time of buying the insurance, there will be problem at the later stage. In the study by Kaplan et.al (1974) it was highlighted that there was perceived risk involved in Insurance purchase.

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The information available to consumer was also have association with pre-purchase uncertainty and post-purchase consequences as highlighted in the research by Cox (1967) and in the case of Life Insurance purchase the information regarding the insurance plays a major role as in the pre-purchase scenario the consumer is in the stage of information search and evaluation of information for the best insurance company and policy which to be purchased. In the post-purchase scenario the consumer wants that whatever product he/she has purchased is correct and no mistake has been committed. The perceived risk is there in the both the case and this concept of perceived risk in both pre-purchase uncertainty and post-purchase consequences scenario were highlighted in the research of Bauer.R.A(1969).

According to banking summit report from Indian Chamber of Commerce and PwC India in recent times the customers expect more, trust their peers, are informed, have choices and have a voice (ICI 4th banking Summit, 2012). The customers are expecting a better experience i.e. while purchasing an Insurance product through the Agent (physical) and through the company's website (virtual: Online Insurance). To ascertain the decision of the insurance purchase and to reduce the perceived risk, the customers are listening to their peers for advice as well the experts of Insurance; they are influenced by the peer opinion leaders. The customers are doing online research about the pros and cons of the services and the review published in social media regularly. The comparison available between the Insurance policies/plans offered by various companies and availability of alternatives of services are helping and making the way for more choices for the customer. Customers are raising their voices over internet through social media for any irregularity. The technology enabled services should be directed with more customer centric approach, so that the customer retention will be made easy and the perceived risk of the customer can be reduced. However, many people still locate information on the internet and purchase products offline through traditional agents, conversion rate being very low but there is gradual change. Also there are cases that consumers that initiate an online buying of insurance but sometime unable to clear the doubt about the product and fail to complete the transaction. This paper attempts to provide empirical evidence in understanding consumer perceived risk associated with purchase of Life Insurance product.

2.0 Perceived Risk in Life Insurance Purchase

Life Insurance is being the buzz word now days for securing the future of the family from any eventuality. In one side Life Insurance reduces the tension in the mind of the individual by providing protection guarantee to the Individual's family in case of any eventuality to the head income earner, and on the other side another perceived risk arises in the customer's mind that whether he/she taking the correct Life Insurance Plan from the Right and trustworthy Company. Perceived risk is the uncertainty that consumers face when they cannot foresee the consequences of their purchase decisions (Schiffman et al., 2007). Perceived Risk is especially relevant for services that are difficult to evaluate before purchase and consumption, and the first-time users are likely to face greater uncertainty. The worse the possible outcome and more likely it is to occur, the higher the perception of risk (C.Lovelock et al., 2013). Perceived risk categorized in terms of possible outcomes in Life Insurance Purchase and the types are **Functional or Performance Risk** (unsatisfactory performance outcome i.e. whether the policy purchased be accepted everywhere wherever and whenever the claimant will intended to use it) , **Financial Risk** (Monetary loss, unexpected cost i.e. whether there will be monetary loss if, the policy does not materialized or any discrepancy takes place, in turn causes financial loss.),**Temporal or Time-Loss Risk** (wasting time, consequence of delays i.e. whether there will be time waste if the policy not purchased in time and materialized in time or the claim not settled in time), **Physical Risk** (Loss or Damage to Possession i.e. loss or theft of the policy document and subsequent injury to person while defending the robbery), **Psychological Risk**

(personal fears and emotions i.e. will the purchase of Life Insurance Policy upsets the customer and whether the customer will be felt stupid for the act of purchase) and **Social Risk** (how others think and react i.e. what the relatives, friends and colleagues of the customer will feel about the customer engaged in life insurance purchase and purchased inadequate coverage plan/wrong plan)(the categories of perceived risk described by C. Lovelock et al., 2013 and further conceptualized for Life Insurance purchase scenario by the researcher in this paper). Consumer perception of these risks varies, depending on the person, the purchase situation, type of plan, the product category, the buying situation (i.e., traditional agent, online) and also with the culture. Perceived risk also said to influence the consumer's likelihood of trying new life insurance policy from different Insurance Company.

3.0 Objectives of the Research

i.   To know the categories of Perceived Risks associated with Life Insurance Product Purchase.
ii. To find out the factors associated with the mitigation of perceived risks and the methods by which the Life Insurance buyer might reduce the perceive risk.
iii. To know is there any association between the experiences of the buyer in terms of no. of different life insurance policy purchased and the buyer's perceived risk.

4.0 Methodology

The study was conducted in Delhi & NCR and data was collected through survey method. A Structured Questionnaire was constructed based on previous studies comprising of all major concerns. Study population consisted of individuals who had at least one Life Insurance product purchased from any company recently i.e, within six months period. Perceived risk reduction methods were measured on 7 point Likert-type scale with '1' indicating 'Completely Agree and '7' indicating 'Completely Disagree'. Personal interviews were conducted on a sample of 80 respondents who were chosen on convenience basis and Structured Questionnaire has been administered to them. Demographic profile of respondents shows that sample consisted of 46 male and 34 female respondents. Majority in the age group of more than 30 years (62) and had minimum education of graduation (65). There were 12 respondents in the income group of <40000, 24 in 40000-50000, 34 in 50000-60000 and 10 in >60000 rupees per month. Around 65 respondents had at least 1-2 years of experience in Life Insurance product buying.

5.0 Analysis and Results

Data was analysed using SPSS package (19.0 version).

5.1 Reliability Coefficient
Internal reliability of the scale was assessed using Cronbach's alpha.

Reliability Statistics

Table-1

Cronbach's Alpha	N of Items
.784	10

Results showed that alpha value was 0.784 which is quite satisfactory.

5.2 Sampling Adequacy
    KMO Test

Table-2

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.582

The K-M-O measure of Sampling adequacy shows satisfactory result as the value is >0.5. It also indicates that the factor analysis is appropriate.

5.3 Factor Analysis

Exploratory factor analysis was conducted for 10 Variables using Principal Component Analysis Method. Varimax Rotation method was adopted with Kaiser Normalization. It extracted 3 factors with an Eigen Value greater than 1 which explained 75.92 % of the total variance. The analysis converged in total 4 iterations. In **Table -3** the factors extracted has been named as Factor-1 as Self Confidence & Trust of the customer, Factor-2 as Motivation of the customer and Factor-3 as Precaution adoption. These 3 factors will help the customer in reducing the perceived risk and mitigating the perceived risk.

Table-3 Analysis of Result and assigning the factor names to the components

Factors	Factors Loading
Factor-1 : Self Confidence and Trust	
Variables **Description**	
Var00004 : The purchase of life insurance policy is done through reliable and known agent	0.951
Var00005 : The company selling the Life Insurance is having a good reputation	0.948
Var00006 : A strong trust on the Company selling the Life Insurance & the Medium though which it is purchased	0.930
Var00007 : Safe purchase from certified and authorized agency of the company	0.939
Factor-2 : Motivation	
Variables **Description**	
Var00003 : Ready to cope up with the change and future uncertainty/ risk	0.809
Var00008 : Well informed customer about required knowledge about Life Insurance	0.829
Var00009 : Every Experience of purchase will help to take better decision	0.812
Factor-3 : Precaution Adoption	
Variables **Description**	
Var00001 : Strict Adherence to read the terms and conditions of the Life Insurance Policy as advised by the Company	0.783
Var00010 : Keeping evidence and record of the forms submitted to agents for any eventuality.	0.815
Var00002 : To be up-dated with latest information and precautionary measures before deciding to buy the Life Insurance Policy.	0.658

The Factor Analysis reports (Table: 4-7) as generated through SPSS 19.0.

Table-4 Communalities

Variables	Initial	Extraction
VAR00001	1.000	.838
VAR00002	1.000	.582
VAR00003	1.000	.758
VAR00004	1.000	.918
VAR00005	1.000	.935
VAR00006	1.000	.921
VAR00007	1.000	.933
VAR00008	1.000	.747
VAR00009	1.000	.720
VAR00010	1.000	.805

Extraction Method: Principal Component Analysis.

Table-5 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.129	41.289	41.289	4.129	41.289	41.289	3.909	39.089	39.089
2	2.232	22.319	63.608	2.232	22.319	63.608	2.441	24.413	63.502
3	1.231	12.309	75.917	1.231	12.309	75.917	1.242	12.415	75.917
4	.918	9.189	85.106						
5	.909	9.087	94.193						
6	.216	2.161	96.354						
7	.209	2.093	98.447						
8	.113	1.123	99.570						
9	.029	.291	99.861						
10	.014	.139	100.000						

Extraction Method: Principal Component Analysis.

Table-6 Component Matrix(a)

Variables	Component		
	1	2	3
VAR00001	.533	.509	.562
VAR00002	-.449	-.402	.478
VAR00003	.438	.746	.070
VAR00004	.889	-.370	-.100
VAR00005	.927	-.230	-.209
VAR00006	.858	-.407	.008
VAR00007	.920	-.315	-.090
VAR00008	.189	.859	-.054
VAR00009	.351	.748	-.218
VAR00010	.403	-.056	.818

Extraction Method: Principal Component Analysis. a 3 components extracted.

Table-7 Rotated Component Matrix(a)

Variables	Component		
	1	2	3
VAR00001	.151	.533	.743
VAR00002	-.335	-.631	.285
VAR00003	.072	.819	.276
VAR00004	.963	.009	.106
VAR00005	.961	.174	.029
VAR00006	.927	-.059	.196
VAR00007	.965	.068	.130
VAR00008	-.170	.859	.102
VAR00009	.054	.852	-.023
VAR00010	.213	-.082	.885

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 4 iterations.

5.4 Chi-Square test

A Chi-square test has been conducted to know about if there is any significant association between two variables, namely experiences of the buyer in terms of no. of different life insurance policy purchased and the buyer's perceived risk. The experience of the customer is ranging from 1- 2 years and the perception about safety is ranging in Likert Scale (1 to7 where 1= feel less safe to 7= feel more safe). And hypothesis is drawn for it also.

H0: There is no significance association between the experiences of the buyer in terms of no. of different life insurance policy purchased and the buyer's perceived risk.

H1: There is a significance association between the experiences of the buyer in terms of no. of different life insurance policy purchased and the buyer's perceived risk.

The results are as follows:

V1 : The experience of the customer in terms of no. of policy purchased (Independent Variable)

V2: The perception of the customer about Safety on buying the Life Insurance Product. (Dependent Variable)

V1 * V2 Crosstabulation

Table-8

Count

		V2							Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	
V1	1.00	2	5	3	0	0	0	0	10
	2.00	0	2	2	7	0	0	0	11
	3.00	0	1	1	7	21	0	0	30
	4.00	0	0	0	2	10	7	0	19
	5.00	0	0	0	0	0	5	3	8
	6.00	0	0	0	0	0	0	2	2
Total		2	8	6	16	31	12	5	80

Chi-Square Tests
Table-9

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	153.289(a)	30	.000
Likelihood Ratio	130.293	30	.000
Linear-by-Linear Association	59.394	1	.000
N of Valid Cases	80		

a 39 cells (92.9%) have expected count less than 5. The minimum expected count is .05.

Analysis of the Chi-square test is the calculated Value Pearson Chi-square is 153.289 which is larger than the tabulated value 43.773 at 0.05 level of significance and also the significance value (Sig) is 0.00 which is less than 0.05. Hence the Null Hypothesis is rejected and the Alternate Hypothesis is accepted and so it is considered that there is a significance association between the experiences of the buyer in terms of no. of different life insurance policy purchased and the buyer's perceived risk.
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6.0 Mitigation/Reduction of Perceived Risk

From the study of the literatures and from the customers view point also the perceived risk can be reduced by the customer himself through self-confidence & trust , motivation and through precaution adoption while purchasing the Life |Insurance Product. However, the self- confidence to purchase the Life Insurance is more important. To reduce this risk the Companies/agents facilitating the selling of Life Insurance have to provide a guarantee in terms of assurance in written to the customer. Even the role of Government is important here as there is a need for more stringent measures.

7.0 Scope for Future Research

Present study was confined to Delhi & NCR only with a small sample size of 80. Factor analysis with such a small sample may not fetch the overall view. Therefore generalizability of results is limited. Further study may be included only those consumers who had a past experience of more life insurance purchase and it will be better to explore the perceptions of nonusers. As perceptions change over time, longitudinal research may be helpful. Studies with relatively larger sample, derived across India, would be required.

8.0 Conclusion

Life Insurance Business in India is at its nascent stage. In the coming years after the implementation of Govt's Social Security measures and Life Insurance Schemes at a low premium and the usage of the Insurance facility provided by the banks to the large number of beneficiaries especially in rural India the perceived risk may be reduced after mass customization of the life insurance products and more reputed companies enter in to insurance business, which not only increase the trust and confidence among customers and also will motivate them to purchase Life Insurance by adopting suitable precautions. Due to robust growth in broadband internet access to entire population, it may see an explosive growth in future. Most growth drivers are in India's favor – demographics, economy, changing lifestyle, exposure to new ideas. It is just a question of creating a sustainable eco system for insuring the people, which definitely drives the growth of insurance sector

in the country. The ability to measure and reduce perceived risk would take Indian Insurance Companies to a great height in maximizing both customer satisfaction and profits. Also as perceived risk tends to decrease with experience of buyer and it is a matter of time that Life Insurance would be a great reliever of financial burden to the family in the case of any eventualities and will also provide social security to the mass population in India.

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Role of Mental Health Towards Job Satisfaction in Higher Education Sector

Kanika Arora* and Akanksha**

ABSTRACT

The study of "Role of Mental Health Towards Job Satisfaction in Higher Education Sector" focuses on knowing the mental well-being of teachers and their job satisfaction level who all are working in higher education sector. As a teacher plays a very important role in shaping up society. It is very important that their mental health is taken proper care of and they are satisfied with their career and working environment. For this purpose 100 respondents from higher education sector were surveyed and their responses regarding various factors affecting mental health and job satisfaction weretaken in a questionnaire. Mental health is also reflected in a person's behavior and personality hence respondents were also observed. The data so collected was analyzed using various tools of data analysis such as frequency tables, pie charts, bar diagrams, correlations, crosstabs and t-test. The results of the study indicate that the mental health of the teaching staff is of good level but the organizations have taken insufficient initiatives to take care of teachers; mental and physical health. Thereis a communication gap between the employer-employees and the co-workers in higher education sector. The respondents do not feel pressurised at work which positive factor is contributing to job satisfaction of teachers.

***Keywords:** Mental Health, Job Satisfaction, Teachers, Higher education sector, Organizational culture.*

1.0 Introduction

1. According to an Indian Prayer "The teacher is Brahma, the creator; he is God Vishnu, he is God Maheshwara. He is the entire universe, Salutation to him."

Dr. S. Radhakrishnan, "The teacher's place in society is of vital importance. He acts as the pivot for the transmission of intellectual traditions and technical skills from generation to generation and helps to keep the lamp of civilization burning." As per Madan Mohan Malavia (the founder of Banaras Hindu University, the world's second largest residential university), a teacher is, "It lies largely in his teacher's hand to mould the mind of the child who is father of the man. If he is patriotic and devoted to the national cause and realizes his responsibility, he can produce a race of patriotic men and women who would religiously place the country above the community and national gain above communal advantage." these simple lines depict the role of a teacher in the society. The role of a teacher in society is both significant and valuable. It has far-reaching influence on the society he lives in and no other personality can have an influence more profound than that of a teacher. In addition to these attributes, the role of a teacher is to acquire professionalism and ethics and abide by their own moral code and that of their school, while maintaining a commitment to confidentiality between students, colleagues and the community.

" The nation's well-being depends on teachers' wellbeing. Our two million teachers are the custodians of our future. "

' INDIRA GANDHI'

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2. **Roles of a Teacher:** A teacher plays variety of roles such as controller, prompter, resource, assessor, organizer, participant, inspiratorand tutor.

3. **Importance of Mental Health;**
   a. Good mental health creates a positive attitude towards work in person. The person with good physical and mental health enjoys his work. As a result the productivity of such person is increased along with quality of output, which is beneficial to the organization, society, institutions, individual aim etc. for which he works. Hence, good mental health and physical health increases the qualitative and quantitative output of a person.

4. **Workplace Environment & Mental Health**:
   a. Workplace is an important place where a person spends most of his working time during a day. Its environment consists of various factors which directly or indirectly affect the person's thoughts, behavior, attitude, stress level and ultimately over a period of time start affecting his Mental Health.Few factors which are not exhaustive are given below:

      i. Poor Managerial Practices like;
         1. Poor Communication by Management with its employees
         2. Providing them unclear tasks and objectives
         3. Psychological harassment of employees and adopting a culture of poor interpersonal relations.
         4. Improper performance evaluation methods
         5. Slow career progression plan for performers
         6. Inadequate health and safety measures for employees;
         7. Lack of motivation means and methods
         8. Inculcating higher sense of job insecurity
         9. Inflexible working hours
         10. Poor efforts by management to understand and handle the mental health perspective of its employees;

   b. **Impact of Poor Mental health at work place**; The capabilities of employees are affected by their mental health. With rising mental health issues their capabilities to give quantitative and qualitative output decreases. This is reflected through various factors. The impact of such factors can be summarized as follows :

      i. **Frequent Absence from duty;**
      - Due to poor mental health the physical health is also affected and such person is likely to suffer from various stress related problems like; depression, stress, burnout, high blood pressure, heart disease, ulcers, sleeping disorders, skin rashes, headache, neck- and backache, low resistance to infections etc. compelling a person to take rest due to such ailments, thereby increasing the absenteeism.
      ii. **Decreased Work performance;**
      - Due to the health related issues as explained above the quantitative and qualitative output of a person decreases. Such a person generally looses concentration at work and likely to perform poorly in decision making and commits frequent errors and omissions.

iii. Deteriorated inter personal relations

- A person with mental health develops many stress related problems which slowly starts reflecting I his behavior, attitude and inter personal relations. Such persons are more likely to suffer more short temper, decreased motivation level. As a result they are more likely to be the cause of tension and conflict between colleagues and other disciplinary issues.

iv. Disability due to mental health problems

1. Based on individuals age and inner strength the mental health problems result in reduction of his working capacity, capabilities for quality output and social behavior.

2. People with disabilities, particularly psychiatric disabilities, face numerous barriers in obtaining equal opportunities – environmental, access, legal, institutional and 2 Costs of occupational and work-related diseases Source: Takala J. (ILO) Indicators of death, disability and disease at work. African Newsletter on Occupational Health and Safety, December 1999, 9(3):60-65. 7% Mental disorders 9% Respiratory disorders 8% CNS 3% Tumours 3% Skin diseases 40% Musculoskeletal 16% Heart disease 14% Accidents Nations for Mental Health attitudinal barriers which cause social exclusion.

3. For people with mental illness, social exclusion is often the hardest barrier to overcome and is usually associated with feelings of shame, fear and rejection.

4. It is clear that mental illness imposes a heavy burden in terms of human suffering, social exclusion, stigmatization of the mentally ill and their families and economic costs. Unfortunately, the burden is likely to grow over time as a result of ageing of the global population and stresses resulting from social problems and unrest, including violence, conflict and natural disasters.

5.

B. Objectives

B.1. This project is an attempt to correlate the job satisfaction affecting individual mental health and vice versa.

B.2. To know the impact of mental wellbeing of teachers in higher education sector on efficiency and effectiveness.

B.3. To assess the impact of workplace environment on mental and physical health of teachers.

B.4. To suggest the changes ineducation sector policies for positive Impact on the mental health and job satisfaction of teachers.

C. Hypothesis

Mental health is affected by many factors including the physical health, social wellbeing, socio-economic environment, family and friend circle environment, food habits and so many other factors. Since, a person spends a substantial chunk of time at workplace interacting with clients, fellow employees, employer etc., the working environment as a whole being a complex combination of many factors affects the mental health of a person, his perception towards job satisfaction. Job satisfaction itself is governed by the combination of working environment, individual skills, available opportunities, monetary benefits and individual career aspirations.

H1: Workplace stress management dimensions including yoga and spiritualism have a positive impact on job satisfaction.

H2: Mental and physical wellbeing have a significant relationship with job satisfaction among the teachers who work in higher education sector.

H3: To suggest education sector policy changes aimed at improving wellness and lob satisfaction in education sector.

D. <u>Literature Review</u>

- **(Sidana & Kaur, 2010)**

JivanJyotiSidana and GurinderKaur (2010) made a study "Job Satisfaction–A Challenging Area of Research in Education". They pointed out that assuming job satisfaction over the long term requires careful planning and effort both by employers and employees and creating a good blend of factors that contribute to stimulating, challenging supportive and rewarding work environment is vital in Punjab.

- **(Deshwal, 2011)**

PankajDeshwal (2011) made a study "Job Satisfaction: A Study of those who Mould the Future of India". A questionnaire-based study has been conducted on engineering faculty members working in the engineering college of technical universities in Uttar Pradesh. The job satisfactions level of the engineering faculty members has been found to be moderately high.

- **(Pabla, 2012)**

Pabla (2012) in her study "A Study of Job satisfaction among Teachers of Professional Colleges in Punjab" concluded that there is a difference between the satisfaction level of male and female teacher of the professional colleges located under the jurisdiction of Punjab Technical University, Jalandhar. Female teachers are not very much satisfied with their job, but male teachers seem to be more satisfied with their job than female teachers. The main reasons for the above differences in the above cases could be intrinsic and extrinsic factors such as salary, fringe benefits, prestige, opportunities for professional advancement, level of personal, professional challenge, level of professional autonomy, decision making authority general working conditions, interaction with colleagues and interaction with students and so on.

- **(Kumari, 2013)**

LalitaKumari (2013) in her article "Factors Influencing Job Satisfaction of College Teachers in Doaba Region of Punjab, India" suggested that job satisfaction can be enhanced by factors namely adequate and fair compensation, work life balance, career development, job security, organizational attitude, relations with supervisor, motivation at job and application of skills and experience. Positive correlation has been found between job satisfaction and job performance.

- **(S., 1989)**

Indrani S. (1989) in her study "A Study on Attitude of Teachers towards Educational Administration and their Job Satisfaction" analyzed the relationship between the attitude of teachers towards educational administration and their job satisfaction. The study inferred that there was a significant relationship between the mean scores of job satisfaction of PG male and female teachers.

E. <u>Research Methodology for the Report</u>

The purpose of the study is to find the role of mental health in job satisfaction in higher

education sector. For this purpose we will analyse various factors which directly or indirectly affect a person's mental well-being and their job satisfaction. The factors analysed will be -

1. **Mental health related factors**
   1.1. Physical health
   1.2. Overall well-being
   1.3. Stress levels
   1.4. Work life balance

2. **Stress management initiatives**
   2.1. Role and importance of yoga, meditation sessions, mindfulness classes, stress reduction workshops etc.
   2.2. Need for expansion of mental health resources
   2.3. Initiatives taken by organization for managing mental health

3. **Job satisfaction related factors**
   3.1. Adequacy of emoluments
   3.2. Salary increments and promotional avenues
   3.3. Job security
   3.4. Work pressure
   3.5. Employer-employee relations and co-worker relations
   3.6. Working hours
   3.7. Social status
   3.8. Research opportunities

F. <u>**Sampling Design for the Report**</u>

<u>**DELIMITATION OF THE STUDY**</u>

The study is done on the higher educational institutions from government, semi-government and private sector.

1. **Population:**In statistics, a population is the entire pool from which a statistical sample is drawn. A population may refer to an entire group of people, objects, events, hospital visits, or measurements. The population consists of all the education sector institutions.

2. **Sample**: The items taken from the population for analysis (for deduction of hypothesis or arriving at a conclusion) are samples. Sample is chosen from population and the samples have to be the representative of the population. The sample should be heterogeneous so that it actually represents the population. The sample taken is from higher sector educational institutions.

3. **Sample Size:**The size of the total samples to be taken constitutes the sample size. This is the collection of all the samples taken. These are the total number decided to be studied in detail. Sample size can vary on the following factors:
   - Size of the Population
   - Variability on the Population
   - Required Level of Accuracy

The sample size of the study is 100.

G. <u>**Types/Sources of Data Collection for the Report**</u>

The type or source of data collection is primary method.

Primary Data: Primary data consists of the questionnaire filled by the respondents with their views and observations. The questionnaire filled by the respondents is attached at Annexure.The sample

size of the study is 100 and the sample has been taken from higher sector educational institutions.

H. Data analysis and interpretations

Q.1 : Age
Analysis/Interpretation- Maximum respondents were from middle age group of 41-60 who constitute 72% of the total respondents. 28% respndents were from age group of 21-40. There were no respondents from age group above 60 years.

Q.2 : Gender
Analysis/Interpretation- The total Population surveyed constitutes of 48% males and 52% females and the respondents of transgender category are zero.

Q.3 : Qualification
Analysis/Interpretation- The above frequency table and pie diagram shows the education level of the respondents which depicts that 89% i.e. majority of the population is graduate and 11% are doctorate and above. None of the respondents belong to the category of graduate.

Q.4 : Annual Income
Analysis/Interpretation- The above frequency table and pie diagram shows the income level of the respondents which depicts that 70% of the respondents earn between 10-20 lakhs per annum, 18% earn between 5-10 lakhs and 12% earn less than 5 lakhs per annum.

Q.5 : How would you rate your physical health?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the physical health of the respondents. 62% of the respondents physical health is good, 20% of the respondents physical health is very good, 13% of the respondents physical health is of fair level i.e. average physical heatlh, 3% of the respondents have an excellent level of physical fitness and 2% of the respondents physical health is poor i.e.there are physically not fit.

Q.6 : How would you rate your mental health?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the mental health of the respondents. 76% of the respondents mental health is good, 19% of the respondents mental health is very good, 2% of the respondents mental health is of fair level i.e. average mental heatlh, 2% of the respondents have an excellent level of mental fitness and 1% of the respondents mental health is poor i.e.they need attention to their mental health issues.

Q.7 : How would you rate your overall well-being levels when you're at work?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the overall well-being of the respondents when they are at work. 49% of the respondents overall well-being level at work is good, 35% of the respondents overall well-being level at work is fair, 14% of the respondents overall well-being level at work is very good and 2% of the respondents have a poor level of overall well-being level at work. None of the respondents have an excellent level of overall well-being when they are at work.

Q.8 : How would you rate your stress levels at work?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the stress level of the respondents at work. 44% of the respondents stress level is good,44% of the

respondents stress level fair, 9% of the respondents stress level is poor i.e. no stress, 2% of the respondents have very good level of stress when they are at work and 1% of the respondents stress level is excellent i.e.the respondents are highly stressed at work.

Q.9 : How would you describe your work-life balance?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the work-life balance of the respondents. 82% of the respondents work-life balance is good,10% of the respondents work-life balance is fair, 3% of the respondents work-life balance is of poor level i.e. they are not able to manage their professional and personal life well, 3% of the respondents have excellent level of work-life balance i.e. they are able to create a balance between their personal and professional life and 2% of the respondents work-life balance is very good.

Q.10 : How would you rate contribution of your employer in stress management?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about contribution of employer in stress management of their employees.54% of the respondents considered employercontribution to their mental health as poor, 22% cosnidred it as good, 18% considered it as fair and 6% considered it as very good. And none of them considered it as excellent.

Q.11 : How would you rate your interpersonal relationships with co-workers?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about interpersonal relationships of respondents with their co-workers. 71% of the respondents interpersonal relations with their co-workers are of fair level, 11% of the respondents interpersonal relations are very good, 10% of the respondents interpersonal relations are good, 6% of the respondents have excellent level relationships with their co-workers i.e. they have friendly and positive interpersonal relationships, and 2% of the respondents have poor interpersonal relations i.e. they do not have a great bondig with their co-workers.

Q.12 : How would you rate Role & Importance of yoga, meditation sessions, mindfulness classes, stress reduction workshops, etc. in Stress Management?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about rating regarding role and importance ofyoga, meditation sessions, mindfulness classes, stress reduction workshops, etc. in Stress Management. 59% of the respondents rated role and imprtance of yoga,meditation etc. in stress management as high, 20% of the respondents rated it as very high, 14% of the respondents rated it as normal, 4% of the respondents rated it as poor i.e. they think that yoga,meditation etc. donot play an important role in stress mangement, and 3% of the respondents rated it as fair.

Q.13 : How would you rate the need for expansion of more mental health resources at work?
Analysis/Interpretation- The above frequency table and pie diagram shows the response about rating of need for expansion of more mental health resources at work. 86% of the respondents rated the need for expansion of mental health resourcesat work as very high, 7% of the respondents rated it as high, 4% of the respondents rated it as poor i.e. they think there is no need for expansion of more mental health resources at work, 2% of the respondents rated it as normal and 1% of the respondents rated it as fair.

Q.14 : How would you rate the necessity of better assistance and facilities for mental or physical health issues at work?

Analysis/Interpretation- The above frequency table and pie diagram shows the response about rating regarding the necessity of better assistance and facilities for mental or physical health issues at work for the respondents. 72% of the respondents rated the necessity of better assistance and facilities for mental or physical health issues at work as high, 16% of the respondents rated it as normal, 10% of the respondents rated it as very high, 2% of the respondents rated it as poor i.e. they think that there is no need for better assistance and facilities for mental or physical health issues at work. None of the respondents rated it as fair.

Q.15 : Whether your organization has taken initiatives to take care of mental health at work place?

Analysis/Interpretation- The above frequency table and pie diagram shows the responses regarding initiatives taken by the organization of respondents. 88% of the respondents said that their organization has taken initiatives for taking care of mental health of the teachers/professors/lecturer and 12% of the responents organization have not taken any initiative.

Q.16 : How would you rate such initiative taken by your organization to manage mental health of its employees including teaching staff?

Analysis/Interpretation- The above frequency table and pie diagram shows the response about rating of initiatives taken by respondents organization to manage mental heath of its employees including teaching staff. 64% of the respondents rated such initiatives taken by organizations for its employess including teaching staff as normal, 25% of the respondents rated it as fair, 6% of the respondents rated it as high, 4% of the respondents rated it as poor i.e. they think that initiatives taken by the organization were not effective, and 1% of the respondents rated it as excellent i.e. they think that these initiatives taken by organization to manage mental heath of its employees including teaching staff were very effective.

Q.17 : Adequacy of emoluments

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the adequacy of emoluments. 75% of the respondents emoluments adequacy is good,19% of the respondents get fair level of emoluments, 5% of the respondents get poor level of emoluments i.e. they are not satisfied with their salary and 1% of the respondents emoluments adequacy is very good. None of the responent has an excellent level of satisfaction regarding their pay.

Q.18 :Annual Salary Increment

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the annual salary increment of the respondents. 42% of the respondents annual salary increment is poor i.e. their salary increment is very less and they are not satisfied with it, 37% of the respondents get fair level of salary increment, 20% of the respondents get good salary increment and 1% of the respondents salary increment is very good. None of the responent has an excellent level of salary increment i.e. their salary is not incremented frequently and with a good amount.

Q.19 : Promotional Avenues

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the promotional avenues are considered fair by 83%, poor by 7%, good by 5% and very good by 5% .

Q.20 : Job Security

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the job security of the respondents. 72% of the respondents consider their job security level as very

good,14% of the respondents consider it as poor i.e. they feel that their job is highly insecure, 7% of the respondents consider it as good, 7% of the respondents consider it as good and 1% of the respondents consider their job security level to be excellent i.e. they feel their job is highly secure.

Q.21 : Overall Work Pressure
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the overall work pressure of the respondents. 85% of the respondents overall work pressure is of good level, 7% of the respondents have fair level of work pressure, 5% of the respondents have very good level of work pressure and 3% of the respondents have excellent level of overall work pressure i.e. very high work pressure. None of the responent has poor level of work pressure i.e. no work pressure.

Q.22 : Working Environment
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the working environment in which respondents work. 49% of the respondentsstated that working environment is fair, 43% of the respondents consider that they have good level of working environment, 7% of the respondents considered it as very good and 1% of the respondents stated to have poor level of working environment i.e. very bad working environment. None of the responent feel that they have excellent level of working environment i.e. positive working environment.

Q.23 : Employer-Employee Relationship
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the employer-employee relationship of the respondents. 44% of the respondents have good relations with their employer, 35% of the respondents have fair relationships, 11% of the respondents have poor level of relationship with the employer i.e. they do not share good rapport with their employer, 8% of the respondents relation with their employer is very good and 2% of the responents have excellent employee-employer relationships.

Q.24 : Working Hours
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the working hours of the respondents. 40% of the respondents feel they have fair working hours, 31% of the respondents feel to have good working hours, 23% of the respondents feel it as poor i.e. they are not happy with their working hours, 5% of the respondents stated to have very good working hours and 1% of the responents have felt to have excellent working hours i.e. they are satisfied with their working hours.

Q.25 : Social Status
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the social status of the respondents. 86% of the respondents enjoy good social status, 5% of the respondents feel their social status to be very good, 4% of the respondents feel it asexcellent, 4% of the respondents stated to have have fair social status and 1% of the responents have felt poor social status.

Q.26 : Opportunity for utilization of your skills.
Analysis/Interpretation- The above frequency table and pie diagram shows the response about the opportunities respondents get for utilization of their skills and the same were considered as fair by 39% of the respondents, good by 30%, poor by 25%, very good by 4% and excellent by remaining 2%.

Q.27 : Availability of Research Opportunities

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the opportunities respondents get for researchand the same were considered as poor by 81%, good by 7%, fair by 5%, very good by 5% and excellent by 2%.

Q.28 : As an opportunity for education system improvement

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the career of teacher/professor/lecturer as an opportunity for education system improvement and the same is considered as very good by 48%,fair by 27%,poor by 18%, and very good by 7%.

Q.29 : As an opportunity to attain variety of skills

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the career of teacher/professor/lecturer as an opportunity for attaining variety of skills for the respondents and the same was considered good by 41%, very good by 22%, excellent by 20%, fair by 11% and poor by 6% of the respondents.

Q.30 : As an opportunity to serve & uplift the society

Analysis/Interpretation- The above frequency table and pie diagram shows the response about thecareer of teacher/professor/lecturer as an opportunity to serve and uplift the society. 45% of the respondents think career of teacher/professor/lecturer as a very good opportunity to serve and uplift the society, 34% of the respondents think it is an excellent opportunity, 12% of the respondents think it is good opportunity, 7% of the respondents think it is a fair opportunity and 2% of the respondents consider it as a poor opportunity to serve and uplift the society.

Q.31 : How do you rate your career as a Teacher/ Lecturer?

Analysis/Interpretation- The above frequency table and pie diagram shows the response about the rating of career as a teacher/professor/lecturer. 75% of the respondents rated career of teacher/professor/lecturer as good, 14% of the respondents rated it very good, 4% of the respondents rated it excellent, 4% of the respondents rated it fair and 3% of the respondents rated career of teacher/professor/lecturer as poor.

CORRELATION

Correlations			
		How would you rate your mental health?	Gender
How would you rate your mental health?	Pearson Correlation	1	.032
	Sig. (2-tailed)		.748
	N	100	100
Gender	Pearson Correlation	.032	1
	Sig. (2-tailed)	.748	
	N	100	100

Table : 1

Analysis/Interpretation- There is a positive correlation between the variables mental health and gender. The value of correlation is 0.032 which shows there is no association between the variables. The significant value of 0.748 shows that there does not exists a relationship between the two variables.

CORRELATION

Correlations			
		Gender	How would you describe your work-life balance?
Gender	Pearson Correlation	1	.062
	Sig. (2-tailed)		.540
	N	100	100
How would you describe your work-life balance?	Pearson Correlation	.062	1
	Sig. (2-tailed)	.540	
	N	100	100

Table : 2

Analysis/Interpretation- There is a positive correlation between the variables work life balance and gender. The value of correlation is 0.062 which shows there is no association between the variables. The significant value of 0.540 shows that there does not exists a relationship between the two variables.

CORRELATION

Correlations			
		Gender	Overall Work Pressure
Gender	Pearson Correlation	1	-.161
	Sig. (2-tailed)		.110
	N	100	100
Overall Work Pressure	Pearson Correlation	-.161	1
	Sig. (2-tailed)	.110	
	N	100	100

Table : 3

Analysis/Interpretation- There is a negative correlation between the variables overall work pressure and gender. The value of correlation is -0.161 which shows a weak strength of association between the variables. The significant value of 0.110 shows that that the variables are not related to each other.

CORRELATION

Correlations			
		How would you rate your mental health?	Job Security
How would you rate your mental health?	Pearson Correlation	1	-.294[**]
	Sig. (2-tailed)		.003
	N	100	100
Job Security	Pearson Correlation	-.294[**]	1
	Sig. (2-tailed)	.003	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

Table : 4

Analysis/Interpretation- There is a negative correlation between the variables mental health and job security. The value of correlation is -0.294 which shows a weak strength of association between the variables. The significant value of 0.003 shows that the variables are related to each other.

CORRELATION

Correlations			
		How would you rate your mental health?	Overall Work Pressure
How would you rate your mental health?	Pearson Correlation	1	.160
	Sig. (2-tailed)		.111
	N	100	100
Overall Work Pressure	Pearson Correlation	.160	1
	Sig. (2-tailed)	.111	
	N	100	100

Table : 5

Analysis/Interpretation- There is a positive correlation between the variables mental health and overall work pressure. The value of correlation is 0.160 which shows which shows a weak strength of association between the variables.The significant value of 0.111 shows that that the variables are not related to each other.

CORRELATION

Correlations		How would you rate your mental health?	Employer-Employee Relationship
How would you rate your mental health?	Pearson Correlation	1	.524**
	Sig. (2-tailed)		.000
	N	100	100
Employer-Employee Relationship	Pearson Correlation	.524**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

Table : 6

Analysis/Interpretation- There is a positive correlation between the variables mental health andd employee-employer relationship. The value of correlation is 0.524 which shows a strong strength of association between the variables. The significant value of 0.000 shows that the variables are related to each other.

CORRELATION

Correlations		Qualification	Adequacy of emoluments
Qualification	Pearson Correlation	1	.334**
	Sig. (2-tailed)		.001
	N	100	100
Adequacy of emoluments	Pearson Correlation	.334**	1
	Sig. (2-tailed)	.001	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

Table : 7

Analysis/Interpretation- There is a positive correlation between the variables qualification and adequacy of emoluments. The value of correlation is 0.334 which shows a weak strength of association between the variables. The significant value of 0.001 shows that the variables are related to each other.

CROSSTABS

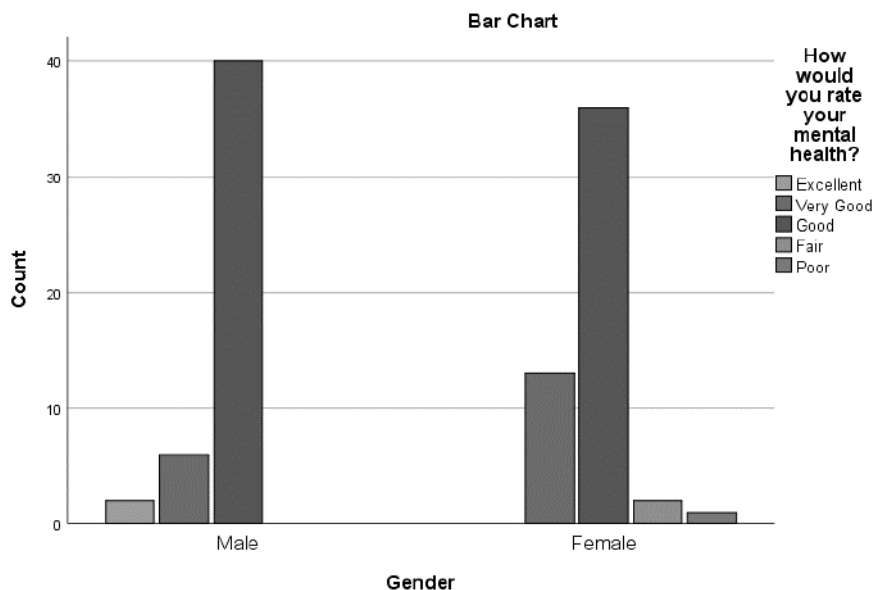| Gender * How would you rate your mental health? Crosstabulation							
Count							
		How would you rate your mental health?					Total
		Excellent	Very Good	Good	Fair	Poor	
Gender	Male	2	6	40	0	0	48
	Female	0	13	36	2	1	52
Total		2	19	76	2	1	100

Table : 8

Fig. : 1

Analysis/Interpretation- On comparing the two variables gender and mental health, In both the variables the respondents who rated their mental health excellent and whos gender is male are 2%, and those whos gender is female are 0%. The respondents rated their mental health very good and whos gender is male are 6% and those whos gender is female are 13%. The respondents rated their mental health good and whos gender is male are 40% and those whos gender is female are 36%. The respondents rated their mental health fair and whos gender is male are 0% and those whos gender is female are 2%. The respondents rated their mental health poor and whos gender is male are 0% and those whos gender is female are 1%.

CROSSTABS

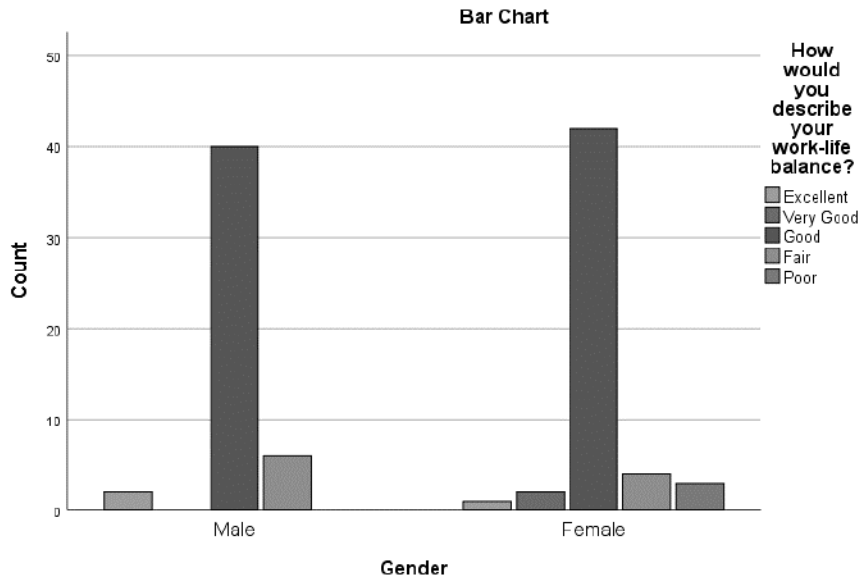| Gender * How would you describe your work-life balance? Crosstabulation							
Count							
		How would you describe your work-life balance?					Total
		Excellent	Very Good	Good	Fair	Poor	
Gender	Male	2	0	40	6	0	48
	Female	1	2	42	4	3	52
Total		3	2	82	10	3	100

Table : 9

Fig. : 2

Analysis/Interpretation- On comparing the two variables gender and work-life balance, In both the variables the respondents who rated their work-life balance excellent and whos gender is male are 2%, and those whos gender is female are 1%. The respondents rated their work-life balance very good and whos gender is male are 0% and those whos gender is female are 2%. The respondents rated their work-life balance good and whos gender is male are 40% and those whos gender is female are 42%. The respondents rated their work-life balance fair and whos gender is male are 6% and those whos gender is female are 4%. The respondents rated their work-life balance poor and whos gender is male are 0% and those whos gender is female are 3%.

CROSSTABS

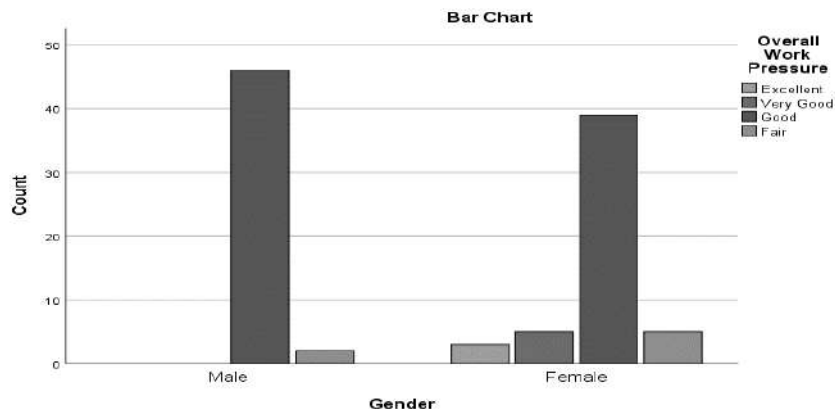| Gender * Overall Work Pressure Crosstabulation						
Count						
		Overall Work Pressure				
		Excellent	Very Good	Good	Fair	Total
Gender	Male	0	0	46	2	48
	Female	3	5	39	5	52
Total		3	5	85	7	100

Table : 10

Fig. : 3

Analysis/Interpretation- On comparing the two variables gender and work-life balance, In both the variables the respondents who rated their overall work pressure excellent and whos gender is male are 0%, and those whos gender is female are 3%. The respondents rated their overall work pressure very good and whos gender is male are 0% and those whos gender is female are 5%. The respondents rated their overall work pressure good and whos gender is male are 46% and those whos gender is female are 39%. The respondents rated their overall work pressure fair and whos gender is male are 2% and those whos gender is female are 5%. None of the respondents rated their overall work pressure as poor.

CROSSTABS

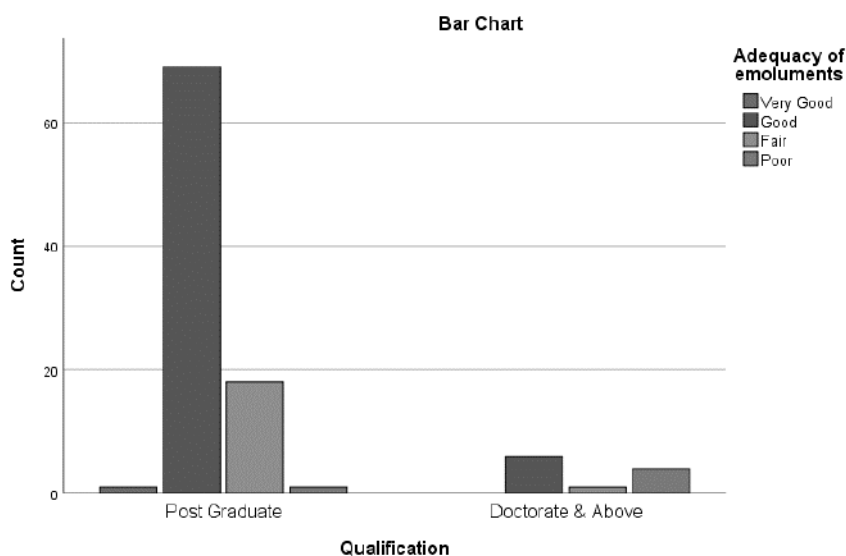| Qualification * Adequacy of emoluments Crosstabulation						
Count						
		Adequacy of emoluments				Total
		Very Good	Good	Fair	Poor	
Qualification	Post Graduate	1	69	18	1	89
	Doctorate & Above	0	6	1	4	11
Total		1	75	19	5	100

Table : 11

Fig. : 4

Analysis/Interpretation- On comparing the two variables qualification and adequacy of emoluments, In both the variables the respondents who rated their adequacy of emoluments as excellent are 0%. The respondents rated their adequacy of emoluments very good and whos qualification is post graduate are 1% and those whos qualification is doctorate and above are 0%. The respondents rated their adequacy of emoluments good and whos qualification is post graduate are 69% and those whos qualification is doctorate and above are 6%. The respondents rated their adequacy of emoluments fair and whos qualification is post graduate are 18% and those whos qualification is doctorate and above are 1%. The respondents rated their adequacy of emoluments poor and whos qualification is post graduate are 1% and those whos qualification is doctorate and above are 4%.

CROSSTABS

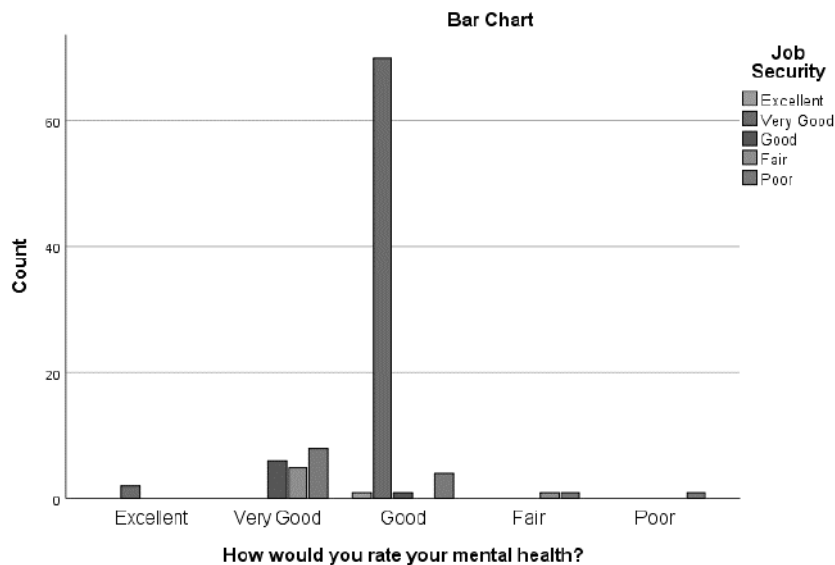| How would you rate your mental health? * Job Security Crosstabulation							
Count							
		Job Security					
		Excellent	Very Good	Good	Fair	Poor	Total
How would you rate your mental health?	Excellent	0	2	0	0	0	2
	Very Good	0	0	6	5	8	19
	Good	1	70	1	0	4	76
	Fair	0	0	0	1	1	2
	Poor	0	0	0	0	1	1
Total		1	72	7	6	14	100

Table : 12

Fig. : 5

Analysis/Interpretation- On comparing the two variables mental health and job security, In both the variables the respondents who rated excellent for both the terms are 0% of the total respondents. The respondents who rated very good for both the statements are 0%, respondents who rated good to both the statements are 1%, the respondnts who rated fair to both the statements are 1% and the respondents who rated poor for both the statements are 1%. The maximum number of respondents are 70% who rated their mental health as good and their job security as very good.

CROSSTABS

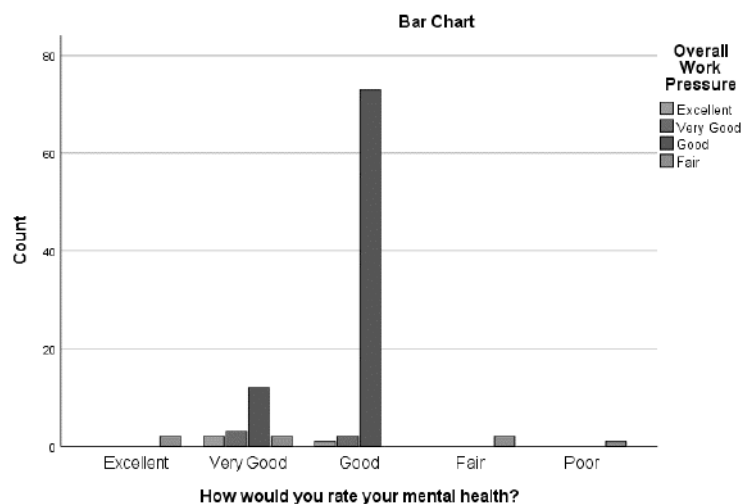| How would you rate your mental health? * Overall Work Pressure Crosstabulation						
Count						
		Overall Work Pressure				
		Excellent	Very Good	Good	Fair	Total
How would you rate your mental health?	Excellent	0	0	0	2	2
	Very Good	2	3	12	2	19
	Good	1	2	73	0	76
	Fair	0	0	0	2	2
	Poor	0	0	0	1	1
Total		3	5	85	7	100

Table : 13

Fig. : 6

Analysis/Interpretation- On comparing the two variables mental health and overall work pressure, In both the variables the respondents who rated excellent for both the terms are 0% of the total respondents. The respondents who rated very good for both the statements are 3%, respondents who rated good to both the statements are 73%, the respondnts who rated fair to both the statements are 2% and the respondents who rated poor for both the statements are 0%, since there is no respondent who has rated overall work pressure as poor. The maximum number of respondents are 73% who rated their mental health as good and their overall work pressure as good.

CROSSTABS

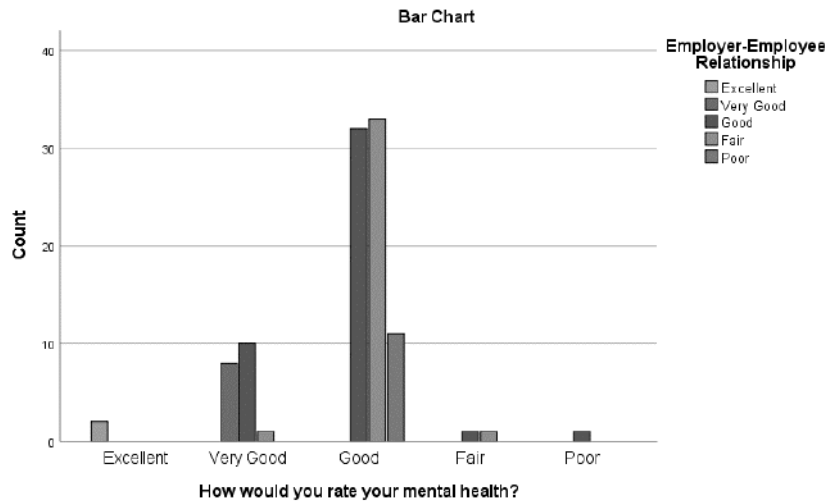| **How would you rate your mental health? * Employer-Employee Relationship Crosstabulation**							
Count							
		Employer-Employee Relationship					
		Excellent	Very Good	Good	Fair	Poor	Total
How would you rate your mental health?	Excellent	2	0	0	0	0	2
	Very Good	0	8	10	1	0	19
	Good	0	0	32	33	11	76
	Fair	0	0	1	1	0	2
	Poor	0	0	1	0	0	1
Total		2	8	44	35	11	100

Table : 14

Fig. : 7

Analysis/Interpretation- On comparing the two variables mental health and employer-employee relationship, In both the variables the respondents who rated excellent for both the terms are 2% of the total respondents. The respondents who rated very good for both the statements are 8%, respondents who rated good to both the statements are 32%, the respondnts who rated fair to both the statements are 1% and the respondents who rated poor for both the statements are 0%. The maximum number of respondents are who have rated good mental health are 32%, 33% and 11% from ratings good, fair and poor respectively.

T-TEST

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Social Status	100	2.9300	.53664	.05366

Table : 15

One-Sample Test						
	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Social Status	54.599	99	.000	2.93000	2.8235	3.0365

Table : 16

Analysis/Interpretation- There is a positive correlation of the variable social status. The value of level of significance is 0.00 which is less than 5%. Hence it is an alternate hypothesis and there exists a relationship between the variable and the research.

T-TEST

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
How would you rate your mental health?	100	2.8100	.54486	.05449

Table. : 17

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
How would you rate your mental health?	51.573	99	.000	2.81000	2.7019	2.9181

Table : 18

Analysis/Interpretation- There is a positive correlation of the variable rating of mental health. The value of level of significance is 0.00 which is less than 5%. Hence it is an alternate hypothesis and there exists a relationship between the variable and the research.

T-TEST

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Whether your organization has taken initiatives to take care of mental health at work place?	100	1.1200	.32660	.03266

Table : 19

One-Sample Test						
	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Whether your organization has taken initiatives to take care of mental health at work place?	34.293	99	.000	1.12000	1.0552	1.1848

Table : 20

Analysis/Interpretation- There is a positive correlation of the variable whether respondents organization has taken initiatives to take care of mental health at work place. The value of level of significance is 0.00 which is less than 5%. Hence it is an alternate hypothesis and there exists a relationship between the variable and the research.

T-TEST

Group Statistics	Gender	N	Mean	Std. Deviation	Std. Error Mean
How would you rate your mental health?	Male	48	2.7917	.50353	.07268
	Female	52	2.8269	.58481	.08110

Table : 21

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
How would you rate your mental	Equal variances assumed	.731	.395	-.322	98	.748	-.03526	.10956	-.25267	.18215

health?	Equal variances not assumed			-.324	97.543	.747	-.03526	.10890	-.25138	.18087

Table : 22

Analysis/Interpretation- There is a positive correlation between the gender of the respondents and their mental health. The value of level of significance is 0.748 and 0.747 which is greater than 5%. Hence it is an null hypothesis and there does not exists a relationship between the two variables.

T-TEST

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
How would you describe your work-life balance?	Male	48	3.0417	.54415	.07854
	Female	52	3.1154	.64637	.08964

Table : 23

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
How would you describe your work-life balance? Equal variances assumed	1.223	.271	-.614	98	.540	-.07372	.12000	-.31186	.16442
Equal variances not assumed			-.619	97.202	.538	-.07372	.11918	-.31025	.16281

Table : 24

Analysis/Interpretation- There is a positive correlation between the gender of the respondents and their work life balance. The value of level of significance is 0.540 and 0.538 which is greater than 5%. Hence it is an null hypothesis and there does not exists a relationship between the two variables.

I. Findings

Based on analysis of the respondents' responses various interpretations as follows:
1. Physical health and mental health of the respondents are generally good.
2. The respondents stress levels are high and their work life balance is average.
3. Contribution of employer in stress management is very less.
4. The respondents have generally fair relations with their co-workers and employers.
5. Many of the Respondents' organizations have taken initiatives for stress management but they are not adequate and have not been very effective.
6. Majority of the Respondents are not satisfied with their emoluments, promotional avenues, job security, opportunity for utilization of skills and also do not get enough opportunities for research and attainment of skills. All these factors have been rated at low on the scale.
7. As far as educational level of respondents is considered they are not getting paid remunerations according to their education level.
8. Respondents do not feel pressurized at work which is a positive sign.

9. Respondents are not happy with their working hours.
10. There is positive correlation between mental health and gender but there is no relationship between them.
11. There is positive correlation between gender and work life balance but there does not exist a relationship between them.
12. Work pressure and gender have negative correlation and weak strength of association between variables.
13. There is negative correlation between mental health and job security which shows weak strength of association between variables and also show that these are related to each other.
14. There is positive correlation between mental health and work pressure.
15. There is positive correlation between mental health and employer-employee relationship and there is weak strength association between the variables.
16. Mental health and gender has no relationship.
17. Work-life balance and gender has no relationship.
18. Relationship exists in initiatives taken by organizations, mental health, social status and research.

J. Limitations

1. The study has been limited to higher education sector covering the teachers but has not covered primary and middle education.
2. The sample size has been kept low to 100.
3. The parameters of mental health are general and do not cover any medical aspect and psychological tests etc. of mental health, and the feedback is based on the self-assessment of the respondents regarding the parameters in the questionnaire.

K. Conclusion

1. In this study role of mental health in job satisfaction in higher education sector it is revealed that the mental health due to work pressure and work life balance are gender agnostic.
2. The study reveals that there is a distinct communication gap in understanding the need of taking care of mental health of employees by the employer. It also reveals that the organizational culture, interpersonal relations and working hours are not conducive to the mental health in the organization in the educational institutes.
3. The arrangements and the activities required to be carried out by employer for supporting or boosting the mental health of employees are not adequate.
4. Overall job satisfaction level is low as for as remunerations, promotional avenues, employer-employee relationships and working hours are concerned.
5. There is very high level of dissatisfaction regarding pay and allowances and promotional avenues amongst those holding higher qualifications like doctorate
6. There is low level of satisfaction regarding employer-employee relations and interpersonal relations in the organizations.
7. The point of satisfaction is that the employees do not feel over pressurized by the factors other than working hours and their mental health is gender agnostic and despite low income they feel their job security is high.

L. Recommendations and Suggestions

1. Improving organizational work culture
2. Promoting healthy interpersonal relationships

3. Promoting communication between employer and employees for understanding each other's requirements.
4. Promoting activities for boosting mental health of teaching staff like:yoga, meditation sessions, mindfulness classes, stress reduction workshops, etc.
5. Taking measures to make teaching career more lucrative. There should a provision for better pay and allowances and better promotional avenues for higher qualification and experience.
6. Organisations should also focus on spiritual well-being of its employees without being any particular religion centric. Examples of organisational spirituality include:

   o meditation time at the beginning of meetings

   o retreat or spiritual training time set aside for employees

   o appropriate accommodation of employee prayer practices

   o openly asking questions to test if company actions are aligned with higher meaning and purpose.

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ANNEXURE
Role of the Mental Health Towards Job Satisfaction in Higher Education Sector;
   ### A. Profile

1. Name:				
	I	II	III	IV
2. Age Group:	21-40	41-60	Above 60yrs	
3. Gender:	Male	Female	Transgender	
4. Qualification:	Graduate	Post Graduate	Doctorate & above	

5.	Annual Income	Less than 5 Lakhs	5-10 Lakhs	10-20 Lakhs	More than 20 Lakhs

B. <u>Questions on Mental Health</u>

SN	Question (Mental and Physical Health)	Excellent	Very Good	Good	Fair	Poor
1.	How would you rate your physical health?					
2.	How would you rate your mental health?					
3.	How would you rate your overall well-being levels when you're at work?					
4.	How would you rate your stress levels at work?					
5.	How would you describe your work-life balance?					
6.	How would you rate contribution of your employer in stress management?					
7.	How would you rate your interpersonal relationships with co-workers?					
		Very High	high	Normal	Fair	Poor
8.	How would you rate Role & Importance of yoga, meditation sessions, mindfulness classes, stress reduction workshops, etc. in Stress Management?					
9.	How would you rate the need for expansion of more mental health resources at work? (Such as meditation sessions, mindfulness classes, stress reduction workshops, etc.)					
10.	How would you rate the necessity of better assistance and facilities for mental or physical health issues at work?					
11.	Whether your organization has taken initiatives to take care of mental health at work place?	Yes / No				
12.	How would you rate such initiative taken by your organization to manage mental health of its employees including teaching staff?					

C. <u>Questions on Job Satisfaction</u>

SN	Question (Mental and Physical Health)	Excellent	Very Good	Good	Fair	Poor
How would you rate the career as Teacher/ Lecturer considering the following;						
1.	Adequacy of emoluments					
2.	Annual Salary Increment					
3.	Promotional Avenues					
4.	Job Security					
5.	Overall Work Pressure					
6.	Working Environment					
7.	Employer-Employee Relationship					
8.	Working Hours					
9.	Social Status					
10.	Opportunity for utilization of your skills.					
11.	Availability of Research Opportunities					
12.	As an opportunity for education system improvement					
13.	As an opportunity to attain variety of skills					
14.	As an opportunity to serve & uplift the society					
15.	How do you rate your career as a Teacher/ Lecturer?					

A Study on Relationship Between Foreign Debt, Investment and Productivity of Indian Economy

Gurendra Nath Bhardwaj* and Nikhil Khairnar**

ABSTRACT

In this era, the global economies are inter-related and inter-dependent. This dependency is vital for the growth of an economy of any country; therefore, it is a need of hour to assess the degree of inter dependence between economies and their impacts on the overall performance of respective counties. The paper examines the relationship between Foreign Debt, Investment and productivity. The study addresses the research objectives like impact of external debt on Indian economy, examining productivity of various sectors, study the growth and Investments in country, highlighting issues for effective use of foreign debt and to suggest an optimal solution to increase productivity, investment as well as to manage external debt.

To examine or testify relationship between Foreign Debt, Investment and productivity Structural Vector Autoregression (SVAR) methodology is adopted. This methodology houses the dynamic relationships among economic variables, which are broadly constant with economic theories and facts. The paper captures the data of India's debt, Investment and productivity and tries to establish the relationship and address the issues of effective use of external debt to boost the economy by efficiently using the various resource especially labor. If Foreign debt is utilized on productive activities like capital formation or spent on acquiring and maintaining technologies for efficient use of resources, then it will help to build the economy. It will point out the loopholes in utilization of foreign debt, and resource utilization and give solution to avoid those loopholes.

The tentative conclusion of the current research stated the data which shows how the graph of economic growth can be explained if we consider foreign debt. It appears that resources generated through debt are basically utilized in an unproductive way, as the productivity data (especially labor) indicates a decline or very less labor productivity which signifies that country is lagging in skilled man-power which is a vital component for economic growth. Through the data, we cannot claim economic stability because we still have lower productivity. Though Foreign Direct Investment (FDI) is smooth and it depends on political relations with foreign countries and their firms and FDI have shown a positive relationship with Foreign Debt but still, there is long way to go. So, at the end after analyzing data it is evident that Foreign debt does not have a direct impact on Investment, and productivity significantly. It totally depends upon its usage by country. Though debt taken for long-term shows some impact it can be overruled if the debt is used wisely on productive activities like capital formation.

Keywords: *Foreign Direct Investment; Structural Vector Autoregression model; Labour Productivity; Domestic Saving; Foreign Capital flows; Government and Non-Government External Debt; inward and outward investment.*

1.0 Introduction

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In this era, the Worlds economics are inter-related and inter-dependent. This dependency is vital for the growth of an economy of any country. As in literature there is saying "United we stand, divide we Fall" so is the scenario of global economy today. The point is that any country cannot stand alone economically, basically it has to have some relation with other countries and have stand in global economy. The economic development of countries all over the world contributes towards global growth and welfare. The development of economy depends upon various factors such as efficient use of natural resources, man-power, and have frictionless capital flow through banks. Banks being the backbone of economy, cash flow through it should be very transparent and efficient. For the development of an economy, often countries have various means of finance like finance through the surplus from public sector, taxation or to take loan from other countries (Foreign Debt) or to take loan from national banks internally i.e. internal Debt and to regulate the foreign policies so as to encourage foreign investment. The word "Debt" had been an issue to talk about because economists have different point of view about it. Some says it is an important source and have positive impact on economic growth of country if handled carefully. While some says it is bad for the economy of a country since it hampers its growth. While Economic theory suggests if debt levels taken by country were kept reasonable, efficiently utilized then it will boost the economy of country. As long as if borrowing country produces an output higher than the cost of foreign debt it will be productive for that country. If productivity and output of the country as well as export are good, then no doubt that the value of domestic money increases which will eventually lead to surplus which then can be spend on the investment. And also helps to grow domestic market which will attract foreign investment in country, eventually leading to economic stability in country. Foreign Relations also play a vital role in developing economy of a country.

India being a developing Nation do take external assistance either in grants or loans [10]. Earlier during 1980's nearly 75% of external assistance was in the form of grants, the percentage of grants gradually decreases to 25% in 1990's as the country's potential increased. Now, nearly 90% of our external assistance is in the form of loan. From 2009 to 2014, India's external debt ranges from 80.8% to 79.5%. and Short-term ranges from 19.2% to 20.5% by creditor category. On 31 December 2018, it stocks totaled US$521.2 billion from all seven components i.e. Multilateral, Bilateral. India's GDP rate ranges from 5.5% to 6.7% from 1990 to 2017, while it was 10.4 in 2010. In 1991, India introduced the National Economy Policy, which was focused on Liberalization, Privatization, Globalization paved a way towards Foreign Investment. The Following paper will focus on India's GDP, Foreign Debt and Relations, Foreign investment and productivity.

2.0 Review of Literature

Foreign Debt has an impact on various parameters that are bases of Economic development such as Domestic capital formation, generation of employment, rate of interest, production factors esp. labor, inflation, and GDP.

Joshi (2007) in his paper on Role of Domestic Saving and Foreign Capital flows in capital Formation in India. He mentions that higher savings lead to higher investments (foreign cash inflow in the Indian Economy) and vice-versa. Based on the empirical analysis on long time series data on various components of gross saving and NAS (National Account Statistics) and BOP statistics he concluded that there is a stable relationship between capital formation and various components of savings. He further explains that capital account formation played an important role in equalizing the steady-state equilibrium by avoiding short-term disturbances in the process of capital formation cycles. Not only this it also has the potential to influence the growth positively both in the short and long-term. Though his research only talks about the Domestic saving and does not specify the impact of foreign debt it is worth notifying that as long as a capital formation is stable implies that the

country's economy is stable and hence foreign debt won't be an issue for the growing economy.

Ray (2012) in her research paper on the Impact of foreign direct investment on economic growth in India: A Cointegration Analysis. she tested the co-integration between GDP and FDI in India and its causes and effects. It comes out that there is a positive relationship between foreign direct investment and GDP and vice versa through the least square method. The paper also indicated that FDI didn't contribute much to the economic growth in India for the time period between 1990-91 to 2010-11. The paper suggests that the government needed to focus on improving infrastructure, human resources, developing local entrepreneurship, creating a stable macroeconomic framework. The reason to review this paper is that foreign debt and foreign investment are very much co-related since foreign investment will help developing countries like India to grow economically which will result in ineffective use of resources and increase the output of a country, resulting in surplus which will reduce the burden of foreign debt. Or if the foreign debt is well spent to enhance foreign investment or spent on creating a stable macroeconomic framework that FDI will be noteworthy for the economic growth of India.

3.0 Objectives

The Research objectives are as follows:
- To study the impact of external debt on Indian economy.
- To examine productivity of various sectors.
- To study the growth and Investments in country.
- To highlight issues for effective use of foreign debt.
- To suggest an optimal solution to increase productivity, investment as well as to manage external debt.

4.0 Methodology

To examine or testify relationship between Foreign Debt, Investment and productivity Structural Vector Autoregression (SVAR) methodology is adopted. This methodology houses the dynamic relationships among economic variables, which are broadly constant with economic theories and facts.

5.0 Foreign Debt

Foreign debt is loan or credits taken from international organizations such as World Bank, Asian Development Bank or Inter-American Development Bank or from countries. India borrows from these organizations to diversify its currency denominations of debt or because its own country's debt market is not deep enough to meet their needs. This debt is issued for the short term or for the long term. India do take credits and loans from other countries. Components of FD (Foreign Debt) include multilateral, bilateral, IMF and Export credit.

Multilateral or Multilateralism is an alliance of multiple countries pursuing common goals etc. India after introducing a policy of LPG i.e. Liberalization, Privatization, Globalization in 1991 do take part in Multilateral alliances. Today India is a member of WTO (World Trade Organization). Whereas Bilateral is an alliance between two countries which results in the Trade agreement between them which may include a reduction in tariffs and import duties.

As mentioned in Table#1, Long-term debt increases by 6.1 percent at end December 2014 over the period at End-March 2014 due rise in commercial borrowings and NRI deposits. Total 60.8

per cent of total external debt (long-term and short-term) at End-December 2014 as against 56.8 per cent at End-March 2014 is accounted by Commercial borrowings and NRI deposits.

Short-term debt faced decline at End-March 2014 over End-March 2014 level due to debt component of FII flows and trade related credit. It declined by 6.7 percent to US $85.6 billion at End-December 2014 over the End-March 2014 level. Total external debt was 18.5 per cent at the End-December 2014

Components-wise share of India's External Debt at End-December 2014 (per cent)
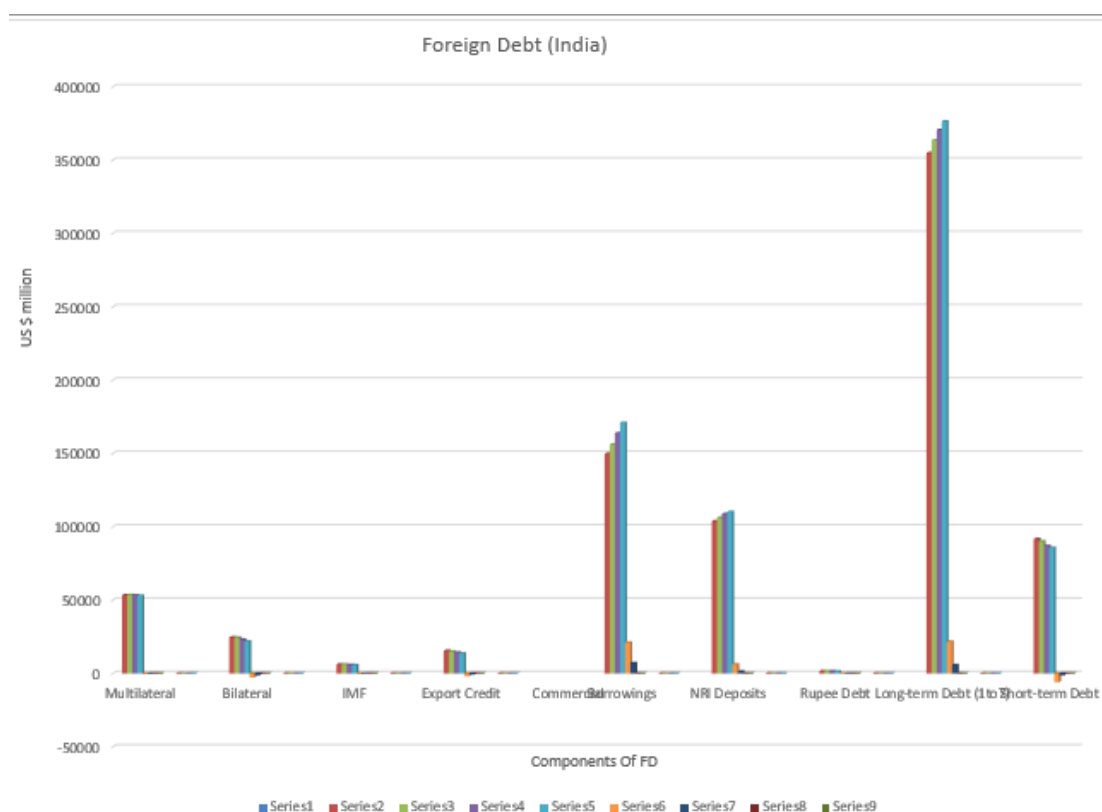
Government and Non-Government External Debt

External Debt of India was US $ 90.1 billion having share of 19.5 per-cent of Government debt. Ratio of Government Debt to GDP has remained below 5.0 per cent for past years. The following table contains Government and non-Government debt.

Share of Government and Non-Government External Debt in Total External Debt

Govt. and Non Govt. External Debt
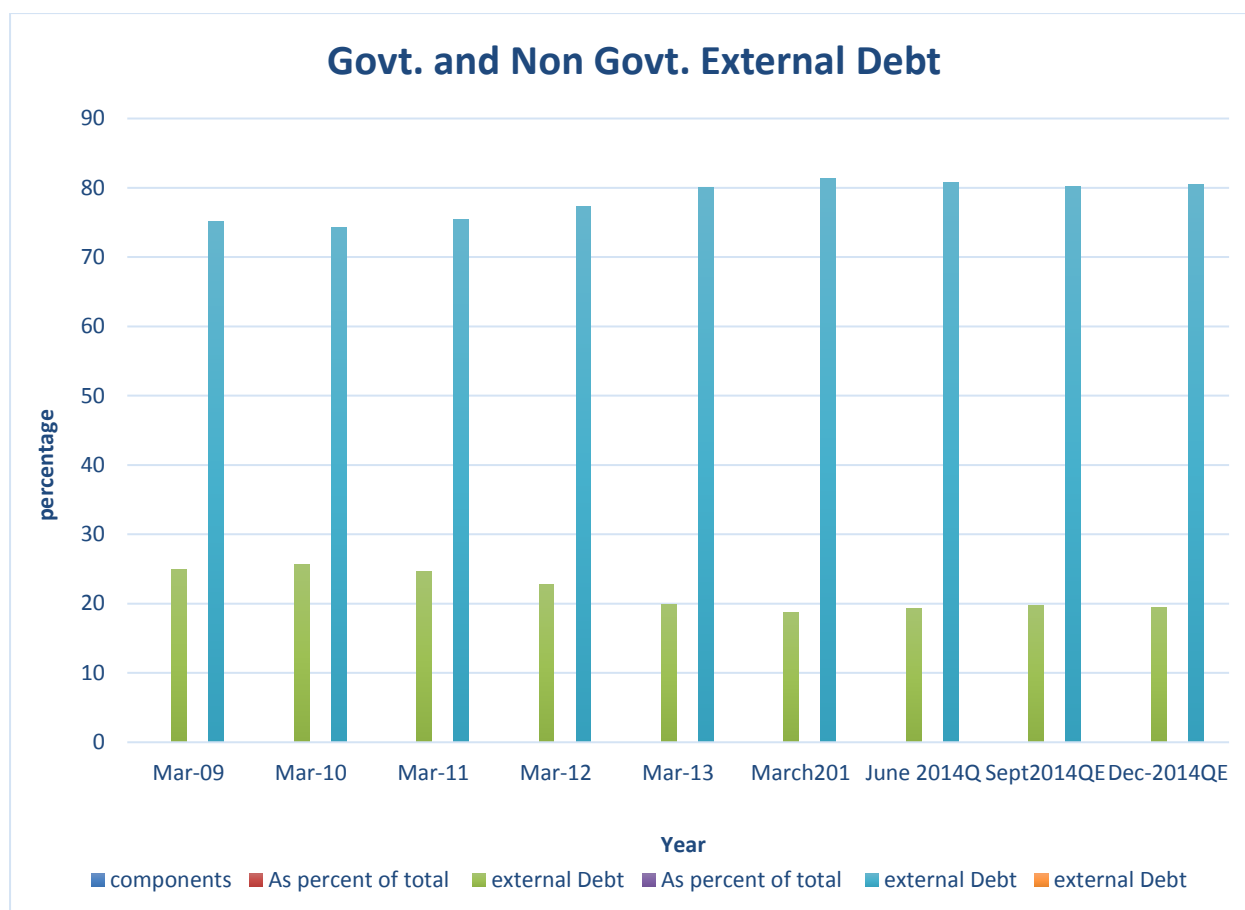
Source: RBI

In above graph the Dark-Blue is Non-Govt. Debt and gray is Govt. Debt.

From the graph it is evident that Non-Government Debt takes Maximum per cent of total external debt right from End-March 2009 to End-December 2014.

External Debt currency composition

The composition of currency in Foreign/External Debt is presented in chart no. 1.

From the chart no 1, it is evident that major portion of debt was in US dollar followed by Indian Rupee.

The chart no. 2 refer to borrowing from International Development Association (IDA) i.e. the soft loan window of the world Bank under the multilateral agencies and SDR allocations by the International Monetary Fund (IMF).

The chart indicates that SDR dominates Debt by 32.1 per cent. SDR i.e. special Drawing rights are supplementary foreign exchange reserve assets define and maintained by the International Monetary Fund(IMF). It is allocated by IMF to countries and cannot be held or used by private parties.

Investment (inward and outward)

Investments is an important factor in developing one's economy. After an economic reform in 1991, India has many foreign investment and outward foreign investment i.e. both inflows and outflows.
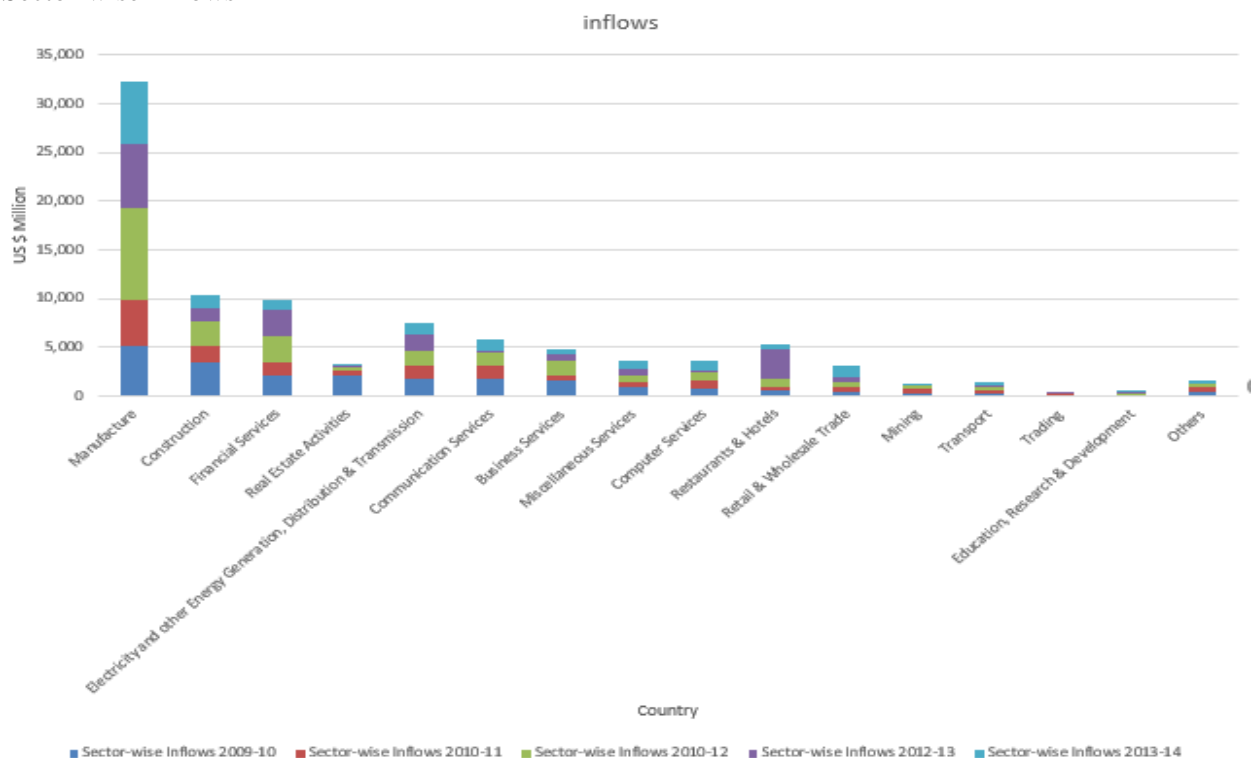
Table#1

Year on Year Growth

Indian Foreign Direct Investment					
(US$ million)					
Source/ Industry	2013-14	2014-15	2015-16	2016-17	2017-18 P
1	2	3	4	5	6
Total FDI		0.54	0.46	0.01	0.03
Country-Wise Inflows					
Mauritius		0.59	0.27	0.80	0.00
Singapore		0.16	1.43	-0.48	0.42
Netherlands		0.86	0.08	0.39	-0.17
USA		2.21	1.08	-0.48	-0.08
Japan		0.12	-0.10	1.33	-0.69
Cayman Islands		1.88	-0.02	-0.09	0.3
Germany		0.45	-0.02	-0.09	0.3
Hong Kong		2.82	0.06	-0.61	6.79
United Kingdom		16.04	-0.55	0.55	-0.45
Switzerland		-0.18	-0.33	1.57	0.01
UAE		0.37	1.94	-0.33	-0.37
France		0.52	0.13	0.24	-0.17
China		3.17	-0.09	-0.57	0.77
Italy		-0.1	0.67	0.3	-0.15
South Korea		-0.27	0.75	0.93	-0.37
Cyprus		0.35	-0.34	-0.42	0.03
Canada		12.91	-0.66	-0.38	7.56
Others		0.03	0.33	-0.34	0.27
Sector-wise Inflows					
Communication Services		-0.14	1.45	1.23	0.5
Manufacturing		0.51	-0.12	0.42	-0.41
Retail & Wholesale Trade		1.24	0.57	-0.31	0.62
Financial Services		2.00	0.15	0.05	0.09
Computer Services		1.31	1.01	-0.55	0.64
Business services		0.31	3.46	-0.11	0.12
Electricity and other energy Generation, Distribution & Transmission		0	0.06	0.26	0.09
Construction		0.29	1.53	-0.62	-0.18
Transport		0.55	1.83	-0.35	0.42
Miscellaneous Services		-0.38	0.74	0.78	-0.54
Restaurants and Hotels		0.9	0.3	-0.52	0.05
Real Estate Activities		0	-0.45	-0.06	2.86
Education, Research & Development		0.22	2.01	-0.48	0.69
Mining		4.38	3.62	-0.76	-0.42
Trading	0	-1	0	0	0
Others		-0.21	-0.07	1.19	-0.52

Source: RBI

The chart includes country-wise as well as sector-wise inflows. All this FDI are through SIA/FIPB and RBI routes only.

Inflows

- Country-wise Inflows 2009-10 Mauritius ■ Country-wise Inflows 2010-11 Mauritius ■ Country-wise Inflows 2011-12 Mauritius
- Country-wise Inflows 2012-13 Mauritius ■ Country-wise Inflows 2013-14 Mauritius

Sector-wise inflows

■ Sector-wise Inflows 2009-10   ■ Sector-wise Inflows 2010-11   ■ Sector-wise Inflows 2010-12   ■ Sector-wise Inflows 2012-13   ■ Sector-wise Inflows 2013-14
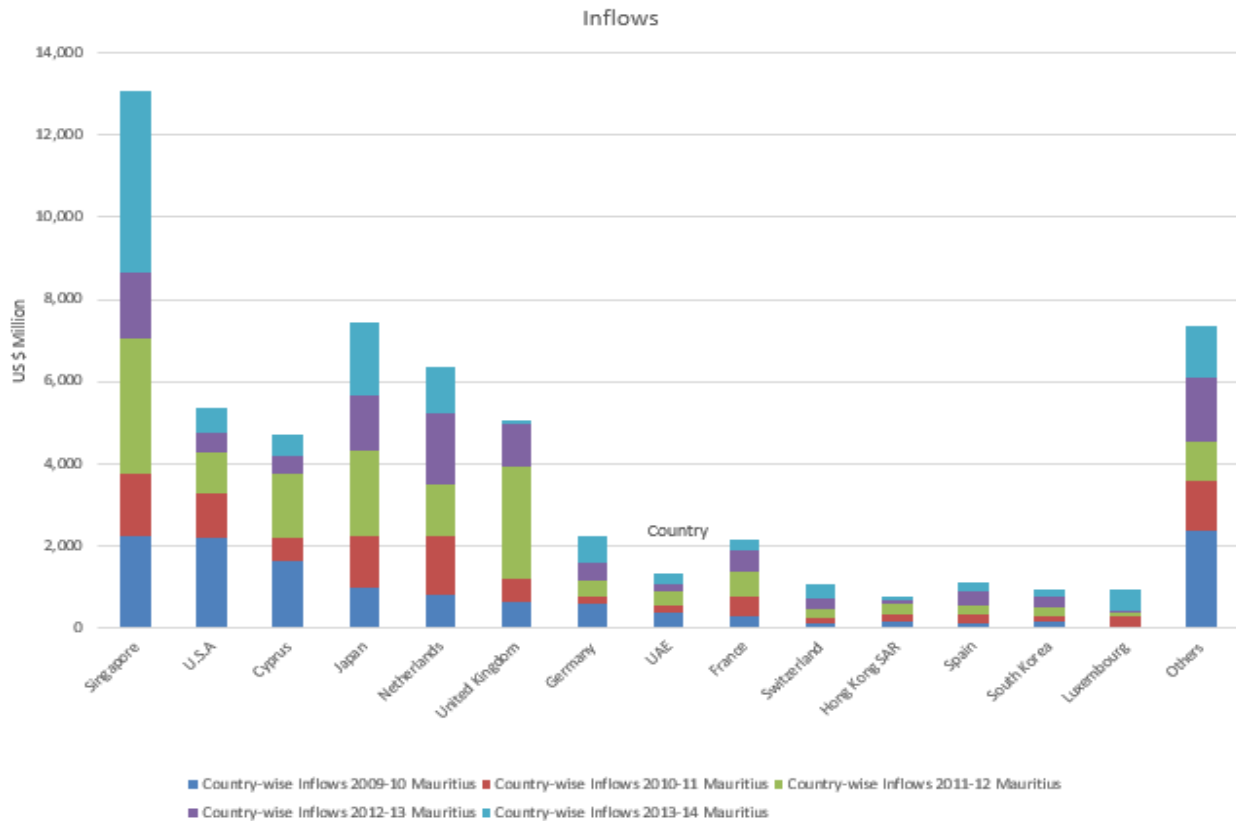
Outward Foreign Direct Investment

India also has outward foreign investment in many countries. Which also brings some value to Indian economy. Since 1995 to 2014 there is boom in India's outward flow as shown in graph no.1

Sector-wise outward Foreign Direct Investment (OFDI)

As in Table No. 4 of sectorial OFDI wherein there is increase in number of firms from each sector who are investing in foreign countries and output of each sector is also shown. The growth in Indian firms investing in other countries due to possessing favorable treaties covering bilateral investment, double-taxation avoidance or economic partnerships with India.

Productivity Growth (Labor)

India's growth analysis shows that there is a significant growth in labor productivity starting from 1993 to 2003 the rate of increase during this period is larger than any other East Asian countries. Gain in labor productivity may be attained due to efficient use of labor in sectors of high productivity. Another aspect to it is that workers became more productive within their sectors. To explain aggregate improvements in labor productivity we will compare the contribution of labor reallocation across sectors and within-sectoral productivity gains.

The Graph no. 2 shows labor productivity growth in India within sector gains, Reallocation of labor and total change in productivity. There is decline in Contribution of Labor from 2007 to 2008. It reaches 4 per cent in 2012.

Hypothesis

H0: The paper is based on following hypothesis that there is no relationship between Foreign (External) Debt, Investment and Productivity.

The objective is to examine that whether Foreign debt has impact on growth, Investment and productivity, interest rate in India. The Debt is a hot topic for economist to talk about, some say it is Debt is good if it is properly managed and used on productivities like capital formation. If Foreign debt taken by public sector is wasted on unproductive activities like financing current expenditure, then it has an adverse effect on economy as well as productivity. Through the paper data shows that Labor productivity is not good. Though there is increase in FDI but return is not up to the mark for some years. Higher long-term interest rate on debt can rule out private investment, thus dampening potential output growth. The Graph no 3 depicts the trends of foreign debt of Central and State Government of India FY (Financial Year) 1980 -81 to 2017-18.
Source: Data from HBS of RBI

The total debt as a percentage of GDP increase from 45 per cent to 53 per cent in 2017-18. In 2004-2005 it reaches 65.07 per cent of GDP. But the above data is Total debt which combination of both internal as well as external. External debt constitutes only 5 per cent in total public debt in recent year. The major part of Public debt is internal debt. Panizza and Presbitero (2014) found a negative relationship between debt and growth. Rangarajan and Srivastava (2005) indicated that large structural deficit and higher interest payment have worst effect on growth. Though during this power shift between political parties also had some effect. Bal (2014) tested the impact of debt on gross fixed capital formation, interest rate for period 1998-2014 shows debt has positive impact on output and gross fixed capital formation. Studies on impact of debt on output are limited.

6.0 Conclusion

The paper has stated the data which shows how the graph of economic growth can be explained if we consider foreign debt. It appears that resources generated through debt are basically utilized in an unproductive way, as the productivity data (especially labor) indicates a decline or very less labor productivity which signifies that country is lagging in skilled man-power which is a vital component for economic growth. Through the data, we cannot claim economic stability because we still have lower productivity. Though FDI is smooth it depends on political relations with foreign

countries and their firms and FDI have shown a positive relationship with Foreign Debt but still, there is long way to go. So at the end after analyzing data it is evident that Foreign debt does not have a direct impact on Investment, Investment, and productivity. It totally depends upon its usage by country. Though debt taken for long-term shows some impact it can be overruled if the debt is used wisely on productive activities like capital formation.

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https://dea.gov.in/sites/default/files/ExternalDebt_Dec14_E.pdf

ANNEXURE:

Table #1
External Debt by creditor category (per cent)

Sl. No.	Components			External Debt Outstanding		Absolute Variation		Percentage	
			at end of	(US$ million)		(US$ million)		Variation	
		March	June	Sept.	Dec.	Dec.	Dec.	Dec.	Dec.
		2014	2014	2014	2014	2014	2014	2014	2014
		PR	PR	PR	QE	over	over	over	over

						March 2014 (6-3)	Sept. 2014 (6-5)	March 2014	Sept. 2014
1	2	3	4	5	6	7	8	9	10
1	Multilateral	53,348	53,603	53,204	52,943	-405	-261	-0.8	-0.5
		(12.0)	*(11.8)*	*(11.6)*	*(11.5)*				
2	Bilateral	24,688	24,584	23,229	21,821	-2,867	-1,408	-11.6	-6.1
		(5.5)	*(5.4)*	*(5.1)*	*(4.7)*				
3	IMF	6,149	6,150	5,898	5,764	-385	-134	-6.3	-2.3
		(1.4)	*(1.4)*	*(1.3)*	*(1.2)*				
4	Export Credit	15,534	15,046	14,326	13,552	-1,982	-774	-12.8	5.4
		(3.5)	*(3.3)*	*(3.1)*	*(2.9)*				
5	Commercial								
	Borrowings	149,774	156,218	163,783	170,801	21,027	7,018	14.0	4.3
		(33.5)	*(34.5)*	*(35.8)*	*(37.0)*				
6	NRI Deposits	103,845	106,251	108,724	110,070	6,225	1,346	6.0	1.2
		(23.3)	*(23.4)*	*(23.8)*	*(23.8)*				
7	Rupee Debt	1,468	1,496	1,452	1,418	-50	-34	-3.4	-2.3
		(0.3)	*(0.3)*	*(0.3)*	*(0.3)*				
8	**Long-term Debt (1to7)**	**354,806**	**363,348**	**370,616**	**376,369**	21,563	5,753	6.1	1.6
		(79.5)	*(80.1)*	*(81.0)*	*(81.5)*				
9	**Short-term Debt**	**91,678**	**90,074**	**86,993**	**85,574**	-6,104	-1,419	-6.7	-1.6
		(20.5)	*(19.9)*	*(19.0)*	*(18.5)*				
10	**Total External Debt (8+9)**	**446,484**	**453,422**	**457,609**	**461,943**	15,459	4,334	3.5	0.9
PR: Partially Revised	*QE: Quick Estimates*								
Source: RBI Report									

Table #2
Government and Non-Government External

Sl. No.	Components				at end-March			end-June	end-Sept.	end-Dec.
		2009	2010	2011	2012	2013	2014	2014Q	2014Q	2014 QE
1	2	3	4	5	6	7	8	9	10	11
A	Government Debt									
	(I+II)	55,870	67,067	78,072	81,896	81,655	83,695	87,320	90,556	90,051
	As percent of GDP	5.1	4.7	4.5	4.7	4.4	4.4	4.2	4.4	4.5
	As percent of total external Debt	24.9	25.7	24.6	22.7	19.9	18.7	19.3	19.8	19.5
I	External Debt on Account under	51,816	55,235	62,295	63,374	61,336	62,204	62,394	60,722	59,184
2	other Govt. External Debt	4,054	11,832	15,777	18,522	20,319	21,491	24,926	29,834	30,867
B	Non-Government Debt	168,628	193,868	239,819	278,870	327,809	362,789	366,102	367,053	371,892
	As percent GDP	15.2	13.5	13.7	16.2	17.9	19.3	17.3	17.9	18.7
	As percent of total external Debt	75.1	74.3	75.4	77.3	80.1	81.3	80.7	80.2	80.5
c	Total External Debt (A+B)	224,498	260,935	317,891	360,766	409,464	446,484	453,422	457,609	461,943
	As per cent of GDP	20.3	18.2	18.2	20.9	22.3	23.7	21.5	22.3	23.2

Table #3

Foreign Direct Investment

Indian Foreign Direct Investment

(US$ million)

Source/ Industry	2013-14	2014-15	2015-16	2016-17	2017-18 P
1	2	3	4	5	6
Total FDI	16,054	24,748	36,068	36,317	37,366
Country-Wise Inflows					
Mauritius	3,695	5,878	7,452	13,383	13,415
Singapore	4,415	5,137	12,479	6,529	9,273
Netherlands	1,157	2,154	2,330	3,234	2,677
USA	617	1,981	4,124	2,138	1,973
Japan	1,795	2,019	1,818	4,237	1,313
Cayman Islands	25	72	440	49	1,140
Germany	650	942	927	845	1,095
Hong Kong	85	325	344	134	1,044
United Kingdom	111	1,891	842	1,301	716
Switzerland	356	292	195	502	506
UAE	239	327	961	645	408
France	229	347	392	487	403
China	121	505	461	198	350
Italy	185	167	279	364	308

South Korea	189	138	241	466	293
Cyprus	546	737	488	282	290
Canada	11	153	52	32	274
Others	1,626	1,682	2,243	1,490	1,889
Sector-wise Inflows					
Communication Services	1,256	1,075	2,638	5,876	8,809
Manufacturing	6,381	9,613	8,439	11,972	7,066
Retail & Wholesale Trade	1,139	2,551	3,998	2,771	4,478
Financial Services	1,026	3,075	3,547	3,732	4,070
Computer Services	934	2,154	4,319	1,937	3,173
Business services	521	680	3,031	2,684	3,005
Electricity and other energy Generation, Distribution & Transmission	1,284	1,284	1,364	1,722	1,870
Construction	1,276	1,640	4,141	1,564	1,281
Transport	311	482	1,363	891	1,267
Miscellaneous Services	941	586	1,022	1,816	835
Restaurants and Hotels	361	686	889	430	452
Real Estate Activities	201	202	112	105	405
Education, Research & Development	107	131	394	205	347
Mining	24	129	596	141	82
Trading	0	228	0	0	0
Others	293	232	215	470	226

Table #4
OFDI Sector-wise

Period	Cumulative OFDI flows by sector of investing Firms ($ million and Percent)				
	Primary	Manufacturing	Services	Others including diversified	All sector
1980-89		56 (36.9)	82 (54.4)	13 (8.7)	152 (100)
1990-99	13 (0.4)	1713 (51.1)	1,404 (41.9)	221 (6.6)	3,351 (100)
2000-09	12181 (18.6)	25,895 (29.6)	23,133 (35.4)	4,158 (6.4)	65,368 (100)
2010-14	10122 (6.0)	65,845 (39.2)	89,355 (53.2)	2,564 (1.5)	167,886 (100)
1980-2014	22316(9.4)	93,509 (39.5)	113,975 (48.1)	6,957 (2.9)	236,757 (100)
Memorandum items for the period 1980-2014					
Investing firm(no.)	270	2,356	4,407	774	7,793
Per firm outwrd investment ($ million)	83	40	26	9	30

Source: World Bank

Chart #1
External Debt Currency Composition
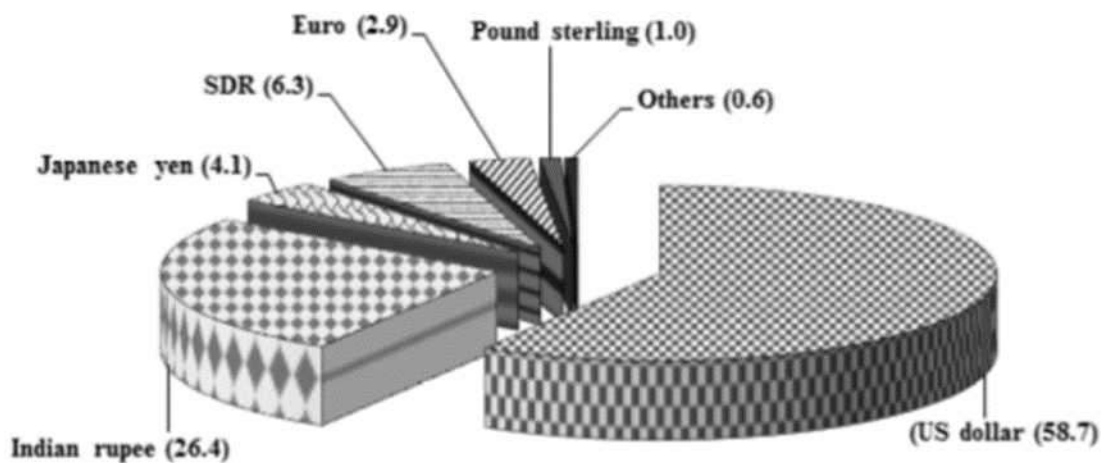
Chart #2
International Development Association debt
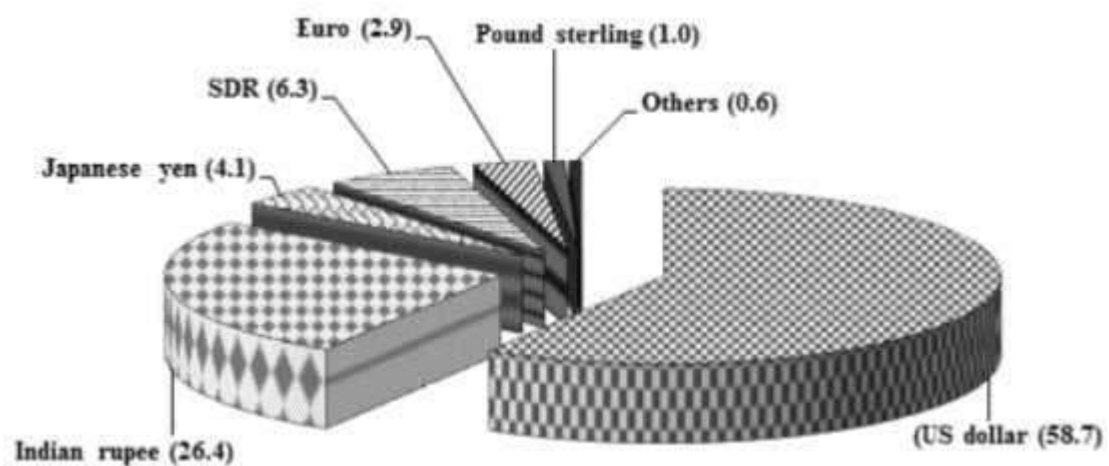
Graph #1
Outward Foreign Direct Investment
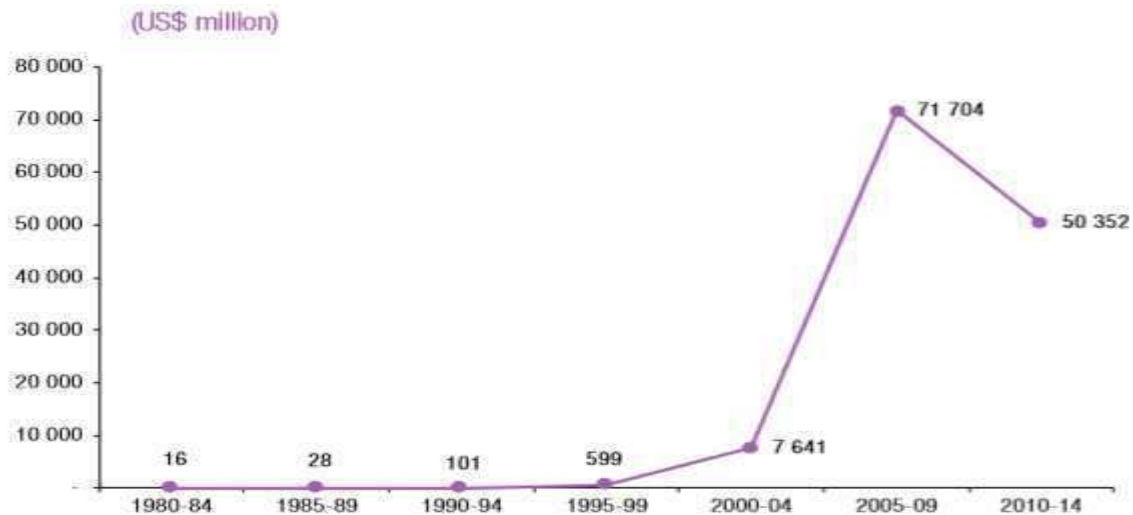
Source: Calculation based on UNCTADStat (2015), available at http://unctadstat.unctad.org/.

Graph #2
Labor Productivity growth (India)

Note: The Graph is percent of Population v/s year.
Source: Central statistics office data Employment statistics are from International Labor Organization and available for 1991 to 2017. Since data not available direct graph is taken.

Graph #3
Trend of Foreign Debt of central and State Government Of India

Stress Among Working Women: A Study of Covid Situation

*Ratika Malhotra * and Sapna Thukral***

ABSTRACT

Many sectors have faced a drastic change in their working pattern due to Covid- 19 pandemic. As lockdown has been imposed, many organizations provided work from home facility to its employees. Educational sector was not the exceptional to this measure. But with this, women employees faced lot of challenges. Majority of the working women were juggling between their household work and their official work. This may have increased the stress level among women. This study is an attempt to identify the difference in working women stress level on the basis of age, type of university, marital status. SPSS was used to analyze the data. T-Test and ANOVA were the statistical tests applied. Results indicate that significant difference exists in the stress level of working women on the basis of marital status, age and type of university.

Keywords: Stress, Women, Covid-19, Work from Home.

1.0 Introduction

Over Nine months have passed since the World Health Organization announced Covid-19 a pandemic. Many of us have survived lockdowns. Many have made the unexpected move to telecommuting; millions have lost positions. The future looks still unsure. We don't have a clue when, or if, our social orders may get back to business as usual. The organizations are no exceptional to bear the negative impact of Covid, Particularly the employees. Although efforts are made by the organizations, to provide work from home facility to the employees. But are we sure that the facility is actually beneficial for employees particularly for women.

In the normal situations also women are faced with a situation where they have to balance the challenging demands of both work life and family life (Biçaksiz, 2009). In this pandemic, for the majority of the working women remaining at home, the demand for unpaid work like cooking, cleaning, and childcare – has flooded. Women previously did around 75% of that work; in the pandemic, the breakdown is much more unbalanced. Such situations may affect the wellbeing and mental health of the women and alleviates their stress level. This research is an attempt to identify the difference in working women stress level on the basis of age, type of university, marital status.

2.0 Review of Literature

Many researches have been done on occupational stress. This section will include the review of previous researches done to measure stress level of working women.

According to Davis (1981) stress as "a condition of strain on one's emotions, thought processes and physical conditions". Di Martino (2003) defined stress as "the physical and emotional response that occurs when the requirements of the job do not match the capabilities, resources needs of the employee".

Swathi amd Reddy (2016) did a conceptual study to uncover the factors related to stress level among working women. According to the researchers, stress affects the performance of the employees. The major cause of stress among working women is the imbalance created between personal and professional life.

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According to Bhuvaneshwari (2013) factors like long working hours, work pressure and work life imbalance contributes in increasing the stresss level in a married working women. The researcher suggested that proper institutional support and family support can reduce the stress level among women. Rajasekhar and Sasikala (2013) also support that employed women face stress due to family responsibilities, job insecurity, workplace culture and demanding job. The researchers suggested the management to introduce appropriate coping strategies to overcome stress. This will further enhance women employee productivity.

Nagaraju et al. (2013) focused on assessing the level of satisfaction of female employees in insurance industry and to assess the relationship between occupational stress and job satisfaction .The objective of the study was to determine the occupational stress amongst insurance employees. The investigation additionally attempted to assess impact of occupational stress level on job satisfaction working in insurance sector. For this reason researcher had designed a structured questionnaire to collect information and statistical tool was applied on the data for further analysis. The result indicates that habits of employees significantly impact their stress level also the behavioral changes related to job impacts occupational stress.

Tripathi and Bhattacharjee (2012) focused on finding the source of the existing problems faced by the working women. The paper main aim was to find the difference in level of stress among male and female employees. For this regard they formed hypothesis. The major source of data collection is secondary sources such as such as newspapers, magazines and online sources such as websites and blogs. . on the basis of their analysis null hypothesis of Working Women feel more stress than working men stands proved.

Coetzer and Rothmann (2006) alleged that, the objectives of this study were to examine the internal consistency of the ASSET (An Organizational Stress Screening Tool), to know what are the various occupational stressors for employees in an insurance company and to assess the whether there is a any relationship between occupational stress, organizational commitment and ill health cross-sectional survey design was used for this study. The sample size of 613 employees were taken; ASSET was used as measuring instrument the researcher concluded that job insecurity ,salary delay and benefits were the highest stressors in the insurance sector. Job characteristics and control were statistically significant predictors of low organizational commitment. Physical ill health was best estimated by overload and job characteristics. Three stressors, namely work-life balance, overload and job characteristics best predicted psychological ill health.

3.0 Objectives of the study

1. To identify the difference in stress level of working women on the basis of marital status
2. To identify the difference in stress level of working women on the basis of type of university.
3. To identify the difference in stress level of working women on the basis of age

4.0 Research Methodology

4.1 Research design

Convenience sampling method was adopted to collect data for the purpose of the study. Survey method was used to collect data.

4.2 Sampling

Sample of 122 respondents were selected from Delhi NCT. Although 200 questionnaires were distributed but only 160 were received back. Out of 160, 38 responses were not taken for final analysis due to high missing responses.

4.3 Instrument

Perceived Stress Scale   developed by Sheldon Cohen (1994) was adopted to measure stress level among women. It is a 5 point scale with 10 items.

4.4 Statistical test Applied

To meet the objectives of the study T- Test and ANOVA was applied using SPSS version 24.

5.0 Data Analysis and Interpretation

5.1 Demographics

Table 1

Factor	Category	Number of Responses
Age	Below 35 years	40
	35-50 years	42
	50 years and above	40
Marital Status	Unmarried	62
	Married	59
Type of University	Public	63
	Private	59

Analysis of Objective1

To identify the difference in stress level of working women on the basis of marital status

Table 2

		Levene's Test for Equality of Variances						t-test for Equality of Means	
		F	Sig.	Marital Status	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Stress	Equal variances assumed	.002	.962	Unmarried	62	2.95	.91	-6.074	.000
				Married	59	3.93	.86		

Interpretation

Table 1 show that equality of variance assumption is assumed for marital status. Results show that there exists a significant difference in the working women stress level on the basis of marital status.

Analysis of Objective2

To identify the difference in stress level of working women on the basis of type of university

Table 3

Independent Samples Test						
	Levene's Test for Equality of	University	N	Mean	Std. Deviation	t-test for Equality of Means

		Variances								Sig. (2-tailed)
		F	Sig.						t	
Stress	Equal variances assumed	.501	.481	Public	63	3.16	1.04		-3.121	.002
				Private	59	3.71	.90			

Interpretation

Results presented in Table 2 show that stress level differ for employees working in private universities and public universities. Thus we can interpret that there exists a significant difference in the working women stress level on the basis of type of university.

Analysis of Objective3

To identify the difference in stress level of working women on the basis of age

Table 4: Test of Homogeneity of Variances

Stress			
Levene Statistic	**df1**	**df2**	**Sig.**
2.559	2	119	.082

Table 5

Age	N	Mean	Std. Deviation	ANOVA	
				F	**Sig.**
Below 35 years	40.00	3.15	1.10		
35-50 years	42.00	3.50	1.08	2.39	0.10
50 years and above	40.00	3.62	0.78		

Interpretation

To test homogeneity of variance, levene statistic is checked and the assumption is met. Result show that the stress level of women significantly differ on the basis of age.

6.0 Conclusion

Stress is the physical and emotional response of a person. When faced with stress, employee may show reduced performance and efforts. Our study aims to analyze the difference in stress on the basis of age, marital status and type of university. Results show that married women employee stress is high than unmarried women employees. Secondly, women employees working in private universities feel more stressed in this covid situation as compared to women employees of public banks. Lastly¸ on the basis of age also significant difference is observed for working women.

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Work from Home- Now A Reality for Working Couples

Vandana Malviya*

ABSTRACT

Work from home for working couples was a dream in a developing country like India. We Indians never had imagined that times will come when we could actually work from home, in this global pandemic (COVID-19) situation WFH has become a reality. In this paper numerous advantages, benefits, constraints and disadvantages of work from home are presented which can further be used in an empirical study.

Keywords: COVID-19, Work from home, academics.

1.0 Introduction

Working from home (also called telecommuting or telework, but hereafter referred to as "WFH") is becoming an increasingly common practice. Home-based workers now span a wide spectrum of jobs, ranging from sales assistants and realtors to managers and software engineers, with a correspondingly wide range of incomes. Governments across the world have implemented social distancing and stay-at-home policies to stop the outburst of COVID-19.

Telework is defined as work that is performed from diverse locations (such as home) that enables workers to access to their labor activities by the use of information and communication technologies (Nilles, 1997; Perez et al., 2003). It has been considered as an alternative method of organizing work. By offering the possibility to work anywhere and anytime, telework has fascinated the attention of both academics and practitioners. It has been seen as a win-win scenario for employees and employers, making it possible to choose from diverse talents, to reduce real estate costs, to motivate employees, and to sustain employee work–family balance (Madsen, 2003).

2.0 ABCD Analysis of Working From Home Model

The various factors contributing under the four identified constructs like advantages, benefits, constraints, and disadvantages are derived by a qualitative data collection instrument namely focus group method (EM Rogers and S D Hunt ,1994) Advantages, Benefits, Constraints and Disadvantages (ABCD) of a business model can be used to analyze and comprehend the model in an effective way. As per this analysis technique (P S Aithal et al 2015), the effectiveness of a business model can be considered by identifying and analysing the advantages, benefits, constraints, and disadvantages by considering several issues like organizational objectives employers and employees perspective, customer/student perspective and environmental social prospective as in the block diagram of issues affecting working from home model.

As per ABCD technique we have to identify and analyse various factors and constituent critical elements under (a), (b), (c), (d), (e).

2.1 Advantages:
(a) Advantages from Organizations point of view,

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(b) Employees Point of View,

(c) Customers/Students point of view,

 (d) Society point of view,

(e) Operational issues.

2.2 Benefits:

(a) Benefits from Organizations point of view,

(b) Employees Point of view,

(c) Customers/Students point of view,

(d) Society point of view

(e) Operational issues.

2.3 Constraints:

(a) Constraints from Organizations point of view,

(b) Employees Point of view,

(c) Customers/Students point of view,

(d) Society point of view,

(e) Operational issues.

2.4 Disadvantages:

(a) Disadvantages from Organizations point of view,

(b) Employees Point of view,

(c) Customers/Students point of view,

(d) Society point of view,

(e) Operational issues.

3.0 ABCD Model for working from home

Advantages of working from home model

S.No.	Issue	Factors affecting	Constituent elements
1	Organisational Issues	1. Less Investment 2. Diverse People or Workforce 3. New pattern to work 4. Organisational worth	1. High return 2. Specialized Individuals 3. Readiness to Change 4. Revenue generation
2	Operational Issues	1. Man power Utilisation 2. Cost effective 3. Less Time consuming 4. Flexible	1. Optimum utilization of resources 2. Less cost-higher return 3. Travel time reduced 4. Flexi time
3	Technological Issues	1. High level of technology 2. High dependency on technology 3. Expand 4. Talent	1. Preparedness of Employees 2. Quick & Instant 3. Employee empowerment
4	Employers and employees Issues	1. Reduces staff cost 2. saving of office space 3. Balancing life & work 4. Flexible working option	1. Control mechanism 2. Increases earning 3. More productive 4. Manpower supply more
5	Customers Issues	1. Work from anywhere 2. Faster service 3. Any time availability	1. Enhance life 2. Competition 3. Networking

		4. Price	4. Affordable
6	Social / Environmental Issues	1. Employment generation 2. Flexible working conditions 3. Stakeholders satisfaction 4. Eco friendly	1. Creating opportunities 2. Clean environment 3. Employee Relationship 4. Hazards minimized

Benefits of working from home model

1	Organisational Issues	1.Financial stability 2. More productivity 3. Attracts & Retain staff 4. Employer brand	1. Less investment in terms of office space. 2. Working at your risk 3. More supply of manpower 4. Royal Employees
2	Operational Issues	1. Improved quality 2. Operational efficiency 3. Networking 4. Speed	1. Quality of work 2. Increases 3. Maintenance cost is less 4. Quick result
3	Technological Issues	1. Availability 2. Technical superior 3. Improves communication 4. Ability to handle	1. Cheap & affordable 2. Latest technology 3. Formal Vs. Informal 4. Easy & safer
4	Employers and employees Issues	1.Saves Employer Investment 2. Reduces unscheduled absence 3. Organisational structure 4. Mutuality	1. Equitable load 2. Better performance 3. Virtual 4. Interaction/ Networking
5	Customers Issues	1. Freedom of choice 2. Matching expectation 3. Fitting to the budget	1. 24x7 service 2. Customer Vs Employees 3.Paying capacity of customers
6	Social / Environmental Issues	1. Reduces traffic jam 2. Harmony with nature 3. Less stress 4. Improved economy	1. Pollution 2. Green habitat 3. Adaptation 4. Better living Condition

Constraints of working from home model

1	Organisational Issues	1. Virtual organizational structure 2. Type of Business strategy 3. Leadership style	1. Role conflict 2. Not suited for manufacturing sector 3. Growth strategy 4. Democratic
2	Operational Issues	1. Scale of production 2. Labour force 3. Suppliers 4. Finance	1. Machinery 2. Skilled 3. Just in time 4. Healthy cash flow
3	Technological Issues	1. Full automation 2. Implementation expenses 3. Security breaches 4. Intensive training	1. Costly 2. Cost of hardware & software 3. Access to confidential data 4. Skilled labour force
4	Employers and employees Issues	1. Makes employers lazy 2. Communication 3. Difficult to maintain skilled staff	1. Difficult to manage home & office 2. Causes distraction 3. Training 4. Motivating benefits
5	Customers Issues	1. Reward system 2. Physical non availability 3. Customer tech savvy 4. Complicated products	1. Employees not in work place 2. Customer training 3. Educated customer 4. Communication medium

		5. Miscommunication	
6	Social / Environmental Issues	1. Social media 2. Too much information 3. Occupational hazards	1. Bad reasons 2. Choice of Good Vs. Bad 3. Computers/ Phone/Laptop 4. New Diseases

Disadvantages of working from home model

1	Organisational Issues	1. Virtual 2. Assignment 3. Disassociation 4. Organisational type 5. Organisation strategy	1. Reporting authority 2. Weak culture Sector 3. Long/Short term
2	Operational Issues	1. Planning 2. Co-ordination becomes difficult 3. Operational control	1. Difficult 2. Tangible to intangible 3. Budget control
3	Technological Issues	1. Disconnectedness 2. Distractions 3. Expensive 4. Crimes	1. People from people 2. Games/ Shopping etc. 3. Purchasing cost 4. Frauds
4	Employers and employees Issues	1. Labour unions 2. Discouragement 3. Brand building 4. Absence of knowledge	1. Membership 2. More personal 3. Difficult 4. Continuous improvement of workers
5	Customers Issues	1. Availability of Employer 2. Fun environment 3. Organisational social entity	1. Race to office 2. Lost 3. Lost
6	Social / Environmental Issues	1. Generating e-waste 2. Face to face interaction 3. Fewer employment opportunities	1. Computers/ Mobiles 2. Lost 3. Less workforce

4.0 Conclusion: This paper presents the advantages, benefits, constraints and disadvantages of work from home, these factors can be further used for empirical study.

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An Analysis of Interest of Consumers in Electronic Food Ordering

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ABSTRACT

Online food delivering has become very popular nowadays, as it offers a single window from which variety of food can be ordered from a wide range of restaurants. There are wide varieties of restaurants which deliver food through online services by providing best offers and reasonable prices. This has resulted in increase on business of the restaurants. It has also resulted in popularizing online food delivery service in India and has brought boom in the industry. Major players in country like Zomato, Swiggy and Uber eats have set up online food delivery system through their mobile applications.

These applications contain food menu setup from all the restaurants in the area alongwith the prices and offers provided by them. The people can order their favourite food from favourite restaurant at their door step hassle free for a small delivery fee. In this study, we would understand the shift of consumer's behaviors with the introduction of technology like how much they spend on ordering the food, what food app they prefer the most, what mode of payment they use, what factor influence them most for purchasing online food, and what are the different kinds of applications that consumers are satisfied with and what makes them happy and satisfied about the service.

The main objective of the paper is to understand the different aspect regarding online food ordering, relation between facilities and the purchase behavior. And to find the most popular app in the food delivery industry and understand as to how have technology played an important role in the restaurant industry.

Keywords: Online food delivery, E-commerce, Consumer buying behavior, Food delivery app, Anova, Swiggy.

1.0 Introduction

The internet business market has encountered solid development over the previous decade, as customers increasingly move on the web. This move-in how shoppers to shop has been driven by a wide scope of diverse factors, some being business sector or nation subordinate, others happening because of overall changes. These changes include: an expansion in removal pay, especially in agricultural countries; longer work and driving occasions; expanded broadband entrance and improved wellbeing of electronic payments; an unwinding of exchange obstructions; an expansion in the number of retailers having an online presence; and greater attention to online business by client

Food ordering on the internet is conceptually different from other sources of ordering food, as the internet promotes a one too one communication between the seller and the end-user with round the clock customer services. Technology has played a vital role in revolutionizing the food delivery service from phone-based to online ordering to satiate consumers' ever-changing demands, making its way to the top. Today, the business of food delivery services is one of the fastest-growing segments of e-commerce. The major difference between traditional and online food ordering is the extent of interaction between the consumer and the seller.

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Zomato is the leading online food delivery app in India, followed by Swiggy, Uber Eats, and others.

Online food delivery service is one in which a restaurant delivers food to its customers either through its own website/app (Dominos) or through a third party website/app like Zomato, Swiggy, etc. Restaurants can register their business with these apps, once a registered restaurant makes an online menu of food served by them on the app of online food Delivery Company. Customers can view the food offered by the restaurant through the mobile app. Food ordered by the customer is delivered by using the logistical support of online food delivery companies. It is a win-win situation for parties involved, customers get a variety of food delivered to their doorstep adding to convenience; restaurants experience increase in their business whereas food delivery company gets a commission on the amount of food delivered from the restaurant.

E-commerce has made the interactivity with the consumer effortless in the form of helpline numbers and FAQs. Through helpline numbers and FAQs, the consumer's questions on delivery, payment, product, policies, and consumers' concerns can be addressed effectively. Online food delivery is particularly prescribed in countries that are still developing as technology and consumer preference are still modifying. According to the studies, 50.8% of people order food delivery service because they don't prefer to cook, as it allows the customer to have food delivered straight to their home or offices in than an hour.

2.0 Literature Review

Online food conveyance applications are the media through which eateries bundle food legitimately at the doorsteps of the clients. This thought of food conveyance is rapidly spreading due to the expansion in the quantity of the working populace and their tumultuous work-life culture in metro urban areas. There is no human mediation engaged with the cycle of online food requesting, which makes it blunder free and more private. As of now, An Indian food business is around $350 billion, and this area is concocting inventive thoughts consistently to give better consumer loyalty and hold clients over the long haul. This situation has brought about a gigantic rivalry between online food conveyance applications and specific cafés giving free home conveyance administrations (Anupriya Saxena, 2019). Innovation hiddenly affects the eatery business also, has changed its whole edge. Individuals over the globe are getting a charge out of another safe place because of these created online food conveyance administrations. Mitali Gupta (2019), in her paper, examined the effect of food conveyance new companies

Swiggy and Zomato on the café business and examined their different business systems. Today, organizations have changed their conventional business techniques to web showcasing for obliging the assorted requirements of clients. Jyotishman Das (2018), in his paper, considered a shopper observation towards online food requesting and conveyance administrations furthermore, expected to inspect the perspectives of the shoppers about the various administrations they get from various entryways. On the web, the food conveyance market isn't full-grown at this point and has different challenges. These issues must be comprehended by taking the law as the basis, alongside the joined endeavors of the food conveyance applications, the eateries, customers, along these lines making an amazing on the web takeaway climate (Hong Lan et al., 2016).

Bhavna Singh (2015) said that Foodpanda has been available in the Indian market since May 2012. Foodpanda's first significant move was the procurement of TastyKhana, which was dispatched in the city of Pune in 2007. Along with TastyKhana and JUST EAT, it is currently present in more than 200 urban areas and accomplices with more than 12,000 eateries.

3.0 Indian Food App Scenario

With all the blast in the computerized industry over the globe, it's had its effect on the Indian economy as well. The online food requesting firms have grown up in mass. The market size of food in India is relied upon to arrive at Rs. 42 lakh crore by 2020, reports BCG. By and by, the Indian food market is around $350 billion. Space is thinking of a great deal of advancement obliging their client comfort, fulfillment, and maintenance. This has likewise fabricated space for a ton of new players, who are focusing on explicit gatherings of individuals. Numerous new players getting the section together with inventive plans of action, for example, conveying nourishment for wellbeing cognizant individuals, home-prepared suppers, and so forth Food tech is the hot talk in the startup town. After innovation new companies have made their mark in the internet business, taxi, and land areas, presently the eager forever Indian business visionaries are hoping to satisfy the craving of others. Food tech is a tremendous market and food conveyance new companies are only a piece of it.

Different applications in the Indian market are:

- Food Panda
- Zomato
- Swiggy
- Box8
- Faso's
- Fast food conveyance applications

4.0 Objective of The Study

To study how online food delivery services are perceived by the consumers.

5.0 Research Methodology

The study is based on the collection of primary data. Quantitative research method was used in this research so as to investigate and observe the collected data with the help of statistical, mathematical and computational techniques. A structured questionnaire was designed with close-ended questions. It was designed in such a manner so that it caters all the areas of study. The survey was conducted in different areas of Delhi.

6.0 Limitation of The Study

A small sample size of 100 respondents have been taken for study which is carried out in different areas of Delhi, so the findings may not be applicable to the other parts of the country because of social and cultural differences.

7.0 Data Analysis & Interpretation

To understand the behavior of customers regarding the usage of food delivery apps, the socio-economic characteristics of the customers were studied. They are the important variables as they decide the consumption pattern and customer behavior regarding these apps.

The respondents were asked the preferred mode of ordering for food. 83% respondents used mobile app as the method to lace the order online.

Preferred method of ordering
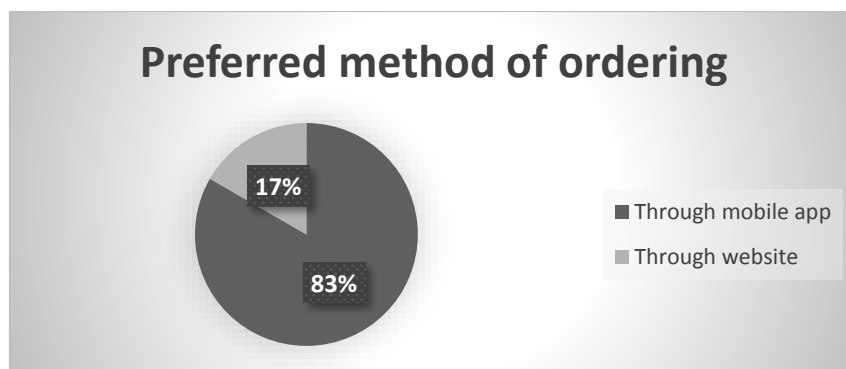
(AUTHOR'S OWN CALCULATION)

To understand which day was the most preferred to place online food order, it was seen that Sunday was the most preferred day

Day/s of the week when electronic order is placed
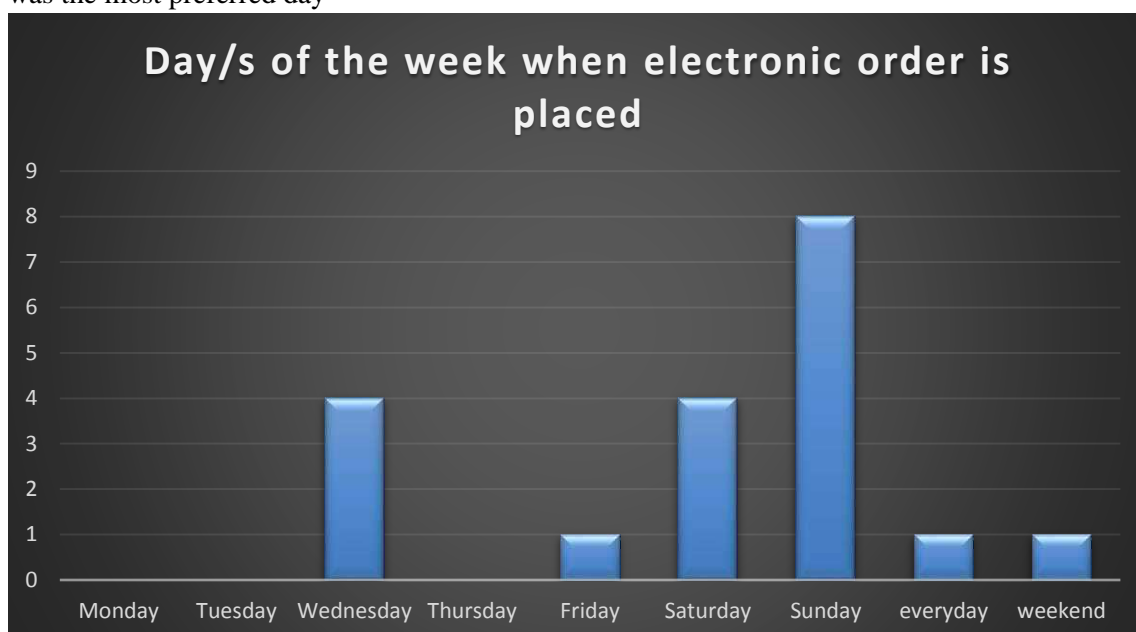
(AUTHOR'S OWN CALCULATION)

The analysis showed that most of the people ordered between 12 pm to 3 pm

Time of placing an order

■	11:00pm or later
■	Between 12:00pm - 3:00pm
■	Between 12:00pm - 3:00pm
■	Between 6:00am - 9:00am
■	Between 6:00pm - 9:00pm
■	Between 9:00am - 12:00pm
■	Between 9:00pm - 11:00pm

7% 8% 19% 8% 31% 8% 19%
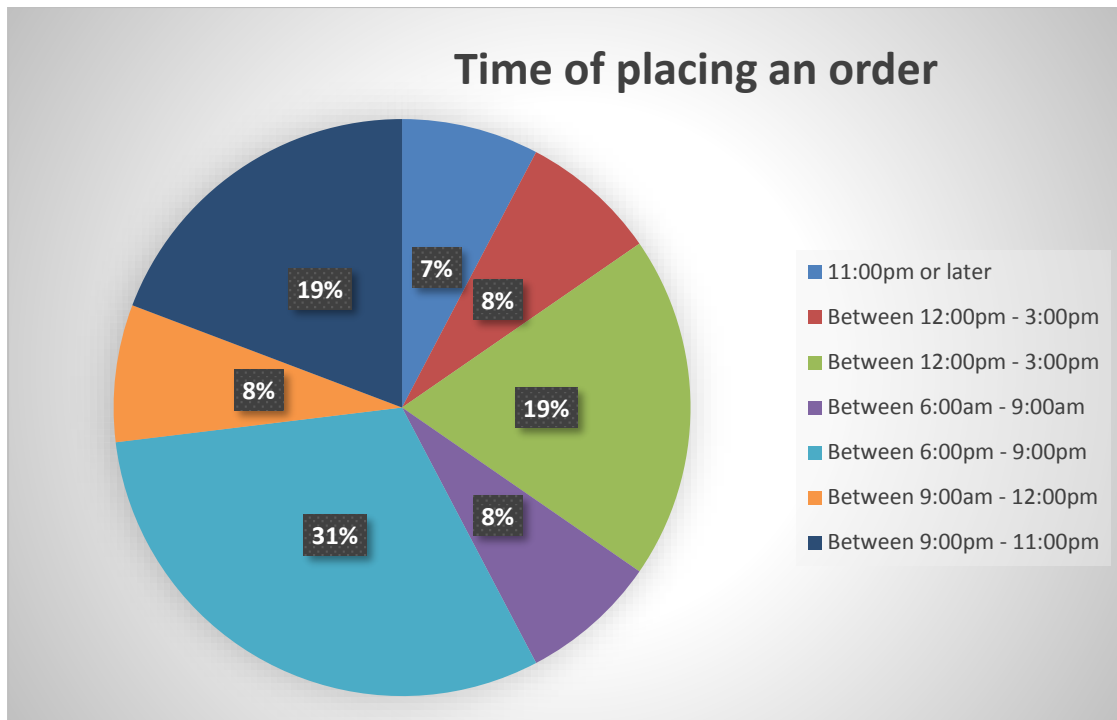
(AUTHOR'S OWN CALCULATION)

Analysis show that the male prefer mobile banking over other method of payments, and on the other hand female prefer card payment as their method of payment whereas there is only one male member who use net banking.

Relationship between gender and mode of payment.
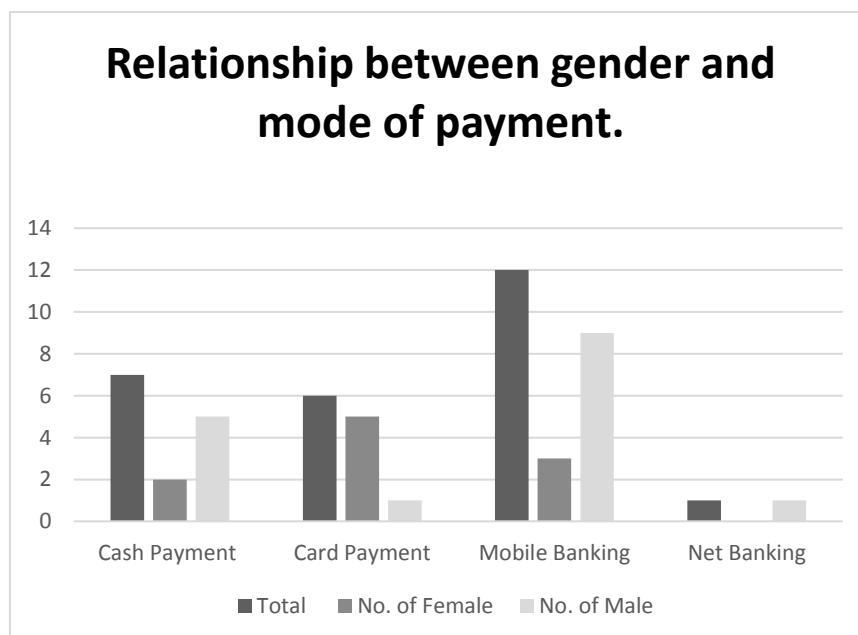
(AUTHOR'S OWN CALCULATION)

This chat show that most of the people order online because of the hygiene by self-assessment.

Factors mostly influencing customer behaviors in purchasing online food products

(AUTHOR'S OWN CALCULATION)

This Analysis show that the people having income less than 50,000 spending ₹ 100-500 on their online food delivery. And the people having income more than 2, 00,000 spending ₹ 500-1000 on their online food delivery.

Comparision between income and expenditure of people
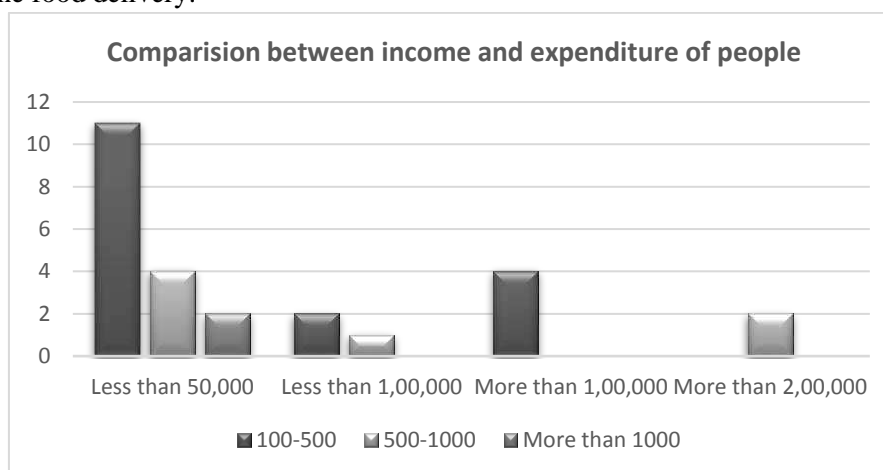
(AUTHOR'S OWN CALCULATION)

By this we come to know that Swiggy is the most preferable app by the people for their online food delivery.

(AUTHOR'S OWN CALCULATION)

Analysis show that people preferred most of the branded food as compare to third party services.
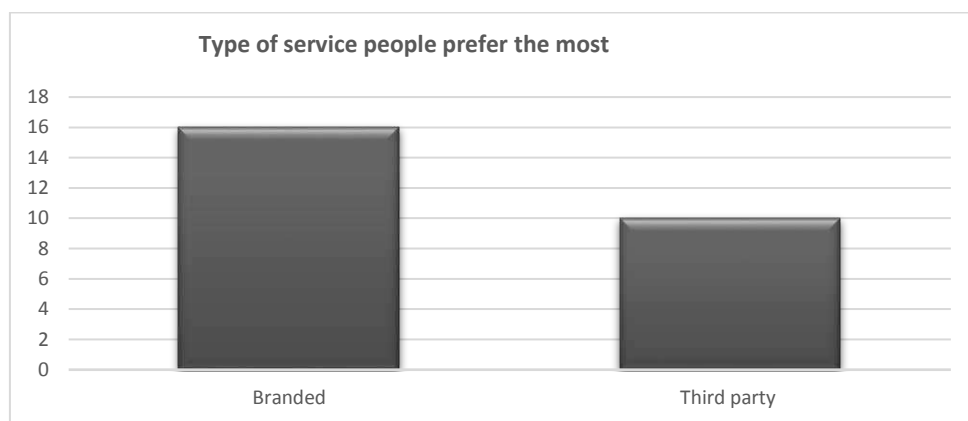
(AUTHOR'S OWN CALCULATION)

H_0: there is no significant relationship between gender and mode of payment

H_1: there is significant relationship between gender and mode of payment

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	38.94231	1	38.94231	180.1601	0.00	4.03431
Within Groups	10.80769	50	0.216154			
Total	49.75	51				

AUTHOR'S OWN CALCULATION

The above table shows that since the p value is less than 0.05 , we reject the null. Hence there is relationship between gender and mode of payment.

8.0 Conclusion

According to the research conducted, it can be concluded that with continuous influx of professionals in cities and rapid urbanization of Indian landscape, the food delivery and restaurant

segment is now thriving at a blistering pace. Adding to this scenario is an increasing number of smartphones and food delivery apps. Food delivery apps have now become a big hit with tech-savvy individuals across India. There are several food delivery apps in India that one can download on smart phones to order food on the go and from the comfort of homes. The present study found a significant relationship between factors considered important while selecting a food delivery app. And from the analysis it was also found that the facilities offered play a major role in making a purchase from an app. Currently cash on delivery is the most preferred option of payment by the respondents but other digital techniques are also in the growth stage. Firms must also make sure that the apps are comfortable and user friendly. The special apps are a convenient way for the consumers to place orders and for the company to attract further more consumers but the comfort of usage must be given a higher preference.

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Causality analysis of stock market during COVID-19 Lockdown Period in India

Saranleen Kaur*

ABSTRACT

The examination researches the impact of the lockdown period caused by the COVID-19 to the stock market of India. The investigation looks at the degree of the impact of the lockdown on the Indian securities exchange and whether the market response would be the equivalent in pre-and the post-lockdown period brought about by COVID-19. A sample of top10 stocks companies listed on Bombay Stock Exchange (BSE) are selected for the purpose of the study. The sample period taken for the study is 35 days (24 February-17 April, 2020). An event window of 35 days was taken with 20 days prior to the event and 15 days during the event. The event being the official announcement of the lockdown. The study finds evidence of a positive AR around the present lockdown period and confirms that lockdown had a positive impact on the stock market performance of stocks till the situation improves in the Indian context.

1.0 Introduction

The episode of COVID-19 has caused a pandemic of the respiratory sickness (COVID-19) for which immunizations and directed therapeutics for treatment are inaccessible (Wang et al. 2020). The pandemic caused significant worry for public wellbeing just as the economy of the world. The COVID-19 is the abbreviation utilized for Corona Virus Disease 2019. This infection causes a pneumonia of obscure reason previously recognized in Wuhan, China, and first answered to the World Health Association (WHO) on 31st December, 2019. The World Wellbeing Organization reported the official assignment of this savage infection on February 11, 2020. On March 11, it proclaimed COVID-19 a pandemic, highlighting more than 118,000 instances of the COVID-19 ailment in 110 nations and regions around the globe and the continued danger of further worldwide spread. (Time 2020).

India is the nation with the second biggest populace on the planet. According to World Bank information, India is home to 176 million needy individuals and furthermore has least positions in tidiness furthermore, clinical offices everywhere on the world, and it will turn into a debacle if COVID-19 is spreading to its populace. In any case India was not a long way behind, and the principal case was accounted for on 30 January, 2020; by 17 April 2020, 14,376 individuals passed on (Deccan Envoy 2020). Without better ways of life and public wellbeing, it was significant worry for the Government of India under Prime Minister Narendra Modi, who reported and requested a cross country lockdown for 21 days on 24th March, 2020 for forestalling the spreading of the infection, and on 14 April, the Prime Minister broadened the cross-country lockdown until 3 May. This Pandemic COVID-19 influenced the economies of the world and India was additionally among those countries. Due to the lockdown requested by the public authority of India, everything came to end in this busiest nation. The slamming of the worldwide market economy, significant drop in oil costs, and expanding joblessness are a portion of the effects of the pandemic Coronavirus that influenced practically all nations on the planet. India was additionally not a long way behind to get the effect of COVID-19 on their financial development, advancement, economy and stock market.

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India has a strong securities exchange that responds a lot well to the worldwide circumstance. The primary case was accounted for in India on 30th January and the lockdown requested on 24 Walk, 2020, that was a hole of very nearly 53 days that was too a matter of concern; imagine a scenario in which the Government had requested the. Lockdown prior? It might have eased back the spreading of the infection in the populace. How did the securities exchange react to this cross-country lockdown? In this occasion study, the impact of the lockdown because of COVID-19 on the securities exchange is clarified with the semi-solid type of market effectiveness speculation (Fama, 1970). They are called occasion contemplates (Fama, 1991). This occasion study estimated how quickly security costs react to declarations of the lockdown because of COVID-19.

2.0 Literature Review

Since, the COVID-19 was acknowledged pandemic by WHO, there is a lack of studies associated to COVID-19 impact on stock market, as it is a new global advance. Some research has been supported out to scrutinize the impact of COVID-19 on different economies, but the number is still small. Ramelli and Wagner (2020) observe the market reactions to the COVID-19 on the international trade and financial policies of the firm and found a negative consequence for internationally-oriented US firms, especially those with China exposure and the US; markets moved feverishly when the virus spread across Europe and the US. The author concluded how the health crisis instigated the economic crisis that enlarged through numerous financial channels.

Jim, (2020), contended that because of social separating measure the profitability of the organizations gets antagonistically influenced, and it prompts a lessening in income, higher working expense, and income difficulties to the organizations. In Europe, the Financial Times Stock Exchange 100 list saw a sharp one-day fall since 1987 (BBC News, 2020).

3.0 Data and Methodology

The study is based on secondary sources of data. Data on daily closing prices of indices Sensex have been collected from the official site of BSE. For this study, the period before this date is considered as the pre-COVID-19 era and the period after this date (24th Feb to 17th March, 2020)is considered as during the COVID-19 era. To analyze the effect of COVID-19 on the stock market volatility GARCH model was used.

4.0 Discussion and Analysis

The chart below shows the trend of BSE and the selected stock returns during the study period We also try to examine the behavior of the return series data by using BSE Sensex and NSE Nifty. The Examination result pointed out non-normal distribution and volatility clustering. The term volatility clustering refers to the fact that large changes move toward in bulks.
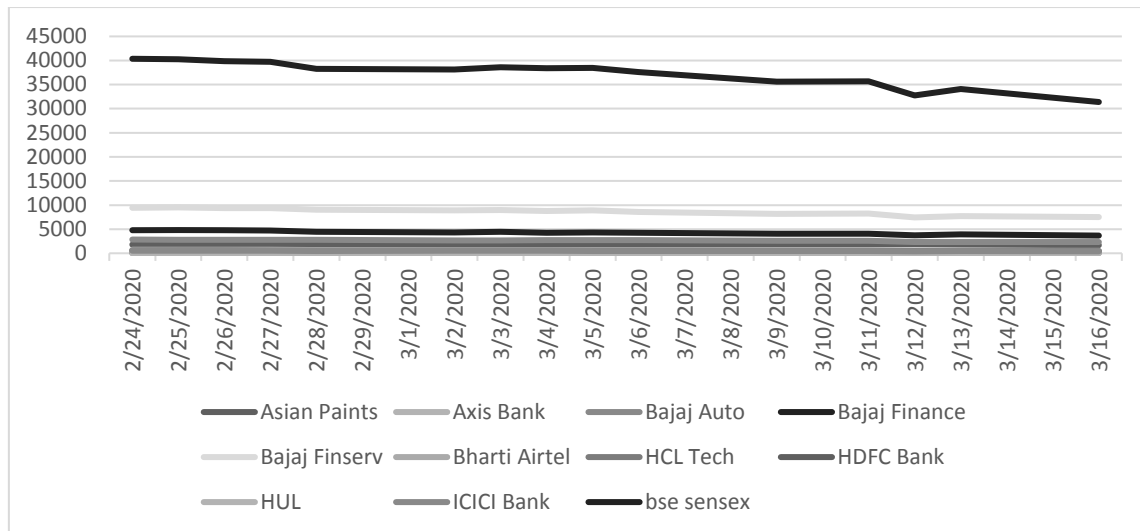
(Author's own calculation)

To check the stationarity of the stocks and BSE, we perform ADF and PP stationarity tests. The result presented in Table: 1 revealed that the data are non-stationary in level form, hence the null hypothesis is accepted

Table: 1 Result of unit root statistics

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.5115	0.0000	11	142
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-11.3924	0.0000	11	142
ADF - Fisher Chi-square	135.206	0.0000	11	142
PP - Fisher Chi-square	145.399	0.0000	11	143
** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

(Author's own calculation)

Table: 2 Result of GARCH model with BSE Sensex

Null Hypothesis:	Obs	F-Statistic	Prob.
BSE_SENSEX does not Granger Cause BSE_STOCKS	13	1.52218	0.2753

BSE_STOCKS does not Granger Cause BSE_SENSEX	2.42867	0.1499

(Author's own calculation)

Table: 2 presents the result of GJR GARCH with BSE. It can be seen that BSE Sensex does not cause the returns for the stocks and neither the BSE Stocks cause BSE Sensex.

5.0 Conclusion

In this study, the data was investigated to find the effect of COVID-19 on the performance of BSE ; the stock market of India-. GJH GARCH model is used to test the volatility in the stock market by taking the two time periods, before and after 1st positive COVID-19 cases in India(24th Feb to 17th March, 2020). These two periods are taken as the dependent variable and per day closing price of BSE indices are considered as the independent variable. The result shows that the stock market especially the BSE Sensex become volatile during the pandemic period., it was also found that there is no such significant impact of the COVID-19 period on the volatility of NSE stock prices.

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Connection of "Knowledge Management" with E-governance Model in Higher Educational Institutions

Prashant Kumar* and Gaurav Jindal**

ABSTRACT

Mix of educational, socio – money related, social and specific government perspectives will decrease the opening among speculation and useful execution of "Data Management" practices in various schools. "Data Management" is basic in cutting edge instruction practices that suggest data sharing, information and correspondence process as a component of the quality updates. The "Data Management" exemplifies getting, clarification, and correspondence of master points of view for definitive data. By the day's end, "Data Management" portrays flexibility of activity rehearses in setting of master preparing and how advancement gives improvement of sharing, correspondence for the quality. The paper oversees brief framework of "Data Management" and its norms in informational strategy. It furthermore presents "Data Management" models that are related with E-organization model, along these lines growing reasonability in learning capable informative ventures.

Keywords: Knowledge management; E-governance; Higher education.

1.0 Introduction

The paper deals with the following aspects:
  a)   Importance of "Knowledge Management" in professional educational programmes
  b)   Knowledge Management" Technologies

a) Importance of "Knowledge Management" in professional educational programmes

KM encourages college to increase fitting data just as expert information and applying those utilizing "Information Management" System (KMS). it encourages educators and understudies to look through essential documentation information in less time. It utilizes ICT techniques to make new advancement hypotheses identified with instruction. KM assumes indispensable job in primary errands of any college – Teaching and Research. In setting of instructing, it utilizes different KM apparatuses to encourage e-learning entry and online changes at college level. In setting of research, workshops, review are composed and data is circulated to all periods of college. It makes current image of foundation achieving most recent innovation patterns for KM. It makes information learning intelligent and simpler among understudies..

b) "Knowledge Management" Technologies

Elements that diminish nature of expert instruction in different organizations in Delhi are as per the following:
- Lack of research gatherings.
- Lack of eagerness and commitment towards work.
- Professors give showing like business. They center around misleading ideas as opposed to highlighting significant information
- Lack of creative instructing and learning

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- Misuse of ICT and KM instruments.
- Less steady in dynamic.
- Keeps following ordinary instruction standards as opposed to creating new information

For keeping up consistency and institutionalization in instructive organizations, different abnormalities in parts of value instruction must be evacuated like Admission process, Scheme of prospectus, preparing and arrangement courses and so on. There are two factors that can make any college to restrain sky as far as information and abilities are: Availability of innovation and "Information Management" (KM). A few colleges have profited themselves by putting resources.

"Knowledge Management" is one of greatest need to improve education process in various institutions. The process may vary from academic programmes to professional programmes covering all curriculum and administrative activities of institutions. There are two factors that can make any university to limit sky in terms of knowledge and skills are: Availability of technology and "Knowledge Management" (KM). In various institutions,

2.0 Levels of "Knowledge Management"

Knowledge Learning: - It is process of gathering knowledge from various experiences and survey. In context of gaining knowledge through experiences, it requires working on project planning, research projects, teaching etc. In context of survey, it requires performing case studies, financial and management planning.

It involves development and supervision of skills and relationships by using KM tools. Learning means to relate explicit (what, who) and tacit knowledge (how, why) together, thus deriving conclusions from tacit knowledge.

Structuring Knowledge: - Knowledge can be created but it is useless until it is organized and structured. It is structured and organized in various documentation sources like reports, tables, pictorial representation and case studies.

Knowledge Transformation: - Structured knowledge is transformed and stored in knowledge databases called Repositories. They are shelter for knowledge and information. Without structuring of knowledge, it is difficult to transform it.

Knowledge Distribution: - It is essential to distribute/transfer knowledge to utilize resources within institutions. It is transfer of knowledge to education information seekers through training; KM based systems and centralized MIS. "The more descriptive knowledge is, more liable it is.

3.0 "Knowledge Management" Prototypes in connection with E-governance model.

The word SHOT describes types of KM prototypes where S stands for Socio-Technical Prototype, H stands for Humanist prototype, O stands for Organizational prototype and T stands for Technological Prototype. Each prototype has their own views for managing knowledge in institutions.

Socio – Technical Prototype: - This prototype is used to access information on Library Information System (LIS), Sociology and communications. It is Technical because is uses online library information system to maintain student's book bank, records and giving details about issued books, late fees etc. It is social because a teacher tries to maintain and increase interaction among students to help them in their career guidance.

- *Humanist Prototype*: - This prototype deals with motivating students towards their study, helps them in choosing right path and making them adaptable to industry environment.

- *Organizational Prototype*: - This system focuses on subject of institution behavior that includes how institutional activities are organized i.e. managing activities (HR department), how much funds can be used to manage efficiently (accounts department).
- *Technological Prototype*: - This prototype is based on usage of KM tools like online MIS, information management, system engineering to develop, share and reuse new information for increasing student's performance in colleges.

4.0 E-governance Model based on KM prototypes

It must satisfy two points:
- It should combine technical issues with organizational and social issues.
- It should develop centralized MIS to access information at one particular place.

It is model that connects these four prototypes and creates new areas of knowledge like MIS, Social Learning, and Interactive communication and so on. Since it connects four prototypes, so model is divided into four intersection fields corresponding to each prototype. The term intersection field is used because any prototype can have common knowledge from other.

5.0 Conclusion

"Knowledge Management" practices are not appropriate and not known. Information is shared among all members of institution because the sharing of information encourages people at every level to contribute, to participate, to interact, to grow, and to learn. It is our duty to encourage professional courses in every university so that students should know about working industries and they must be able to survive in industry on basis of learning through professional programmes. These programmes lead to development of leadership and team management skills among students. These courses are of shorter term as compared to other academic programmes.

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Work Life Balance in Hospitality and Tourism Industry

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ABSTRACT

The phenomenal growth in the world economy has led to an increase in the disposable income. With a rise in the standard of living of the people all around the world a shift in the spending habits of the people have also undergone a change. The future of the tourism industry across the world seems to be encouraging given the fact that individuals and corporate both lay a great emphasis on holiday making as a source to beat stress. Cheaper air fares and affordable holiday packages are considered to be the main reason behind outbound tourist traffic. All this has resulted into a rise in the volume and dimensions of tourism. The paper is an attempt to understand the role of the hospitality industry in the changing world scenario and the work life balance of the people employed in this industry.

Keywords: *Work life balance; Flexi Timing; Tourism.*

1.0 Introduction

The tourism industry has also seen a fierce competition among the various players. In order to thrive in the ever changing business environment, these firms need to constantly innovate and be 'ahead of the curve'. In the recent past we have seen a great deal of innovative products and combos as service offerings by the travel firms. Thus tourism's important role in economy and socio- cultural aspects is well accepted.

Over the years tourism developed at a fast pace and to gain a competitive advantage the firms rely on their human resources as they are autotelic and can take the organization to the roads of success. It is for this reason it is important for the travel and hospitality industry to keep it employee motivated and to contain attrition. Also the human resource department in the tourism industry is charged with the additional responsibility of maintaining harmonious employee relations and an optimum work life balance in addition to the traditional functions of recruitment, selection, compensation, communication etc.

The function of the Human Resource Department becomes all the more challenging with the complexities arising from the fourth industrial revolution or Industry 4.0. The fourth revolution which is marked by a range of new technologies, impacts all countries, industries and all disciplines. The combination of physical, digital and biological world will challenge the way people are being managed in organizations. As automation increases machines and computers will replace humans across all industries. Organizations which fail to recognize these changes and adapt accordingly will fade away with the passage of time.

The increase in the online travel agencies which have done away with the need of the customer to physically interact with the travel agent before planning a break will leave the traditional sector with mounting costs and lower ROI. As a result the conventional tourism industry which was based on tour operator led business has suffered a setback. The traditional way in which business was done by big players is no longer in practice. There has been a sharp rise in the web based bookings and as a result the quality of recruits has also undergone a change with the expert driven tourism executive replaced with tech savvy talent whose is socially engaged with Facebook, Pinterest, Twitter etc. so that he can mix and match digital platforms to reach its target customers.

2.0 An introduction to tourism, hospitality and leisure

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The significance of tourism in the current global situation cannot be underemphasized. The socio-economic place which tourism occupies within the framework of globalised tourism's leisure and holidaying opportunities on offer today has attracted particular attention. Tourism is a global phenomenon with an almost incomprehensibly massive infrastructure. Tourism is also a very important component of society, politics, culture and economy as it influences all of these to a great extent. It can also be considered as that part of the economy which represents the most vigorous growth.

Over the decades, tourism has displayed continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. Modern tourism is closely linked to development and encompasses a growing number of new destinations. In 2016, four countries moved up in the Top 10 ranking by international tourism receipts and three in the ranking by international tourist arrivals (overnight visitors). Most notably, Thailand climbed further, up to 3rd place from 5th in terms of tourism receipts in its second year of double-digit growth, hitting the US$ 50 billion mark in 2016. These dynamics have turned tourism into a key driver for socio-economic progress.

Today, the business volume of tourism equals or even surpasses that of oil exports, food products or automobiles. The Tourism industry has become one of the major players in international commerce. It also represents at the same time one of the main income sources for many developing countries. This growth of tourism along with an increasing diversification and competition among destinations has been remarkable. This global spread of tourism in industrialised and developed states has produced economic and employment benefits in many related sectors - from construction to agriculture or telecommunications.

Tourism has also been the major contributor to the economic well-being of all its stakeholders and thereby improving their quality of life. According to the UNWTO Tourism Highlights 2017 edition particularly developing countries stand to benefit from sustainable tourism. The importance of tourism, as a vehicle of the economic and social development, has been authorized by the global community also. Tourism also plays an important role in the conservation of natural heritage and biodiversity. The efforts of the tourism industry in this respect have also been able to change the mentality of the society towards protecting their natural environment.

Nowadays, the touristic reality is different. The new tourist demands to live unique and customized experiences adapted to their needs. The massive tourism that required simple and non-complex products has in the recent times transformed into informed customers, who require and search unique and complex solutions, with possibility of experiencing the moment before, during and after their vacations. Tourists are actively involved in the usage of technology (e.g. cameras, smart phones, tablets, PC, etc.), and this transforms them into prescribers of other tourists and travelers via the massive and numerous social networks. Thus the traditional tourism which was more focused towards arranging 'beds' for the clients and providing standardized services has in the recent times shifted focus towards more customized options to suit customer requirements. The tourism sectors sector now offers "dreams".

In order to understand the essence of the Human Resource Management implications in the tourism industry it is necessary to know the components and elements of tourism industry. Tourism can be classified into four types based on Prosser (1998) origin–destination variables of tourism. These are the

1. International tourism: international tourism involves overseas visitors to a destination.
2. Internal tourism: Internal tourism can relate tourism which is restricted to a region within a country.
3. Domestic tourism: domestic tourism relates to nationals of one country visiting that same country.

4. National tourism: national tourism considers all forms of tourism within one particular nation or country.

According to A. J. Burkart and S. Medlik in their famous book 'Tourism: past, present and future', there are four major components of tourism industry

2.1 Accommodation

It includes food & lodging facilities to the guest. With the development in the means of transportation, the variety and quality of lodging facility has undergone a change. The traditional small private hotels or bread and breakfast facilities which existed in the past have given way to big hotels. Accommodation types such as holiday village resorts are on trend. Accommodation is the basic need of the tourism industry and therefore it plays a major role in visitor satisfaction from vacation. As accommodation holds a very important place in any tourist's itenary and also the highest share of amount spent in any vacation, it should be comfortable and services & facilities should be provided.

2.2 Transportation

Transportation is the blood stream of tourism development. Transportation acts as a connecting factor between the tourist and the tourist destination. Development of tourism is positively related to the development of transportation. Major developments in the tourism sector can be attributed to the development in the means of transport. When we overview the tourism development in the world, it goes along with the pace of development in transportation system.

2.3 Attractions

A tourist attraction is the place of interest where tourists visit. This place is significant due to its cultural, historical, natural sceneries, leisure, adventure or amusement. The primary purpose of attraction is to grab visitor's interest so that they visit a particular destination.

2.4 Support services

The support services can be classified into advisory services to tourism operators, investors, Government and all other stakeholders in all matters pertaining to the tourism industry.

The varied nature of activities concerning the tourism industry demand that the model of human resource management adopted by an organization must be customized to meet individual business and employee needs.

3.0 Changing role of People in tourism

In a world of increasing dynamism in all areas such as social, economic, political and technological thus affecting tourism, some dimensions of people management and the role of human resources appeared to be frozen in time. The reputation of tourism as an employer remained, in this assessment, very mixed with excellent practices in some organisations alongside widespread perceptions of poor pay, challenging working conditions and limited opportunities for growth and development, particularly for women and minorities. However this is only one side of the coin. The corollary of change within tourism that impacts the world of work, in turn, has also evolved in response to economic, political, socio-cultural and technological factors.

An online survey conducted amongst various stakeholders of tourism and travel industry in India with reference to the 'availability, quality & competence' of Human Resources employed therein revealed the following facts:

- The travel industry still lacks competent professionals to serve the industry.

- Moreover, education and training institutions have not yet been able to churn out the professionals who can meet out the industry's burgeoning expectations from them.
- The industry, too, has not been able to attract the talented lot to pursue a career in the same.
- Turnover is a major problem in the hospitality sector. According to a survey by the Bureau of Labor Statistics, India, leisure and hospitality had some of the highest turnover rates.
- With relatively high turnover rates, it should come as no surprise that recruiting is another problem facing HR in the hospitality industry. Even finding candidates with the skills to succeed in entry-level positions has become an issue. When an organisation fails to fully assess candidates, it increases the chances of placing the right person in the wrong role.

4.0 Changing patterns of work

The tourism industry has come a long way in recent years in the wake of changes taking place in the world economy. To cater to the needs of the modern and highly informed tourists, the work practices in the tourism industry have also undergone a change. The high degree of competition among the organizations in the tourism industry have forced the work force and the management to continuously upgrade themselves so as to survive and grow in the ever changing scenario. The main drivers for change in the tourism industry and their implications on the work can be presented as follows:

	Influencers/ drivers of change in tourism	**Implications for work**
1	The nature of the tourism industry is such that it is ever changing and has to be specifically designed so as to suit the requirements of the customer on one side and to give him a fulfilling experience on the other. The tourism industry has seen a change in the patterns of travel with respect to both originating and destination markets.	As international tourism has increased over the years, there has been an increase in the majority of travelers of one cultural background into a different culture. This requires new skills and service demands for the human resources. Employees which cater to this section of travelers have to be more skilled in terms language and cultural skills. Moreover they have to be well versed with social media-based marketing tools.
2	A majority of tourists have grown in terms of maturity and their dependence on pre packaged programmes and fixed tours have come down. They now see themselves as independent travelers who are able to manage their visit on their own.	As the tourists have become more mature and independent, the organizations are expected to focus on individualized service delivery. This requires the human resources to be more creative and innovative in designing their tours.
3	The economic conditions in the world economy have been very volatile. Growing competition has resulted in driving down costs from key sectors in tourism, notably air transport. The sector has seen emergence of high degree of retrenchment. The organizations in this sector are vying for their share by focusing on dynamic packaging.	As the tourist has become more informed and the organization is forced to cut down costs, the sector has witnessed elimination of key work areas, especially in tourism intermediaries such as travel agents.

4	In this modern era of widespread technology, social media has gained a place of vital importance. The impact of social media on customers has brought about a change in their decision making styles also.	The technology with which the employees were working and the practices that they adopted are no longer valid. To cope up with the latest technology there is a high pressure on the workforce to adopt new communications strategies.
5	There has been a global concern to save the planet. Growing awareness of environmental concerns and sustainable development has been the effort of every nation. The tourist population has also seen a growing interest in visiting places of natural, historical and cultural importance. Thus there is a growing concern on saving heritage and archaeological sites.	The dynamism brought about by environmental concerns has forced the organizations to alter or eliminate existing skills, create new skills and new jobs. There has been a growing emergence of a demand for new range of green' skills

There are clear indicators that the nature of work continues to evolve in all sub-sectors of tourism – see, for example, Baum's (2012) analysis of the changing work environment of the airline sector. It may also be considered to be a process whereby tourism work may be reconceptualised, in many countries, from the simple to the complex, in part by the incorporation of new or expanded areas, such as technological distribution, wellness (Baum and Lockstone-Binney, 2013) or security (Ball et al, 2014). People are frequently claimed to be a company's most valuable asset and a number of tourism organisations assert this commitment in stating their values and mission (Solnet et al, 2013). However the reality is far from what the organizations claim. It is frequently found that organisations do not live up to such lofty aspirations and little appears to have changed in this regard over the past years. It is often seen that concerns about human resources are recognised as the most important concerns for the management of organizations in the tourism industry. As the industry is highly dynamic the expectations of the management from their employees and vice-versa has significantly impacted the employer – employee relationship.

5.0 Impact of Industry 4.0 on work and people

In the Industry 4.0 boundaries between traditional industries and between industrial and non-industrial institutions have faded. The changes brought about by Industry 4.0 will lead to redefining the value chain in business models as a result of a complex and connected digitalisation. To succeed in this scenario and to gain a competitive edge, the organizations shall rely heavily on their work force. At the same time, the human workforce will require a number of complex skills and interdisciplinary thinking, social skills, and other technical skills. The boundaries of the tourism sector which is historically conceptualized as conservative, closed and inward looking, is increasingly getting blurred whereby the skills are getting obsolete at a fast pace. At the same time, tourism increasingly calls upon skills traditionally associated with other areas of employment.

Like the revolutions that preceded it, the Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world. To date, those who have gained the most from it have been consumers able to afford and access the digital world. Technology has made possible new products and services that increase the efficiency and pleasure of our personal lives. Ordering a cab, booking a flight, buying a product, making a payment, listening to music, watching a film, or playing a game—any of these can now be done remotely.

While the boundaries between the professional and personal life will vanish, work life balance will emerge as one of the biggest concerns for the Human Resource Department. To cope up with Industry 4.0 the tourism sector has to address the challenges of locating wellness tourism work on the one hand in all the related areas of tourism such as sports tourism, adventure tourism, cultural tourism and in other wellness businesses which relate beyond tourism such as medical, fitness and religious. This heterogeneity creates human resource challenges in terms of ethical and professional boundaries; training and qualifications; culture and diversity; as well as health and safety.

Technology is the main driver of the work force in modern times. The use of social media as a tool to manage a wide range of activities demands a wide range of skills in the employees. However as compared to the experienced employees, the 21st-century workforce is global, highly connected, technology-savvy, and demanding. Its employees are youthful, ambitious, and filled with passion and purpose. Millennials are a major force but the older workers, who remain engaged and valuable contributors. Critical new skills are scarce and their uneven distribution around the world is forcing companies to develop innovative new ways to find people, develop capabilities, and share expertise. These include the extensive use of social media as a core recruitment tool. Some of these factors, in turn, drive workforce mobility in tourism and account for elements of labour migration.

As automation substitutes for labor across the entire economy, the net displacement of workers by machines might aggravate the gap between returns to capital and returns to labor. On the other hand, it is also possible that the displacement of workers by technology will, in aggregate, result in a net increase in safe and rewarding jobs.

In addition to being a key economic concern, inequality represents the greatest societal concern associated with the Fourth Industrial Revolution. The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital i.e. the innovators, shareholders, and investors which explain the rising gap in wealth between those dependent on capital versus labor. Technology is therefore one of the main reasons why incomes have stagnated, or even decreased, for a majority of the population in high-income countries: the demand for highly skilled workers has increased while the demand for workers with less education and lower skills has decreased.

6.0 The Work life balance situation

Work life is a subject area which is concerned with an individual's personal and professional life. Work-life balance means different things to different people and different things at different stages of life. However, any definition for anyone must include the problems of lack of time and exhaustion. Research indicates that failure to achieve the correct balance of effort and rest is linked to a feeling of lack of control over your workload, plus lack of energy to fulfill personal goals and commitments. If the balance is wrong, the result may include fatigue, poor performance and a poor quality of life. There is no ideal work life balance. The work life balance situation may undergo a change with a shift in the professional and personal responsibilities.

Work-life balance is about creating and maintaining supportive and healthy work environments, which will enable employees to have balance between work and personal responsibilities and thus strengthen employee loyalty and productivity. Work–life balance is a concept including proper prioritizing between "work" (career and ambition) and "lifestyle" (family, health, pleasure and leisure).

Most recently, there has been a shift in the workplace as a result of advances in technology. Increasingly sophisticated and affordable technologies have made it more feasible for employees to keep contact with work. Employees have many methods, such as emails, computers, and cell phones, which enable them to accomplish their work beyond the physical boundaries of their office. Employees may respond to an email or a voice mail after-hours or during the weekend, typically while not officially "on the job". Researchers have found that employees who consider their work roles to be an important component of their identities will be more likely to apply these communication technologies to work while in their non-work domain.

Some theorists suggest that this blurred boundary of work and life is a result of technological control. Technological control "emerges from the physical technology of an organization". In other words, companies use email and distribute smartphones to enable and encourage their employees to

stay connected to the business even when they are not in the office. This type of control, replaces the more direct, authoritarian control, or simple control, such as managers and bosses. As a result, communication technologies in the temporal and structural aspects of work have changed, defining a "new workplace" in which employees are more connected to the jobs beyond the boundaries of the traditional workday and workplace. The more this boundary is blurred, the higher work-to-life conflict is self-reported by employees.

With the global economy under the impact of Industry 4.0 and a 24 hour work culture the thin line between work and home will blur. People try to find ways to achieve a proper balance in their professional and personal lives to counter to the insecurities in their job which has worsened the work life balance situation. In order to survive and grow in the highly volatile work place where skills are getting obsolete at a fast pace, employees are often willingly or unwillingly sacrificing their personal life for their job. Many companies view work life balance as being particularly relevant to millennials, but employees of all generations is under pressure to meet both work and personal obligations. Organizations therefore should promote work life balance initiatives across all levels and all sections of employees.

The tourism industry is known for its long working hours, shift duties and handling demanding and difficult customers. This stress results in the creation of demand on an individual to make a decision on the balance between work and family. Moreover the pace at which technology is changing and the skills have to be upgraded also creates a pressure in the minds of the employees which causes an imbalance. Many people may find difficulty working in different roles or even multiple roles (as a supervisor in work, a parent at home, a child helping elderly parents). Using a work–life balance approach for employees' well-being will emerge as a strategic human resources management tool. Any approach for achieving a work life balance also assists in retention, productivity and the recruitment of good employees. There are various factors that can be attributed to having an influence on the work life balance of employees in the tourism industry. These factors are of great importance to the management to understand the causes of imbalance and to address issues related to it.

7.0 Factors affecting work life balance of employees

The word productivity has gained popularity in the corporate world in the recent years and it is no longer a secret that productivity is positively linked to the Work-Life Balance (WLB) situation of the concerned employees. The tourism industry is characterized by provision of services round the clock. Moreover, due to the seasonal nature of tourism sector there are some sectors within this industry that have to face a high attrition rate. This situation forces the rest of the employees to take up the extra load by working for long hours and sometimes their duties are stretched for very long hours at a go. This factor has a great negative impact on the WLB situation of the employees since they do not get sufficient time for their personal and social commitments.

24 X 7 Service Industry: The hardest hit among the human resources in the tourism industry are the hotel employees. The hotel industry works round the clock. To remain operational at all times the employees have to work in shifts. Sometimes the shifts timings are odd which discourages the employees to work in those shifts. Moreover, if an employee in a particular shift is on leave, his duty has to be conducted by someone in the previous shift. Thus there are employees who have to work for more than one shift one after the other. This has a negative impact on their WLB. Many times they have to sacrifice their personal commitments due to unforeseen job circumstances.

Seasonal Business: Although the tourism industry works round the clock, it faces peak and off peak seasons during the year depending upon the nature of operations its business and customers. For example in the case of hotel industry during the off season, many of its employees are underworked. Although it is practically not possible for hotels to manipulate their number of

employees based on its seasonal requirements, it is thus a common practice that hotels employ just enough employees on the basis of their average requirement. However during peak season they will have to face tremendous shortfall of employees which sometimes are compensated by appointing labour for short periods. As these employees are not really well versed with the operations of the organizations the regular employees have to take the major chunk of the workload during peak seasons. Therefore these employees have to work for long work hours at a stretch. Moreover, during peak season getting their weekly offs also becomes very difficult and in such situations, employees work weeks together without a day off. Long and continuous work durations become very stressful and challenging for them. This obviously have a direct impact on their WLB situation.

Manpower shortage: As it has been mentioned earlier, due to the seasonal business of the tourism industry it carries on its business with less work force as compared to their requirement. In addition to that, the challenge of working with labour unions and other liabilities associated with employment, the industry is discouraged from employing more people during peak seasons. Thus the additional work load has to be absorbed with the existing employees creating a major imbalance in their family and social life.

High attrition rate: There is a high attrition rate in the tourism industry. In many cases, the attrition rate higher than normal. With such high rates of employee turnover, it becomes a major challenge for the management of these organizations to attract and retain talent. Since it is an ongoing and recurring situation, there is a lot of ambiguity in the work timings of the employees. Moreover, the additional load takes away the time allocated to fulfill their family and personal life by way of accumulated stress and limited time for personal life. Due to this reason it becomes difficult to increase the productivity of the organization as there is an imbalance in the WLB of the employees.

Uncertainty of work: The tourism industry in its totality is an uncertain one. Since the industry relies heavily on personal contact with the customers, who may have different aspirations and expectations from their holiday, it becomes unpredictable. For example the hotel industry being a part of the service industry is engaged in providing services to its guests. In doing so, the biggest challenge is to satisfy the varied demands of their guests. The ever changing and unpredictable nature of these demands make the job of hotel employees more uncertain. Unlike other industries where ongoing task can be handed over to the employee in the next shift, in the hotel industry the employee cannot leave the guest service incomplete and cannot leave the work or handover to the next shift until and unless the guest is fully satisfied. In doing so, the employees sometimes have to work for extended hours thus further reducing their WLB.

Hard work: The nature of work in the tourism industry is very strenuous especially due to the continuous contact with the customers. To cater to varied demands of the customers, the employees are expected to be on their toes, active, fresh and jovial as ever when they are dealing with the guests. Irrespective of whether the employee has just reported or he's on the verge of completing his shift duties, he is expected to wear a pleasing smile on his face and is not supposed to look overworked or tired even if he has been standing or running around throughout his shift. This becomes stressful for the employees as they are required to hide their inner feelings and look motivated. The same employee reaches his home tired and spends most of his time in relaxing or sleeping. Thus he barely manages to devote time to fulfill his family commitments which further leads to frustration and disconnect from this family and social life.

Ever-changing and abnormal working shifts: As was pointed out earlier, the tourism industry is a 24*7 service industry the employees may have to work in varied shifts based on the requirements of their job. Also in the peak season since the employees are less in comparison to the required number they are expected to be ready to work in shifts which may again be changing based on the nature and demand of work. Thus in most of the cases, the employee is never sure of his shift for following day and thus cannot plan for any personal commitments. Moreover, sometimes the

shifts are abnormal like the evening, break and night shifts when the employees are expected to travel back home at odd hours. Although, hotels provide home drops for ladies working in late shifts, such service is not available for men. Therefore sometimes employees staying far, prefer to wait back in the hotel till early morning which further reduces their break timings.

8.0 Impact of work-life imbalance on productivity of employees

Less work can be accomplished when brains are fatigued and stressed. As the employees are in a state of conflict between their professional and personal commitments they begin to disengage from their place of work. Studies show fatigued brains look exactly like ones that are sound asleep. Minds that are focused, organized, and energized get more work done in less time. A report by the Corporate Executive Board, which represents 80% of the Fortune 500 companies, found that employees who feel they have good WLB work 21% harder than those who don't. Not only does work life imbalance has a negative impact on the efforts made by the employees, but also it increase conflicts at the work place. The employees experiencing an imbalance are constantly into conflict between their work and family responsibilities. This conflict spills over to many relationships in the workplace thereby resulting into cases of grievances, burnout, attrition etc.

Work-life policies increase effort by giving people the support to work in the most effective way—reducing stress, improving energy, increasing time management skills, improving morale and commitment, and making it easier to handle professional and personal responsibilities. More job satisfaction leads to more engagement and better results. This it may be summarized that good WLB of employees have a great positive impact on their productivity

9.0 Measure to enhance work life balance

A work life imbalance situation is very common in the tourism industry. Although a majority of employees may be experiencing imbalance at some point of time, any incident of prolonged imbalance is considered harmful. An employee experiencing work life imbalance not only faces problems on the personal front but also is the reason behind many organizational problems. As humans are the most important resource in any organization, the productivity of the organization suffers a setback if humans are not utilized optimally. Moreover if the problems of imbalances are not addressed they may continue for longer durations thus putting the survival of the organization at stake. In this regard for the long term growth and survival of the organizations the management of these organizations should come forward and take responsibility to correct work life issues.

The role of the employer in enhancing the work life balance situation of the employees cannot be understated. A considerate management supports the efforts of employees to split their time and energy between work and the other important aspects of their lives so that they feel satisfied and contended and do not experience any conflict. Work-life balance is a daily effort to make time for family, friends, community participation, spirituality, personal growth, self-care, and other personal activities, in addition to the demands of the workplace. If the workers understand how their work can be organized, managing work and life demands may be possible and employees can better fit in their personal commitments. This can lead to improving the organization culture, higher employee morale and commitment.

Work-life balance enables employees to feel as if they are paying attention to all the important aspects of their lives. Because many employees experience a personal, professional, and monetary need to achieve, work-life balance is challenging. Employees willing to balance work with the rest of the activities that they wish to pursue in their life have to be assisted by their

employers who steps to institute policies, procedures, actions, and expectations that enable employees to easily pursue more balanced lives.

10.0 Measures followed by the tourism industry to enhance the WLB situation of its employees

The tourism industry employs a variety of skill sets. The employees in the tourism industry are placed in different work profiles. Thus there cannot be one fixed method of addressing the issue of work life imbalance for all the employees. The tourism industry has realized the importance of enhancing the WLB situation of its employees. Although Employers are not responsible for providing work balance for their employees, but they can assist the employees to seek and maintain their own work balance. Optimistically, the decisions, policies, values, and expectations of the employers help the employees in scheduling their work-life balance choices. Hotels, travel and tour agencies, tourist guide associations etc are thus developing policies and taking measures in the following ways to address this issue.

Provision of additional weekly offs: The various organizations in the tourism industry have introduced a system of giving fixed number of weekly offs in a month which means that the employees get a fixed number of offs every month irrespective of the traffic of customers. Since the employees are aware of the offs they are entitled to, they can plan their family and social commitments. This practice is highly welcomed by the employees since they can devote more time for their family and friends.

Optimum work timings: The management nowadays is aware of the fact that long working hours is the biggest factor for poor WLB of its employees. To address this issue management are taking conscious measures to discourage prolonged working hours and working for back to back shifts. Supervisors are also instructed to manage their task force effectively and assign optimum work timings to their employees to ensure highest productivity. Most of the hotels especially the international chains have instructed their staff not to work beyond their stipulated duty timings and in unavoidable circumstances, the supervisor has to seek prior permission of the senior management to make his staff work beyond their work timing. This has put restrictions on unnecessary over time remuneration that had to be borne by the organisations and the supervisors have also become more cautious towards the timings of their subordinates.

Effective Education, Training & Counseling: The industry focuses on effective training as a tool to help their employees manage work stress and handle multiple roles effectively. Employees are encouraged to work smartly and to spend quality time rather than quantity time at work. Training also helps the employees in scheduling their time effectively. The different types of training apart from job related skills that are imparted on a continuous basis are time management, stress management, communication and soft skills, decision making etc. these training programs help the employees to prioritise and complete their work in an effective way. In many organizations employees are counseled on a routine basis to create awareness about mental health and its importance in the long run.

Provision of flexible work timings: This practice is usually followed for employees working in departments whose workloads changes on a daily basis. A flexible work schedule does not mean that the employees can come and go at their will. A flexible work timing policy has to be specifically spelled out by the employer. Employees working in the banqueting departments have been given the liberty of working in flexible shifts depending on the schedule of the department. The role of this department is to cater to functions, corporate meetings / events. Since the timings for these events are not fixed and may vary on a daily basis it is thus permitted that the employees working in this department have the option of working in flexible hours so that they are benefitted and can make themselves available at varied timings when such events fall due. Thus they have the liberty of working in flexible timings thereby avoiding unnecessary staff during less busy hours of the day.

However, this facility cannot be extended to all the employees for obvious reasons. The provision of flexible work timings goes a long way in improving the WLB of the female staff members who are responsible for the good care of their family. The provision of flexible work arrangements for the valued staff members also provides an antidote to loss of skills and experience and high cost of recruitment and retention in a highly competitive industry.

Modeling WLB: Managers and senior managers need to model the work balance they'd like to encourage for their employees. When a manager who is on a vacation responds to email as if she is in the office, this sends a powerful message to employees about whether they need to do email while on vacation. The actions of senior leaders are heard and observed by employees. When a senior manager calls in for unimportant meetings while out-of-the-office, employees get the message. It affects their personal choices for work and life balance. It is often seen that the junior level employees tend to imitate their bosses.

Organizing family get-togethers: This is an important tool to address the issue of work family conflict. When the family members are invited to the hotels on the occasion of get-togethers they get an opportunity to interact with families of other employees and get a feel of the work culture of their spouse. This practice goes a long way in bringing the employees closer to their families. Bowling, picnics, outdoor movies and bonfires, game centers, ice skating, sports events like a baseball or football game etc is appropriate for families. Such relationships which are build on these events encourage the employees to stay with the organization for longer periods. Also a caring attitude of the management towards the employees family helps to instill motivation and feelings of commitment.

Realistic expectations: It is normal to expect that the employees will work hard for long hours, and weekends, but not all of the time. It's okay to expect employees to work long, hard hours during the peak season when there is highest client traffic for a timely product release, for example, on festivals, special occasions or at a trade show. But, employees can't sustain an extraordinary level of energy and long overtime hours as a constant work expectation. Employees will check out, burn out, and / or leave if long hours and extraordinary effort are the norm.

Up gradation of technology: As technology has taken over in all aspects of personal and work life, it is impossible to imagine life without technology. But technology has its harmful effects too. With employees electronically connected to the workplace 24 hours a day, 7 days a week, in the office or out, work and life balance is a challenge. The responsibility of the management in setting expectation is very important. When an employee leaves for a vacation, it is okay to send an email that says he is on vacation with limited access to email. The management should honor the employee's personal space by not contacting him unless it is truly an emergency.

11.0 Conclusion

Work life balance has now been increasingly recognized as the responsibility of the management. It is suggested that consideration be given to the development of guidelines in order to ensure that working hours should not affect the WLB of employees. Flexible work policies need to be integrated into the overall strategic plan of the organisation. As the management support is necessary for effective work-life balance programmes, this need to be reflected in a positive organisational culture. The workplace must be responsive to employee needs. Effective training can be used as a tool to help the employees manage stress and handle multiple roles effectively. The labour force is becoming more diverse. Flexible working arrangements are becoming important aspect of quality of working life for many employees. In order to obtain optimal return on staff it is important to understand the interplay between work and family. Managers need to acknowledge that there are work-life balance issues that affect the quality of work. Adopting an employee-centric and integrative

approach are the critical success factors for implementation of a work–life balance program. The overall cost of replacing an employee involves recruitment, selection, training and some aspects. It may make more business sense to accommodate the employee's work demands, rather than lose all that talent and skills. Tourism industry is an employment multiplier and the hotel sector being an important component of tourism, needs better HR practice in order to retain and utilize the talent by balancing work and life situation.

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Impact of covid19 on the skill development movement in India

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ABSTRACT

This research paper endeavors in understanding the skill Development Movement in India and how the it has been impacted due to the Covid-19 pandemic in terms of challenges faced by Skill Development Trainings, opportunities which have surfaced and strategies adopted by Government, Companies & individuals to overcome challenges towards Skill Development Trainings during COVID-19.

The success of a nation always depends on the success of its youth hence, Government of India has launched Skill India Mission to empower the youth of the country with required skill sets and make them more employable and productive in their work environment. Skill India is certain to bring a lot of advantage and opportunities for its young workforce. Now, Skill India is not only limited to the domestic market but even caters to the global market demands and promotes cross geographical exposure and opportunities in the international market projecting India as an evolving skilled society with lots of possibilities, prosperity and progress for all. However, the entire progress has been disrupted due to COVID-19 pandemic as it adversely affected and slowed down businesses across all sectors. The companies in their endeavor to reduce cost especially the labour cost during the 'new normal' now prefer workers who are more adaptable and equipped with new-age technology. Hence, it is important that the young students are imparted diversified skill sets so that they remain employable in the post-pandemic world. In such scenario, it is important that all kinds of skill training Programmes are continued to strengthen the work-pool so that when the situation improves, the trained workforce is ready to for immediately resuming the activities quickly picking up with speed and agility. The skill de

The research paper has made a literature review analysis regarding its challenges, prospects of skill India and Make in India. Secondary data collected from various websites, journals, etc.

***Keywords:** Skill development, Skill India, covid-19 pandemic.*

1.0 Introduction

Skill has many meanings but generally it connotes to knowledge, ability, quality, proficiency and competency of a person that enables him to gain expertise in a particular field and perform particular tasks. Skills are primarily of two types (i) Soft Skills (ii) Hard Skills. Soft Skills are personal habits, personality traits with which one does his work either alone or in group. Examples of soft skills are Leadership skills, Organizational skills, Life skills, communications skills, people skills / interpersonal skillsand personal attributes like creativity, empathy, open-mindedness, integrity etc. Soft skills are sometimes inherited and sometimes developed through life experiences. A person can develop such soft skill only when he is interested and put in effort in mastering these skills. He can learn by himself from self-help books, audios, internet etc but the best is to find a mentors / coach who has practical experience and expertise in such areas and is willing to help / guide. Hard Skills are technical knowledge that we gain through our education, training or work experience. Hard skills can be quantified and verified from one's academic and formal training certificates.

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Many employers also test the prior learning of hard skills before recruiting employees and impart trainings to its employees to refresh their hard skills to do the existing job more efficiently or equip them with additional hard skills required to take up future jobs. However, both hard skills & soft skills are required in every job though the degree may vary with level / position. Hard skills are required for performing technical tasks in a job and Soft skills are required for working in team and creating a congenial work environment. More of hard skills are required at operational level and as one moves higher up in his career, he requires more of soft skills to think critically, set goals, formulate strategy / action plan, organize, collaborate, connect, communicate, manage team, solve problems, get things done, analyze information and review for continual improvement. Most employers look for candidates with hybrid skills i.e. combination of both soft skills and hard skills. However, employers may prefer candidates with better soft skills if the technical skills are equal. Today there is a paradoxical situation where on the one hand young men and women entering the labour market are looking for jobs; on the other hand industries are complaining of unavailability of appropriately skilled manpower. Enormous skills gap exists between what industries demand based on the rapid economic growth and the skills that young people acquire through education and training.

1.1 Objective of the Study:

The main objectives of the study are:
- To understand through the review of literature the Skill development Movement in India.
- To understand the impact of COVID-19 pandemic on the Skill development Movement in India.
- To provide some suggestions based on the observations and findings of the study.

1.2 Research Methodology:

The study in this paper is based on exploratory research based on the secondary data and information sourced from internet, relevant books, journals, magazines, articles, media reports and Government portals on Skill India, etc.

Being looked into requirements of the objectives of the study the research design employed for the study is of descriptive type. In depth analysis of the research study have been adopted and available secondary data have been extensively used for the study.

1.3 Literature Review:

The investigators have reviewed the literature with reference to skill development Movement in India which will give an understanding about the research conducted in the field and research gaps to be filled by further research.

Arora & Chhadwani (2018), conducted a study entitled "Analysing the impact of skill India as a tool for reshaping Indian economy". The study aimed to analyse the need of skill India campaign in reshaping Indian , analyse the programmes under skill India campaign in reshaping Indian economy and analyse the impact of skill India campaign in reshaping Indian economy. The study was mainly descriptive in nature was based on secondary data & information which was collected from the concerned sources and were as per the need of research. The relevant books document of various ministry departments & organizations, articles, paper & website were used in the study. The findings of the study indicated that "to further increase the momentum & see to the proper implementation of the Skill India campaign the government set a target of skilling 400 million persons by 2022, but its pace is in slow rate than the set target. At this pace, the 2022 target appears to be very difficult. And training to job transition rate is very low than the expectation. In its first phase, the government trained some 1.97 million people against a target of 2.4 million. And the skilling to placement ratio is

low. Skill India is aspiring programme of Government of India. At present India faces a severe shortage of trained workers. Only 2.3% of India's work force has formal skill training compared to 68% in the UK, 75% in Germany, 52% in USA, 80% in Japan and 96% in South Korea. Hence there is an urgent need to impart skills in more efficient way. For contribution in growth in Indian economy to compete with other developed countries of world it is necessary to see that in the whole process of skill India campaign, training to job transmission rate proper skill acquisition & implementation rate is undertaken in an effective manner."

Furtado (2018), conducted a study entitled "A Study on Impact of Skill Development at Entry Level Job Candidates in India". The objective of the study was to understand the gap between the job applicant's performance level & job expectation at multiple stages of one's Life and understand employability of candidates at entry level job. Both Primary data & Secondary data were used. Primary data search was taken to have an assumption-based analytical view considered in findings and Secondary data was obtained from, online websites of organizations supporting skill development in India. Few reports that state the present scenario of skills along with the need & requirement of building the skills & character of an individual were considered. Online search engine optimization & multiple online findings were also considered. The findings of the study indicated that "Skill development in India is the most essential aspect for every citizen of the nation as with booming technologies, organizations up-scaling & a transitioning era as of such today. Though there have been many services being provided by the government & other organizations, it is important to see the competitiveness also being build along with its actual reach to candidates at entry level jobs, which in most terms is not the actual case resulting to a loss on the youth's potential being built for the nation. Irrespective of the various initiatives taken by the government & other organizations as well, the conversion rate is with long-lasting sustainable effect on the market in a structured analytical way, it is important to consider before providing any initiative relating to developing human potential especially for candidates at entry level jobs because it is directly dealing with building the future of the next generation to lead. Students and candidates, prior to applying for jobs must work on building their set skills as this would not only ensure in impressing the interviewer but also result in having been selected, thus attaining your dream job".

Kumar & Ramya (2017), conducted a study entitled "A research paper on - Economic prosperity through Skill India: A study of key success factors and challenges". These main objectives of the study were to know the awareness of skill development concept, know the problems faced in self employment and provide some suggestions based on the observations and findings of the study. The research was based on the primary data and the secondary data. Primary data was collected by distributing the questionnaires to respondents and through telephonic interviews with respondents from various places in and around Mangalore city. Random sampling was used in selecting the samples for the study. Secondary data was collected from websites related to the topic. The findings of the study indicated how Government is caring to abolish unemployment problem. Majority of the respondents were aware of the Skill India Campaign due to various publicity schemes of Government which is highly commendable. Out of the respondents selected for survey majority have undergone the skill development training under different areas and have benefited them in their overall development. This shows the popularity of the schemes and good response from the youth. The survey reveals that even after the training the respondents had faced some major problems while setting up their own business, which need to be tackled. Almost all the respondents were motivated through Skill India Campaign and have encouraged others for self employment.

Prasad & Purohit (2017), conducted a study entitled "Skill Development, Employability and Entrepreneurship through Make in India: A Study". The main objectives of the study were to understand through the review of literature the effect of Make in India initiative on employability, to understand the present status of skill development in India, to analyze through the

review of literature if the Skill Development measures will help to bridge the gap of existing skills and required skills of workforce and Labour force in India and to understand the Challenges in Skill Development Initiatives in India. The study was based on exploratory research based on the secondary data and information was sourced from libraries, relevant books, journals, magazines, articles, media reports and Government portals of Make in India, Skill India, etc. Being looked into requirements of the objectives of the study the research design employed for the study is of descriptive type. The authors adopted to have greater accuracy and in-depth analysis of the research study. Available secondary data was extensively used for the study. The findings of the study indicated, "the overall status of skill capacity available, skill requirement, skill gap and initiatives taken by Government of India for Skill Development. To make the 'Make in India' project successful, youth of the Nation should be empowered with Formal Education, Technical and Vocational training to meet the Industrial and Market requirement as per global standard. Despite various efforts and investments in shaping the skills of a huge labor force there are grave drawbacks in the System. Even after the Government investing a lot in training costs and infrastructure, creation of robust workforce for the industry is still a fantasy. As a fast-growing developing economy, besides white and blue collar, India also needs Grey collar- knowledge workers which include ICT skills, problem solving, analytical ad effective communication skills and rust collar-skilled workers at the grass root level in currently unorganized sector and un-benchmarked sectors like construction, agriculture and related trade. Government, industry leaders are constantly from time to time launching new skill development initiatives but somehow it is not reaching the casual workers who dominate the Indian work-force. Stakeholders Industry leaders, Government etc have realized that none of them can work in isolation. They will need to collaborate as the stake involved is huge. Mandatory Monitoring and Quality Certifications should be in place which will ensure high standards training programs with prime focus on enhancing the employability. Sector specific Labor Market Information System at national and state level is to be established for reducing the skill mismatch which can help in the reliable and realistic assessment of economic trends and labour market. Supply and demand of skilled manpower can be mapped with the help of Human Resource Planning which is also one of the important components. These exercises can help to anticipate skill gap over a period of time at different levels, sectors and geographical areas. A designated agency should work on generating information from the LMIS and HRP exercises. Government employers, national, state and local level training providers, trainees and prospective trainees should be disseminated with information so collated so that they can use it in their skill development plans. The information at National level can be disseminated by NCVT by receiving inputs from state and local levels. Counseling, placement and guidance can be provided by strengthening and upgrading the Employment Exchanges. In a male dominated society, there has always been a limited scope to develop their skills for women and girls in rural areas due to social, economic and cultural constraints. The payment of wages is also on lower side. Socio-economic empowerment of rural women can be attained by investing in their skill development. They can be provided with basic education, technical training and other women extension services. Support by self help groups and NGOs can help in improving their conditions by making them understand the importance of basic education and also by making the change in attitude of society towards women. A designated agency should design the courses and introduce them at various levels on the basis of emerging opportunities for skill development and employment generation. The change should be brought from education system which needs to be renovated and restructured. Young population even after having degree is not able to fit in the industry due to lack of expertise to compete. The vocational training should start from High School. Students should be made industry ready by making the curriculum for professional courses such as Engineering and MBA in a way that provides complete on the job training. The standard and quality of training need to be upgraded. Soft skills training along with technical skills will bring desired results. Moreover, with the passage of the

Companies Act 2013, the mandate for Corporate Social Responsibility has been formally introduced and it is likely that the total CSR spends will increase for employability linked programs to promote skill development. Prime Minister in his maiden speech said, Skill development should be accompanied by a spirit of 'Shram-ev Jayate' – giving dignity to labour. Skill development and entrepreneurship is one of the top most priorities of the new Government due to which first time an independent ministry has been created to take the mandate forward. Finally, it is important that the intended beneficiaries of the skill development program join training programs with an inspiration to learn and make them self-reliant to live a better life. Short duration skills course through SDIS-MES Scheme, Dual course system as Germany pattern and Apprentice Training scheme 1961 revised 2015 should be implemented and monitoring properly. Basic Infrastructure i.e. Tools, Equipments and Machineries in ITIs should be replaced as per latest technology and as per Market need. All Government Sector, where Technical knowledge is needed, in Recruitment procedure minimum qualification should be ITIs. The Strengthening Capacity of Vocational Instructor Training Provider Institute i.e. FTIs, ATIs, MITIs and CTI under Directorate General of Training (DGT), Ministry of Skills Development and Entrepreneurship".

Sandhya Rani (2016), conducted a study entitled **"Skill Development Training Programmes for Reducing Gender Inequality in India".** The main objectives of the study were to highlight the importance of skills for the development of country, focus on gender inequalities in possessing skills in rural and urban India among women and study the programmes providing skill Training for both women and men. The paper was totally relied on secondary data. The data required was collected from the necessary published and unpublished information and from the internet sources wherever necessary. The findings of the study indicated that "the initiatives involving both the States and the Centre, often with private partnership will lead to the establishment of credible, trustworthy and reliable training, testing and certification edifice linked to global standards and responsive to the needs of the ultimate consumers of skill. With an estimated 58.6 million new jobs in the International Economy inviting skilled personnel for quality jobs beckoning the Indian Youth, the government and Private Sector will act in a concentrated manner so that these opportunities materialize and operate as an employability guarantee. Skills and knowledge are the driving forces of economic growth and social development of any country. They have become even more important given the increasing pace of globalisation and technological changes provide both challenges that is taking place in the world. As India moves progressively towards becoming a 'knowledge economy' it becomes increasingly important that the XI Five Year Plan should focus on advancement of skills and these skills have to be relevant to the emerging economic development."

Pandey (2016), conducted a study entitled **"Improvising Skill Development & Employability Potential through Higher Education, Research & Innovations in India".** The main objectives of the study were to look in to the current policies supporting skills development programme, identify the gaps between government and private programs that need to be filled is duly intended during the study with a aim to collect lessons learned from past policy interventions, how higher education institutes can contribute in successful skill development of the country which is the flagship programme of the government. The study was mainly descriptive in nature based on secondary data & information was collected from the concerned sources as per the need of research. The relevant books document of various ministry departments & organizations, articles, paper & website were also used in the study. The findings of the study indicated that "the Private sector plays a major role is overcoming the gaps in Government policies. However, their motive is to expand and scale up their very own enterprises. Thus, their process of skill development may vary. There is a lack of innovation in Skill development programmes. Almost all courses and curriculums are catering to industrial needs. It is the time when at one side employment opportunities are being created in industries, on the other hand Climate and environment is severely getting affected by fast industrialization, besides other

factors. Therefore, skill development programs must be framed innovatively such that there is environment protection, optimal utilization of bio-waste and earning of livelihood can happen, all at same time. There appears a lack of trained trainers to impart necessary formal skill. Going by the different figures mentioned in article, target to create skilled workforce of 500 million by 2022 is large and no. Of certified trainers is very low. There is a strong need of trained trainers at different levels who can serve full time in a institute to provide full attention to the registered candidates. There are plenty of Government Schemes but most of them are in collaboration with private sources, or indirectly benefitting enterprises. More than 20 Ministries/Departments run 70 plus schemes for skill development in the country. However, there are gaps in the capacity and quality of training infrastructure as well as outputs, insufficient focus on workforce aspirations, lack of certification and common standards and a pointed lack of focus on the unorganized sector. Government intervention in skills development can make its impact on grounds like external benefits to skills that are not captured in market practices, Market imperfections that distort the benefits and costs of skills development, weak private training capacity and inequitable access to good quality skills training."

Saini (2015), conducted a study entitled **"Skill development in India: need, challenges and ways forward"**. The main objectives of the study were to study the present skill capacity of India, study the challenges faced by skill development system in India and suggest possible solutions or ways forward. The study was mainly descriptive in nature, based on secondary data and information was collected from the concerned sources as per need of the research. The relevant books, documents of various ministries/departments and organizations, articles, papers and web-sites were used in the study. The findings of the study indicated that "India's transition to one of the largest and fastest growing global economies during the last decade has been a remarkable phenomenon. In order to sustain its growth trajectory, an efficient and continuous system of skill development for its workforce is critically imperative for India. In order to capitalize the demographic dividend, India will need to empower its workers with the right type of skills. The drop-out rates of educational institution were estimated to be 50% in the age group of 5-14 years and 86% after 15 years of age and in contrast to this the participation rate of the workforce rises rapidly after 14 years of age and it results in a semi-literate workforce which finds it difficult to absorb higher form of skills. 38% of Indian workforce is illiterate, 25% has education below primary or up to primary level and remaining 36%has an education level of middle and higher level. 80% of Indian workforce does not possess any marketable skills. Only about 2% have received formal vocational training and 8% non-formal vocational training, thereby implying that very few new entrants to the work force have any marketable skills as compared to developed economies such as Korea (96%), Germany (75%), Japan (80%) and United Kingdom (68%). In-nutshell, it can be said that despite making considerable progress in terms of literacy, high incidence of illiteracy cripples the Indian workforce even today. The above facts are a stark reminder that India's demographic dividend can rapidly convert into a demographic nightmare if skills are not provided to both new and existing workforce. There is a need for increasing capacity and capability of skill development programs. In this direction, both the Government and its partner agencies have undertaken various measures/ initiatives for the effective implementation of the skill development system in the economy. But still India faces a number of unresolved issues and challenges that need immediate attention of the policy makers."

Misra (2015), conducted a study entitled **"Skill Development: A way to leverage the demographic dividend in India"**. The main objectives of the study were to understand the present skill development policy initiatives in India and find out the ways and means to produce world-class skilled manpower domestically through effective use of skill development schemes of Government of India. Primary data was collected through personal interview with government officials and training providers. Secondary data were collected through government policy documents, schemes, case studies, research papers & documents of various international agencies like ILO, WB, OECD etc. The

findings indicate that "India is in demographic phase and is in position to reap the benefits of the demographic dividend by providing trained manpower to fulfill the global and domestic need for skilled manpower, the Government of India had initiated National Policy on Skill Development, to facilitate its target of imparting requisite skills training to 500 million people by 2022. However, on the other hand, there are lots of challenges in the way of achieving target such as quality of training, standardization of curriculum, recognition of course globally etc. India has lot to work on policies for the skill development and put efforts for effective implementation of these schemes. The adoption of a much more robust approach is essential for putting in place a quality skill education and training framework in the country. The existing skill development policy should be modified in accordance with the need of the industry and global market. By establishment of Skill Development University in every state will fulfill the need of academic curriculum design, assessment and certification as per the global standard. Private participation will be more appropriate in infrastructure development and training to the participants. Target to train 500 million people by 2022 can be achieved through effective use of schemes by proposed restructuring of Skill Development Mission."

Das (2015), conducted a study entitled **"Skills Development for SMEs: Mapping of Key Initiatives in India"**. The main objective of the study was to critically examine national skills development initiatives in India as the country embarks on building skilled manpower to meet the demand of SME sectors in the coming decade. The paper was based on quantitative and qualitative secondary data collected from different sources including MIS (management information system) reports generated by the implementing agencies and host ministries of the respective SD missions. The Planning Commission of India also compiled several datasets for strategic planning of national missions. Data collected were analyzed, visualized and presented using spread sheet application software. The findings indicate that "many of the government missions or national programmes fail to reach out to the targeted beneficiaries due to lack of awareness and monitoring mechanisms. However, the National Rural Livelihoods Mission (NRLM) and to some extent the National Skill Development Mission (NSDM), have increased awareness among their targeted beneficiaries. They have also established ICT-enabled monitoring mechanisms that help in quick identification of gaps in implementation. Data presented in this paper also indicate that these missions have attained good enrolment from targeted communities. In some SD centers, economically weaker sections, but not part of the marginal communities, also benefitted. Economic prosperity is linked to equitable access to vocational and professional skills enrichment training in all industrial sectors including informal sectors."

Kanchan & Varshney (2015), conducted a study entitled **"Skill development initiatives and strategies"**. The main objectives of the study were to understand the present status of skill development in India, the challenges in skill development in India, Skill development initiatives and strategies in India and its impact on India. The research paper was an attempt of exploratory research, based on the secondary data sourced from journals, magazines, articles and media reports. Looking into requirements of the objectives of the study the research design employed for the study was of descriptive type. Available secondary data was extensively used for the study. The investigator procures the required data through secondary survey method. Different news articles, Books and Web were used which were enumerated and recorded. The findings indicate that "Presently 80% of the workforce in India (rural and urban) doesn't possess any identifiable and marketable skills. Therefore, bridging this gap through various skill development initiatives could make India the global hub for skilled manpower, and also result in a surplus of skilled manpower of approximately 47 million 2020 (FICCI). Despite various efforts and investments in shaping the skills of a huge labor force there are grave drawbacks in the system. Even after the government investing a lot in training costs and infrastructure, creation of robust workforce for the industry is still a fantasy. As a fast-growing developing economy, besides white and blue collar, India also needs Grey collar- knowledge workers

which include ICT skills, problem solving, analytical ad effective communication skills and rust collar-skilled workers at the grass root level in currently unorganized sector and un-benchmarked sectors like construction, agriculture and related trade. Government, industry leaders are constantly from time to time launching new skill development initiatives but somehow it is not reaching the casual workers who dominate the Indian work-force. Stakeholders (Industry leaders, Government etc) have realized that none of them can work in isolation. They will need to collaborate as the stake involved is huge."

2.0 Analysis and Findings:

2.1 Skill development movement in India:

India is a young country with 65% of its youth in the working age group. It is projected that the total workforce of India would be around 404.15 million by 2023 which will include around 59 million youth (*Periodic Labour Force Survey 2017-18*). Skill development of these youth can help in reaping this demographic advantage as it would add value to their personal growth and ultimately boost economic growth of the county.

Skill India Mission, an initiative of by the Government of India, was launched on 15 July 2015 to empower the youth of the country with required skill sets and make them more employable and productive in their work environment. The success of a nation always depends on the success of its youth and Skill India is certain to bring a lot of advantage and opportunities for its young workforce.

Earlier, the skill development of youth was being ensured through implementation of the Apprenticeship Act, 1961 the compliance of the said Act was being monitored and implemented by Ministry of Human Resource Development (MHRD) and Ministry of Labour & Employment (MOLE). The Apprenticeship Trainings of the Trade Apprentices were monitored by MOLE through Directorate General of Training (DGT) and ITI framework and the Apprenticeship Trainings of Engineering Graduates, Technician and Vocational Apprentices were monitored by MHRD through respective Board of Apprenticeship Training (BOAT) / Board of Practical Training (BOPT). With launch of Skill India Mission, a separate Ministry for Skill Development & Entrepreneurship (MSDE) was formed to focus on enhancing employability of the youth through skill development. The entire apprenticeship training framework under MOLE has been transferred to the new Ministry i.e. MSDE and the training framework under MHRD are still continuing. Accordingly, now the Apprenticeship Trainings of the Trade Apprentice (designated trades for ITI and below qualification) & Optional Trade Apprentices (Engineering & Non-engineering Optional Trades formed as per Industry requirement) are monitored by Ministry of Skill Development & Entrepreneurship through respective Regional Director of Skill Development and Entrepreneurship (RDSDE), Sector Skill Councils (SSC) under Directorate General of Training (DGT) for Designated Trades and National Skill Development Corporation (NSDC) for Optional Trades.

The skill ecosystem in India is re-energizing the country's workforce with reforms and policy interventions by Government of India. As per MSDE, "*Pradhan Mantri Kaushal Vikas Yojana (PMKVY) alone has till date seen close to 92 lakhs people get skilled and prepared for a new successful India. More than 720 Pradhan Mantri Kaushal Kendras (PMKKs) have been established till date to support skill development infrastructure in the country. Effort is also being made to recognize and certify skills acquired through informal means through Recognition of Prior Learning (RPL) program under PMKVY, which has brought a major shift from unorganized sector to an organized economy and So far, more than 50 lakhs people have been certified and formally recognized under RPL*"

The primary objective of Skill India Mission is to standardize, align and ensure implementation of common norms across all skill development programs (including ITI ecosystem) in the country for garnering better results in all vocational education and training programmes.

Comprehensive reforms have been introduced in the Apprentices Act 1961 by (i) giving control to the private sector to maintain industry standards as per market requirement and (ii) giving regulatory rights to the industry where they can even set the target for apprentices that they require. This is a big opportunity for industry to leverage and benefit from the scheme. National Apprenticeship Promotion Scheme (NAPS) has also been introduced to promote a sustainable model of skill development and industry-connect. Under this scheme, the Government of India provides financial benefits for apprenticeship. As per records, 7 lakhs approx. apprenticeship trainings have been conducted so far.

Pradhan Mantri Yuva Yojana (PM-YUVA) has also been introduced with the aim of educating and equipping potential and early stage entrepreneurs and catalyzing a cultural shift to support aspiring entrepreneurs. The candidates are linked to the Micro Units Development and Refinance Agency (MUDRA) scheme of the government to get assistance in initial business funding.

Now, Skill India is not only limited to the domestic market but even caters to the global market demands and promotes cross geographical exposure and opportunities in the international market. Soon India will evolve into a skilled society with lots of possibilities, prosperity and progress for all.

2.2 Skill Development Trainings during COVID-19:

COVID-19 pandemic has adversely affected and slowed down businesses across all sectors. The companies in their endeavor to reduce cost especially the labour cost during the 'new normal' would prefer workers who are more adaptable and equipped with new-age technology. Hence, it is important that the young students are imparted diversified skill sets so that they remain employable in the post-pandemic world.

The resumption of full-fledged work in industries seems far till the pandemic is in control or some medicine / vaccine is available in the market. In such scenario, it is important that all kinds of skill training programmes are continued to strengthen the work-pool so that when the situation improves, the trained workforce is ready to for immediately resuming the activities quickly picking up with speed and agility.

The Government of India on its part is already encouraging students and workers to acquire new skills and utilize their time effectively during this pandemic situation. The National Skill Development Corporation's (NSDC) eLearning aggregator portal, eSkillIndia portal offers more than 400 curated courses from various knowledge providers. During this pandemic, eSkillIndia has partnered with English Score, SAS India, Saylor Academy (USA) and UpGrad, to provide various online opportunities to interested skill-seekers.

As an emergency response and experimentation in skill development, industry and workforce has quickly migrating from classroom / on the job training to online / distance learning to neutralize the pandemic situation by adapting to the virtual mode and allowing young workforce to continue their skills upgradation and preparedness for the new normal. The pandemic has also taught that short term solutions can be and have to be found to create long-term positive impacts.

2.3   Challenges faced by Skill Development Trainings during COVID-19:

Skill Development is facing the following challenges during the pandemic:

1.   Operation of Training Institutions:

The main challenge with Training institutions are to remain operational, to establish and maintain communications with and between trainers and students, and to continue to provide their services to the community, despite having suspended face-to-face classes.

2. **Work from Home Norms**:

   The mandate to move employees to working from home has made it impossible to provide in-person, classroom-based skills training.

3. **Temporary control over training premises by Govt.**

   Many training institutions are also supporting national crisis response measures as their training room/ workshops are being used to manufacture personal protective equipment and hand sanitizer etc for healthcare purpose or their premises are being used as temporary quarantine centers, isolation facilities or makeshift corona hospitals.

4. **Lack of Access to Digital Platform**:

   Lack of smart phones/ mobile devices, mobile/internet data packs, the ability to recharge, fluctuating internet connectivity and a dearth of discipline are now a reality. It is required to explore aspects like 'learning and training anywhere, anytime' and work on the concept of lifelong learning.

5. **Lack of Preparedness**:

   Technical preparedness is required to strengthen the ability to organize digital education, skilling and mobilizing teachers / trainers so that they continue offering effective e-learning.

2.4   Opportunities for Skill Development Trainings during COVID-19:

   Every challenge opens doors for new opportunities. COVID-19 pandemic has shut many doors at the same time have also opened many doors and people slowly accept and adapt to the "New Normal". New dimensions and horizons which were obscured till date have suddenly been visible and vibrant. The same is true for Skill Development Trainings; the opportunities revealed during the COVID-19 pandemic is enumerated as under:

1. **Upskilling for the New Normal**

   As many industries, business and process have become obsolete, forcing them to close down, the jobs being carried in such business have suddenly become useless resulting in loss of job. To remain in business, the industries have to adhere to the norms of "New Normal" and adapt quickly by embracing the change. It requires to prepare the work force for such new functions and upskilling them through Skill Development Training. Now it would be extremely necessary to be quick in response to any future disruptions as in future such disruptions can be expected at any moment of time. Change is the only constant and one who have a change before the change actually hit would win, one who change with change will just manage to survive and one who will not change will perish. It is true for both the Industry as well as the workers. The workers should also come forward on their own to avail such facilities and upskill themselves at their own cost and not depend on his/her employer as the pandemic has shown how the employers back out from their responsibilities and leave the workers to their fate. The pandemic has proved as a strong wakeup call for all.

2. **Concept of any time learning / learning at one's convenience**

   As many of the Training Centers have been forced to shut down adhering to the social distancing norms, the Physical Trainings have been hit. But at the same time, it has opened doors

for online trainings through various online platforms where in one can download and learn anytime and at his/her convenience. If the learner wants, he can go through that learning any number of time and repeat the sessions for better understanding and clarity. Example of such trainings are the NPTEL courses being offered by Government of India. This aspect of learning was never given much importance and emphasis was always given to the physical trainings. Many employees due to their time constraint for physical trainings used to be deprived of trainings, now they can attend such trainings online from anywhere and at any time.

3. Reach beyond geographical boundary

With concept of online trainings & webinars using the latest video-conferencing platforms the earlier limitation of geographical boundary has been broken and people at far off locations can come together for a learning / training. Now, there is no limitation on the capacity of the Training Hall or attention capacity of the trainers.

4. Access to the best of trainers

Due to the online facility renowned trainers from around the globe can be accessed online directly from their institute / home without requirement of their travel to long distance and they can be accessed by different organizations at the same time making best use of their time also saving their money.

5. Affordability of training

No more travel to long distance or staying in training hostel / hotels is required, the cost of trainer can be shared over a large audience making the training highly affordable to all participants. Also, organizations which would have otherwise not afford training from such renowned trainers / global leaders can now access to them.

6. Pooling of resources

Organizations which otherwise do not have good training institutes can have the facility to pool the resources of other organizations and can jointly have structured training programmes on skill development.

2.5   Strategies adopted towards Skill Development Trainings to overcome challenges during COVID-19:

All stakeholders for Skill Development Training have understood the challenges faced during COVID-19 and have adopted the following steps:

1. Strategies adopted by Government

i.   Ministry of Skill Development and Ministry of Human Resource Development (Now Ministry of Education) issued guidelines & instructions to corporates making them mandatory to release stipend to apprentices undergoing skill training in spite of their actual attendance at the Skill Development Training Centre or on-the-job training. This was done with a purpose of support the Skill Trainees / Apprentice Trainees financially during the pandemic situation.

ii. Health & Safety of the trainees are the responsibility of Employer as mandated by statute under Apprentices Act, 1961. During the pandemic, Ministry of Skill Development and Ministry of Human Resource Development (Now Ministry of Education) issued guidelines making Employer responsible for medical expenses of apprentices if they get infected with corona virus.

iii. To encourage Corporates for engaging apprentices for Skill Development, Government of India has allowed corporates to book their expenses on stipend paid to apprentices beyond the minimum stipulated number, under Corporate Social Responsibility (CSR).

2. **Strategies adopted by Industry / Companies**
   i. Consultant / trainers are being hired to make online modules of different trainings or arrange for conducting online trainings through webinars to impart skill training from home when the Skill Training Institutes were shut with Government orders and on-the-job trainings were also hampered.
   ii. Collaborating with peer industries / companies to pool their resources towards skill development training programmes.
   iii. Coordinating with Government agencies to ensure compliances of statutory provisions on Skill Development.
   iv. Formulating policies to absorb some of the trainees / apprentices directly or indirectly in their organization or peer industries after their completion of training so as to help them in employment after Skill Training

3. **Strategies adopted by individuals**
   i. During this pandemic, Individuals have understood the necessity of skilling themselves us and not depend on the Employer for skilling them. It is seen individuals now a days look for various webinars and training programmes available online and voluntarily avail such skill development trainings so as to upskill themselves and remain employable during the pandemic and beyond.
   ii. Individuals are now appreciating & supporting the efforts being taken by their Employer and the Government towards Skill Development Training as it is all in their own interest.

3.0 Suggestions & Recommendation:

3.1 Solutions for Skill Development Trainings during COVID-19:

The following are some solutions to the challenges faced by Skill Development during the pandemic:

1. **Work virtual:**
   The Training Institutions have to migrate to online mode and adopt virtual platforms to run the show digitally from home adhering to the guidelines issued by Ministry of Home Affairs (MHA), Government of India and respective State Government.

2. **E-learning**:
   Online skilling can be done through live sessions using Zoom/Google/Microsoft based platform. It is also possible to explore many mobile applications that support and promote Digital Learning. Many bigger IT companies like TCS are offering their Learning Management Systems (LMS) free of cost to NGOs to facilitate and streamline online deliveries. Other organizations can offer access to such knowledge platforms and online learning resources to facilitate self-learning. The course material can be downloaded and kept for ready reference. The students need not revisit it online every time. COVID-19 has accelerated the adoption of fully digitized approaches to re-create the best of in-person learning through live video and social sharing.

3. **Training through Radio and TV**:
   The Maharashtra government had already sought air time on national television and radio from the

Central government to conduct educational programmes for children residing in areas where online learning could be a problem due to lack of internet access.

4. **Access to digital platform:**
   It is highly important to redirect resources to places with low digital access or where the resources are unavailable. Service providers and companies need to come forward to invest in recharging mobile data packs or internet connections for students from the lower strata.

5. **Access to digital devices:**
   Skill training has to be practical by ensuring that all the training materials and props reach the homes of the students, especially those who live in slums / rural areas. Private companies can come forward to fund smart phones/ tablets as a part of their CSR initiatives to bridge the digital divide. Organizations / NGOs should also come forward and conduct mass drives where people can donate their old laptops, tablets, smart phones or any other mobile devices that can be refurbished and provided to students from poor backgrounds.

6. **Support of Government**:
   It will be highly beneficial if the Government (i) issue instructions and bring required regulations for proper functioning of Telecom companies and incentivize them, if required, so as to improve internet infrastructure and ensure uninterrupted internet access availability across all corners of India (ii) strengthen systems for the recognition and validation of digital learning (iii) increase investment in digital solutions for practical skills development (iv) improve coordination amongst education and training institutions, employment services and local authorities (v) support teachers and trainers to operate in the new environment and (vi) ensures strict compliance of Apprenticeship Act, 1961.

3.2 **Recommendations**:
   1. Beyond the electronic connection, we need to connect emotionally - especially in times of anxiety and uncertainty. The Management is in panic mode as the business are trapped in the tornado of global recession, the workers are in panic mode due to job loss and salary cuts. The future is in fog. But, at this moment of challenging time Industries & Individuals need to come together and collaborate at this testing time to face the challenge and converted it to advantage in favour. The Government needs to extending a helping hand and promote hope not despair.

   2. Doing noting and waiting for normalcy would be foolish as it emerges seems the change permanent. The quicker one adapts to the post-pandemic "New Normal", the better he / she can position himself / herself for the future possibilities. For adapting the existing workforce as well as the future workforce needs to be adequately skilled for the new requirement of the "New Normal".

   3. The entitlement mentality of workforce cannot be nurtured anymore. The individuals have to take up the skill development initiatives themselves without waiting for the Industry or Government. The pandemic has shown how the carpets can be pulled under our feet. The vanity of job security has been evident. Individual's wellbeing is his/her own responsibility. Earlier, the efforts of Industry / Government to skill the work force was not being seriously appreciated by the workforce now the pandemic has taught that workforce needs to appreciate the skill development efforts in their own interest.

4.0   Conclusion:

Every challenge has an opportunity hidden in it. The disruption due to covid-19 pandemic is temporary but the changes would be permanent. The process of change has been expedited and have given birth to new possibilities. But these possibilities would be only for those who embrace these changes. The industries and individual who will adapt well will exist rest will perish. Panic will push further to perish. They both need to understand the requirement of "New Normal" and skill up to meet it so as to welcome the new dawn of change.

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Profitability and Asset Management of public sector Commercial Banking in India

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ABSTRACT

The paper analysis the management of risk based asset for the existence of banking sector in the competitive market. The bank has to inspect their income sources to go through many fluctuation and unexpected external crisis by managing their risk based credit for the survival and bench mark performance for profitability.

This study investigates the impact of credit risk management on the profitability of Indian Public sector commercial banks. Data from 20 commercial banks for the period 2006 to 2019 have been collected and analyzed using fixed regression analysis and panel data analysis. In the model specification, return on asset (ROA) were used as bank profitability indicators while capital adequacy ratio (CAR), bank size (TA, Total Asset) and non-performing loan ratio (NPL) were used as indicators of credit risk management.

The findings indicate that credit risk management has significant impact on the profitability of Indian Public sector commercial banks. The findings also describes that credit risk management does have an impact on profitability of commercial banks. Among the credit risk management, NPL, CAR and TA has a significant effect on ROA, from 2006 to 2019, the relationships between all the proxies are not stable but fluctuating. The study thus recommends focusing on effective credit risk management for commercial banks of India in order to maintain an optimum level of capital adequacy ratio, controls and monitors non-performing loan and increases bank size to enhance financial performance.

Keywords: Profitability, Returns on Assets, Public sector schedule commercial banks, Credit risk management.

1.0 Introduction

The importance of financial systems for economic development is well recognized world wide [King and Levine, 1993; Levine, 1997; Levine and Zervos, 1998; Rajan and Zingales, 1998] as well as in India [RBI, 2000; Bhattacharya and Sivasubramanian, 2003]. Banks are considered to be the mart of the world, the nerve Centre of economies and finance of a nation and the barometer of its economic perspective (Sharma, 1974). Indian banking sector is one of the largest sector in Southern Asian continent which is the mixture of public, private and foreign groups. The public sector banks continue to dominate the banking industry, in terms of lending and borrowing, and it has widely spread out branches which help greatly in pooling up of resources as well as in revenue generation for credit creation. The role of banks in accelerating economic development of the country has been increasingly recognized since the nationalization of fourteen major commercial banks in 1969 and six more in 1980. This facilitated the rapid expansion of banking in terms of its geographical reach covering rural India, in turn leading to significant growth in deposits and advances. Eventually, however, the government used banking sector to finance its own deficit by frequently increasing cash reserve ratios (CRR) and statutory liquidity ratio (SLR).

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This, in turn, affected the resource position of commercial banks adversely, restricting their lending and thereby the ability to generate profits. Besides, inefficiency and lack of competition caused the non-performing assets in the public sector banks to rise from 14 percent in 1969 to 35 percent in 1990. This problem had to be tackled during the nineties by undertaking an array of financial reforms.

The banking sector which persist its stability during South East Asia crisis in 1997 encouraged the government to review the progress of banking sector reforms and chart out the programme of financial sector reforms necessary to strengthen the Indian financial system for global competition. The ROA of the scheduled commercial banks which has negative figure during 1993 turned to be positive at 0.81 percent in 1998. By 1997, almost all public sectorbanks achieved the minimum capital adequacy norms of 8 percent. The gross and net NPAs of banking system as a percentage of advances had dec1ined to 16 percent and 8 percent respectively as on March 1998. In terms of percentage of total assets, gross and net NPAs have declined to 7 percent and 3 percent as on March 1998. The percentage of net NPAs to net advances of public sector banks has declined from 14.4 percent in 1994 to 8.5 percent by 1998 (Purohit and Jeevraj, 2012). Almost 80 percent of the businesses are still controlled by public sector banks (PSBs) which dominate the commercial banking sector. The recent statistics of RBI estimates that the gross NPA ratio of banks may rise to 4.4 percent by March 2014 as compared to 3.42 percent in March 2013 and NPA ratio was 2.94 percent in March 2012. The implementation of Securitization and Reconstruction of Financial Asset and Enforcement of Security Intersect Act (SARFAESI) in 2002 has helped many banks in debt recovery. Assets Reconstruction Company (India) Limited (ARCIL) set up in 2003 had provided a major boost to the efforts to recover the NPAs of the banks.

Banks started to implement the Basel II norms since March 2007. The Basel II framework has been designed to provide operations to banking system for determining the capital requirements for credit risk, market risk and operational risk and enable banks/supervisors to select approaches that are most appropriate for their operations and financial markets. After adequate skills are developed, both at the banks and at the supervisory levels, some banks may be allowed to migrate to the internal rating based (IRB) approach (Reddy 2005). Since March 2009 all commercial banks excluding regional rural and local banks became Basel II compliant which places the Indian banks on the international standard and provides a confidential base. As per Basel II norms, Indian banks should maintain tier I capital of atleast 6 percent. Even the G-10 countries are finding it difficult to implement the Basel II accord in all the banks (Goyal, 2010). Committee on Financial Sector Assessment, Mohan Committee (2009) had suggested significant measures to improve the stability and resilience of Indian financial system. The Basel III capital regulation has been implemented in India from April 1, 2013 onwards in phases and it will be fully implemented by March 31, 2019. The latest round of reforms published by the Basel Committee in December 2017 has implementation timelines stretching up to 2022. These norms lay more focus and importance on quality, consistency and transparency of the capital base. According to Iqbal & Mirakhor (2011) argued that existence of a strong risk management process can help the private and public banks to minimize exposure to risks and can enhance the competitive ability of the bank in the market. Psillakiet al., (2010) argued that effective management of credit risk exposure banks not only support the viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation of capital in the economy

2.0 Review of literature

Several researchers have also dug into these topics Bourke (1989) & Molyneux & Thornton (1992) found there exists a relationship between liquidity and profitability of banks while Berger in 1995 in his empirical study for U.S. banks in the 1980s, there was a strong positive relationship

between capital-assets ratio and profitability under the condition he considered the relationship should be negative. Sergio (1996) studying non-performing loans in Italy found an increase in the riskiness of loan assets was rooted in a bank's lending policy adducing to relatively unselective and inadequate assessment of sectoral prospects. Business cycle could be a primary reason for banks non-performing loans. But the increase in bad debts as a consequence of recession alone was not empirically demonstrated. Das and Ghosh (2005) analysed the interrelationships among credit risk, capital and productivity change in the Indian context, using the data on state-owned banks (SOBs) for the period 1995– 2001. Found that higher productivity leads to a decrease in credit risk and also there was a positive relation between productivity and bank capitalization. Das et al., (2006) investigated the Indian commercial banking for 1992–2002 using multivariate analysis based with bank size, ownership, capital adequacy ratio, non-performing loans and management quality. The empirical results also showed that technically more efficient banks were having less non performing loans.

Omprakash et al., (2008) compared Indian banking sector for 1999–2003. The study showed that SBI and its group which have the highest efficiency and capital adequacy ratio was found to have a significant positive impact on efficiency. Ara et al., (2009) have found the positive relationship between credit risk management and profitability of commercial banks in Sweden. Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya and found that banks' profitability is not affected by credit risk management. When it comes to both credit risk and liquidity risk, Kolapo, et al., (2012) showed that credit risk management is positively related to profitability of banks in Nigeria. Dhanapal and Ganesan (2012) examined factors influencing the profitability of public sector banks in India for 2006- 2011. The stepwise regression reveals that there was a significant relationship between profitability, NPA to total assets and ROA were the key factors as they have highest positive coefficient. Achsania Ruziqa (2012) examined the impact of credit and liquidity risk on bank's financial performance. The study especially focused on Indonesian conventional bank during 2007– 2011. The results showed that credit risk had negative significant effect on ROA and bank size was only found to have negative significant while credit risk and liquidity ratio was found to have insignificant impact on NIM. Yasser et al., (2013) tested the performance of Indonesian banks in the most-stable period, 2005–2007, after having the worst crisis in the Indonesian bank's history, the Asian Financial Crisis 1997–1998. By using ROA, ROE and net interest income to total asset (NIITA) as the proxies for bank performance and non performing loan (NPL) as the proxy for bank efficiency, the study investigated 25 Indonesian banks for three consecutive years and applied multivariate regression analysis to test the proposed hypotheses. The results revealed the bank characteristics play important roles to determine the bank's performance measurement; however these variables have less influence on the bank efficiency measurement.

3.0 Gap

The above studies apprehended the importance of credit risk management and profitability for the sustainability of commercial banks.However the studies are not exhaustive and lack system wide analysis and the decision making orientation was altogether missing. The above studies have failed to clearly expose the relationship of credit risk management and profitability of commercial banks.Most of researchers have focused on one or several countries and showed different results. However, no researcher has been done on the Indian Public sector banks. Research on Indian commercial bank engaging risk management and profitability has not been developed until now. Indian bank had maintained stability during global financial crisis through reforms and it will create a benchmark for future research.

4.0 Objective of the study

The objective of the present study is to analyze the effect of risk management practices and profitability of selected public sector commercial banks in India during the period 2006-2019.To attain this objective, the study initially examine the relationship between credit risk management and profitability indicators.Capitaladequacy ratio (CAR) and non-performing loan ratio (NPA) are the indicators of credit risk management and ROA represent profitability. The study will checkthe stability over time of such relationship to find whether therelationship is fluctuating or stable.

5.0 RESEARCH METODOLOGY

Data

Data from secondary sources have been used in this study for analysis purposes. Data has been collected from "Basic Statistical Returns of Scheduled Commercial Banks"published by Reserve Bank of India (RBI) on an annual basis. The research will cover 20 public sector commercial banks which are continually registered in the range period of the research from 2006-2019 was included in the study. Data will be analysed using both descriptive and regression analysis. For regression analysis, the fixed effects were taken into consideration.

The model was proposed in this research is discussed below. Return on Assets can be predicted from the banks' size and risk management. Risk management will be measured by Non Performing Loan and Capital Adequacy Ratio. In a mathematical expression, it may state:

$$ROA = f(Size, CAR, NPL)$$

Whereas,

ROA = Return on Assets as firm's profitability.

CAR = Capital Adequacy Ratio as firm's capital to risk management.

NPL = Non-performing Loan, Loan level that close to default as risk management.

TA = Total Assets, representing firm's size.

The result and discussion

Table i. Descriptive statistics

Variable	Mean	Std. Dev	Min	Max
ROA	-0.16	1.03	-3.91	2.61
CAR	2.49	0.15	0.69	2.73
NPL	7.05	1.58	2.61	11.18
TA	12.11	0.90	9.85	15.12

Source: Calculation based on data compiled from 2006-2019.

In this paper the researcher used logarithm natural for all the variables as a standardization process.Profitability was measured by using Return on Assets. This ratio measures return on assets employed or the efficiency in utilization of assets. It is arrived at by dividing the net profit by average assets, which is the average of total assets in the current year and previous year. This ratio can be increased by firms either by increasing profit margins or asset turnover but they can't do it simultaneously because of competition and trade-off between turnover and margin. Higher return on asset means greater returns earned on assets deployed by the bank and it is one among the guidelines of RBI for balance sheet analysis of banks. As per Basel-II norms, the ROA should be more than one per cent (Ghosh, C.R. et al; 2004). In accordance with our result, on an average public sector banks had negative 0.16 returns on assets for 2006 through 2015. It registered a low of -3.91 to a high of

2.61.

CAR is the ratio of capital funds to risk weighted assets (both on and off balance sheet) expressed as a percentage. The capital funds comprises of Tier-I capital (shareholders equity and retained profits) and Tier-II capital (supplementary capital) and Tier-III capital (subordinated debt with a minimum maturity of two years). This criterion was suggested by Basle-II committee, which came into effect in March-2005. The one important parameter that essentially relates to the bank's ability to sustain the losses due to risk exposures is the bank's capital. The intermediation activity exposes the bank to a variety of risks. Even the big banks collapse, due to their inability to sustain the risk. Considering this, it is highly essential to examine the capital vis-a -vis the risk weighted assets. This is the capital to risk weighted assets ratio (CRAR) as given by the Basle Committee. The statutory prescription for CRAR is 9 percent, which has been well surpassed by most banks. The attainment of the minimum capital adequacy ratio ensures the soundness and financial health of the banks. It measures the ability of a bank in absorbing losses arising from risky assets. The higher the value of this ratio, better the financial health of a bank. On average, public sector banks had 2.49 Capital Adequacy Ratio to manage the risk of its services. However, during 2006 to 2019, there are banks which lowered its CAR to level 0.69 or maintained it at level of 2.73.

The improvement in the financial health of the banking system is reflected in declining share of NPAs in the advances and assets of all the bank groups. According to Kumar Sanjeev (2010) the measure of non-performing assets (NPAs) explains the efficiency in allocation of resources made by the banks to productive sectors. The problem of NPAs arises either due to bad management by banks or due to change in business cycle. Among the several channels of recovery available to the banks dealing with non-performing loans (NPLs), the Debt Recovery Tribunal (DRT) and the SARFAESI Act have been most effective in terms of amount recovered. Non-Performing Loan, which should be avoided were on 7.05 in average. The lowest level of NPL for 2006 to 2019 was 2.61 and the highest was 11.18.

According to Isik and Hassan (2002), the size of the bank can be an important driver of the variation of efficiency across banks.Bank size accounts for the existing economies and diseconomies of scale in the banking market (Athanasoglou, Brissimis, & Delis, 2008). Larger banks tend to be more active in markets, have a greater product and have better possibilities for risk diversification (Lehar, 2005).Size of the firm was measured using its total assets. Higher the banks' total assets, the bigger its firm size. The study found that there was a huge gap between the smallest bank and the largest bank in term of their total assets. The smallest size was 9.85 and the biggest size was 15.12. The average size of banking total assets was 12.11.

6.0 Stationarity Test

Stationary test was conducted for the series included in the study. This is done in order to avoid spurious regression. Spurious regression refers to the regression that tends to accept a false relation or reject a true relation by flawed regression schemes (Chiarella & Gao, 2002).

Table-2 Result for ADF test

Variables	ADF - Fisher Chi-square	ADF - Choi Z-stat	Prob
ROA	137.244	-8.7145	0.00
CAR	146.407	-9.39481	0.00
NPL	90.7093	-6.43119	0.00
TA	76.3911	-5.65182	0.00

Source: Calculation based on data compiled from 2006-2019.

Table 2 reports the results of unit root tests. The null hypothesis of a unit root at the zero level was accepted for all the variables using Augmented Dickey-Fuller (ADF) test. The table reveals all the variables were stationery at one percent.

Figure 1 ROA for panel public sector banks
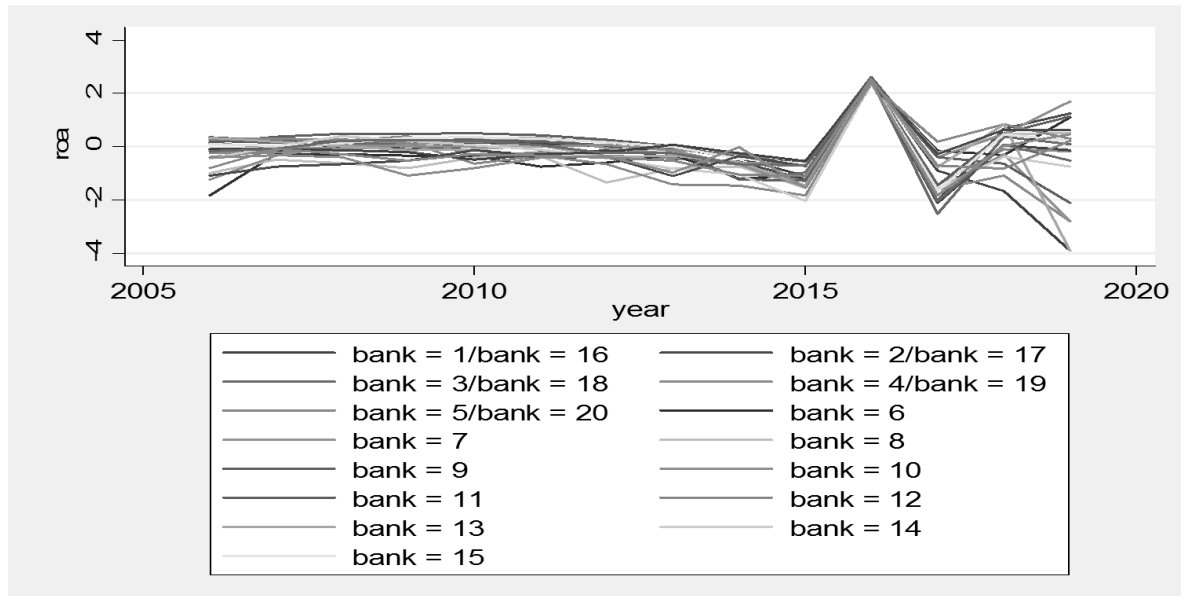
Source: Calculation based on data compiled from 2006-2019.

From the trend figure 1 of ROA for different bank are found to be never constant, and always in change constant it fluctuated among positive and negative. The figure observe a large waves during 2016-2017; this may be largely on account of a massive flow of funds into the banking system after the demonetization of November 2016.These lead us to infer that our variables are more aligned in periods of high instability.

7.0 Multicollinearity Test

Hypothesis: significant association between the variables

Table 3 Correlation Matrix for the regression

	CAR	NPL	TA	ROA
CAR	1			
NPL	-0.2252	1		
TA	-0.0085	0.8346	1	
ROA	*-0.1048*	*0.0298*	*-0.0562*	1

Source: Calculation based on data compiled from 2006-2019.

Multicollinearity is a situation where the explanatory variables are nearly linear dependent (Jurczyk, 2012). From table 3 the highest correlation among all the variables is -0.1048 which is the correlation between NPL and ROA. Researchers always prefer an absolute value larger than 0.8 to be enough to cause multicollinearity (Studenmund, 2011). Considering this the study concludes that

there is no problem of multicollinearity among our variables.

8.0 Model specification

The Hausman test is used for model misspecification. In panel data analysis (the analysis of data over time), the Hausman test can help to choose between fixed effects model and random effects model. The null hypothesis is that the preferred model is random effects. The alternate hypothesis is that the model is fixed effects; there is a correlation between the unique errors and the repressor in the model. The null hypothesis is that there is no correlation between the two.

Hypothesis: fixed effects (correlated errors) vs. random effects for panel data

Tabl1-4 HausmanAnalysis

	FIXED	RANDOM	DIFFERENCE	S.E.
CAR	-0.5657067	-0.4073754	-0.1583314	0.1738735
NPL	0.2996403	0.1368994	0.1627409	0.0655759
TA	-0.82355	-0.2652847	-0.5582653	0.2139056
chi2(3)	**7.42**	**Prob**	**0.0596**	**Prob>chi2**

Source: Calculation based on data compiled from 2006-2019.

Table 4 reveals that null hypothesis cannot be rejected for all chosen levels of significance, since 0.0596<0.10. Hence the study adopts the fixed effect model. Hausman test would almost never reject the null hypothesis for small values of the nominal size when constant term is used in the models. And this applies even if the alternative hypothesis is actually true, which explains the 0 values of the power for nominal size 0.01 and 0.05. Even for size 0.10, the power remains smaller than the nominal size.

9.0 Regression Analysis

Hypothesis: The association between CAR,SIZE and NPLR on ROA of public sector commercial banks.

Table-5 Fixed-effects regression

Group variable: bank		Number of obs		280	
R-sq:		Number of groups		20	
within = 0.0518		Obs per group: min		14	
between =0.0373		avg		14.0	
overall =0.0197		max		14	
		Wald chi2(3)		14.51	
corr(u_i, Xb) = -0.7854		Prob> chi2		0.0000	
	Coef.	robust std. err	t	P>|t|	[95% Conf Interval]
CAR	-0.5657067	0.23711	-2.39	0.028	-1.061984 -0.0694297
NPL	0.2996403	0.0798537	3.75	0.001	0.1325046 0.466776

TA	-0.82355	0.1972526	-4.18	0.001	-1.236404	-0.4106956
CONS	9.105806	1.824248	4.99	0.000	5.287611	12.924
sigma_u	0.41237664					
sigma_e	1.0296464					
rho	0.13823028	(fraction of variance due to ui)				

Source: Calculation based on data compiled from 2006-2019.

'Rho' (intraclass correlation) represent that 13.8% of the variance is due to differences across panels. The errors ui are correlated by -0.7854with the repressor in the fixed effects model. The table showed significant relationships between the independent variables to dependent variable, Return on assets. The p value is < 0.05; hence the model is fit. There is a significant relationship between the bank size, capital adequacy ratio, and their non-performing loan to their profitability.

The regression analysis shows that the p-value for CAR is 0.028 and for TA and NPLR is 0.001. Under the condition that the level of significance is 5 percent, hence there is association between CAR NPA, TA and ROA. To control heteroscedasticity robust analysis was adopted. The study although finds significant the coefficient of CAR, it is negative. Thus, it may be realized that CAR could negatively affect the bank profitability. This negative association may be in order to keep a higher CAR banks will restrict their activities whichcould be negatively associated with bank development and profitability.This result is in line with the findings of Alshatti (2015); Poudel (2012); Zou and Li (2014); and Ndoka and Islami (2016) who found negative linkage between CAR and bank profitability. Abdelrahim (2013) found a negative impact of bank size on the effectiveness of credit risk management. TA has a negative effect on ROA and observes highly significant. Larger the assets more deposits a bank uses, the lower the bank's profitability. This may be due to the facts that banks offer high interest rates in order to attract more deposits which may reduce their profitability.

NPL and ROA have the positive association which indicates that lower NPL is related with the lower risk and deposit rate, meaning a positive impact on banks' operations. Alshatti (2015) positive effect of non-performing loans/gross loans on banks' financial performance during the period of 2005 to 2013 using thirteen commercial banks of Jordan.The negative relationship between bank size and ROA could be due that the larger thebank is, the more managerial inefficiencies and risks it will face, which could inversely affect the ROA of commercial banks.

To test the stability of those relationships, the study used further time horizon regression analyses.

Hypothesis: The association between CAR, TA and NPLR and ROA is stable over time of study at 5% level of significance.

The calculated p value holds on to the null hypothesis of statistically there is significant difference in the mean ratio of Return on Asset Ratio among the year wise analysis.The year wise analysis in table 6 shows that the p-value for CAR is 0.016 and for TA is 0.00 depicting the level of significance is 5 and 1 percent respectively; hence there is negative association between CAR, TA and ROA. NPL shows the insignificant association with ROA this may be due that higher the NPL is, the less the available capital for banks to invest over the time zone. Adeusi et al. (2014) evaluated inverse relationship of (NPL) risk management practices and banks' financial performance in Nigeria and Aduda and Gitonga (2011) for Kenya bank.

Table-6 Year-Wise Analysis

	Coef.	robust std. err	t	P>|t|	[95% Conf	Interval]
Group variable: bank			Number of obs		280	
R-sq:			Number of groups		20	
within =0.7209			Obs per group: min		14	
between =0.0275			avg		14.0	
overall =0.1315			Max		14	
			Wald chi2(3)		39.40	
corr(u_i, Xb) = -0.9118			Prob> chi2		0.0000	
	Coef.	robust std. err	t	P>|t|	[95% Conf	Interval]
CAR	-0.7101488	0.2916315	-2.44	0.016	-1.284585	-0.1357124
NPL	-0.0521943	0.0843195	-0.62	0.536	-0.2182812	0.1138927
TA	-2.659438	0.4077966	-6.52	0.00	-3.462689	-1.856187
2007	0.8285363	0.2068045	4.01	0.00	0.4211865	1.235886
2008	1.467942	0.2623276	5.6	0.00	0.9512267	1.984658
2009	2.030444	0.323045	6.29	0.00	1.394131	2.666756
2010	2.56843	0.4029105	6.37	0.00	1.774804	3.362057
2011	3.097669	0.4818812	6.43	0.00	2.148491	4.046847
2012	3.297009	0.5394296	6.11	0.00	2.234476	4.359541
2013	3.491583	0.6053563	5.77	0.00	2.299192	4.683974
2014	3.519304	0.6710569	5.24	0.00	2.1975	4.841108
2015	3.274793	0.7008681	4.67	0.00	1.89427	4.655317
2016	7.009999	0.7421949	9.44	0.00	5.548073	8.471926
2017	3.483168	0.7512749	4.64	0.00	2.003356	4.96298
2018	4.767645	0.7922409	6.02	0.00	3.207141	6.328148
2019	4.352186	0.8043723	5.41	0.00	2.767786	5.936585
CONS	31.08865	4.485008	6.93	0.00	22.25438	39.92292
sigma_u	1.983875					
sigma_e	0.573255				: F(19, 244)	3.51
Rho	0.922938	(fraction of variance due to u_i)			Prob> F	0.0000

Source: Calculation based on data compiled from 2006-2019.

Compared with the regressions of dependent variable ROA seems to experience large waves during 2016. The coefficients are not consistent across banks for different periods, indicating that there are significant differences among the time periods on these aspects. Therefore, the relationships between CAR, TA, NPLR and ROA are not constant and always changing.

The coefficients of size are negative and significant during the study period indicating that larger banks are less profitable inspite of competition and financial crisis. Merging or acquiring bank may increase the bank size but lessen the bank profitability. CAR and ROA has negative association this may be due that banks have begun to apply Basel II provisions from March 31, 200 7while a slight extending further than this date move to the Basel II framework with effectfrom March 31, 2009". Banking risk management& regulation was entirely executed on April 2009 to retain "a Capitalto Risk Weighted Assets Ratio (CRAR)" at '9%'.The relationships between NPLR and ROA

are negative but not significant.

To check the reliability of time fixed effects model the study applied Post estimation test of parameters. It is a joint test to see if the dummies for all years are equal to 0.

Test parameters	values
F(13, 244) =	45.01
Prob> F	0.0000

Source: Calculation based on data compiled from 2006-2019.

The Prob>F is < 0.05, so we reject the null that the coefficients for all years are jointly equal to zero, therefore time fixed effects are needed in this case for better result.

Hypothesis: The association between CAR and NPLR and ROE is stable between / among the selected public sector commercial banks.

Table-7 Bank Wise Analysis

Source	SS	df	MS	Number of obs	280
Model	23.1557414	22	1.0525337	F(22, 257)	0.99
Residual	272.464105	257	1.06017162	Prob> F	0.4739
Total	295.619846	279	1.05956934	R-squared	0.0783
Root MSE	1.0296			Adj R-squared	-0.0006

Roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.Interval]	
CAR	-0.56571	0.476137	-1.19	0.236	-1.50333	0.371919
NPL	0.29964	0.100806	2.97	0.003	0.101129	0.498152
TA	-0.82355	0.250755	-3.28	0.001	-1.31735	-0.32975
Allahabad Bank	-0.79041	0.557827	-1.42	0.158	-1.88891	0.308081
Andhra Bank	-0.89695	0.572993	-1.57	0.119	-2.02531	0.231413
Bank of Baroda	-0.4532	0.441807	-1.03	0.306	-1.32323	0.416819
Bank of India	-0.58613	0.466689	-1.26	0.21	-1.50515	0.332893
Bank of Maharashtra	-1.39999	0.618419	-2.26	0.024	-2.6178	-0.18217
Canara Bank	-0.55084	0.460132	-1.2	0.232	-1.45695	0.35527
Central Bank of India	-1.02409	0.512594	-2	0.047	-2.0335	-0.01467
Corporation Bank	-0.76734	0.563548	-1.36	0.175	-1.87709	0.342424
Dena Bank	-1.29616	0.653765	-1.98	0.048	-2.58358	-0.00874
Indian Bank	-0.63598	0.548022	-1.16	0.247	-1.71516	0.44321
Indian Overseas Bank	-0.93298	0.544731	-1.71	0.088	-2.00568	0.139726
Oriental Bank of Commerce	-1.05449	0.543519	-1.94	0.053	-2.12481	0.01583
Punjab And Sind Bank	-1.46231	0.638085	-2.29	0.023	-2.71885	-0.20577
Punjab National Bank	-0.17839	0.450922	-0.4	0.693	-1.06636	0.709587
Syndicate Bank	-0.83643	0.526584	-1.59	0.113	-1.8734	0.200536
Uco Bank	-1.04734	0.553592	-1.89	0.06	-2.13749	0.042814
Union Bank of India	-0.6481	0.492959	-1.31	0.19	-1.61886	0.322651
United Bank of India	-1.53589	0.62877	-2.44	0.015	-2.77408	-0.29769
Vijaya Bank	-1.27867	0.595041	-2.15	0.033	-2.45045	-0.1069

cons	9.974589	2.953672	3.38	0.001	4.158106	15.79107

Source: Calculation based on data compiled from 2006-2019.

The calculated value of F is lesser than the table value. Hence, Null Hypothesis is unable to be rejected. The table shows that statistically there is no significant difference in the mean Return on Asset Ratio among the select banks.Finally, the coefficients on CAR,TA, NPL and ROA are consistent across banks ofdifferent size, indicating that effects of these variables on bank profitability are the same acrossbanks of different size.The mean coefficient of NPL and TA shows the significant results. Among the banks Bank of Maharashtra, Central Bank of India, Bank of India, Dena Bank, Punjab and Sind Bank, United Bank of India and Vijaya Bank showed significant association on ROA. Remaining banks exhibited lack of significant relationships. This may be due to neglecting the impact of the systematic risks during the financial crisis. Table 7 shows that CAR and ROA and CAR and ROA is not significant. This could due to the controversial theoretical prediction of the relationship between CAR and banks' profitability. This result is in line the finding reported by Abdelrahim (2013) who found capital adequacy have an insignificant impact on the effectiveness of credit risk management of Saudi Banks

The result found that there is a negative relationship between NPL and ROA. This is in accordance with most of the previous researches conducted in one specific country. The higher the NPLR is, the less the available capital for banks to invest indicates lower asset qualities. Nawaz et. al. (2012) profitability is inversely influenced by non-performing loan and deposits thus exposing them to risk of illiquidity and distress. The authors recommend for the management to be cautious when setting up the credit policy as not to affect profitability. TA result showed a negative association with ROA this may be due to medium and large banks that have more loans tied up to totalasset are less profitable, larger banks should not rely too much on loans to generate profits since more percentage of loans could possibly reduce their profitability. While for smaller banks has lesser asset funds to generate profits.

Moreover, coefficients are negative for all public sector banks. these could be explained by the contradictory prediction of the relationship between CAR, TA and NPL and ROA. Higher CAR and TA could internalize the risk for stakeholders and hence banks face lower cost of funding andfurther support for higher ROA.

To conclude the result strongly declares that there is strong association between risk management and profitability of the commercial banks.The findings of the study showed that the public sector commercial banks under consideration have been practicing poor credit risk management.The overall findings of this study conceal with Kaaya and Pastory (2013)study for Tanzania banks, Zubairi and Ahson (2014) for Islamic banks & Poudel (2012) for Nepalese banks showed that credit risk indicators have a negative correlation with bank performance, meaning that an increase in credit risk tends to lower bank performance. The study recommends that banks have to maintain a substantial amount of capital reserve to absorb credit risk in the event of failure, as well as to enhance lending criteria, portfolio grading and credit mitigation techniques to reduce chances of default.

10.0 Conclusion

The findings from credit risk management indicators CAR and NPL reflected a strong association with the profitability of public sector commercial banks. That conforms that better the credit risk management is, the higher will be the profitability of commercial bank. Thus efficient management of risk by banks has influence on their accounting performance.The banks need to allocate more funds to default rate management and try to maintain an optimum level of capital

adequacy to reduce risk on loans and achieve maximum performance.

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Impact of Covid-19 on IOT (Internet of Things)

Risheek Bajaj* and Ritika Kapoor**

ABSTRACT

Internet of things is a the most influential mode of using our devices with the help of the giant network and technology connecting all our appliances and devices with the help of sensors which collects data securely and analyzing the data for our benefit.

IoT is doing wonders in post covid environment where the working is getting easier and quicker when everyone is bound to work from home and managing office as well as home from mostly a single place. It is redesigning our lifestyle and now our lives will be changed on the basis of how we use our technology and get linked with it making our lifestyle better. Our idea is to analyse the data pre-covid, in-covid and post-covid and how it is going to improve our overall life structure. The critical working of IoT in ensuring business continuity and working across the premises as well as remote working of employees. IoT will help us in detecting and helping people in following Covid protocols set by the govt and help us form controlling the spread of the virus as people can have a IoT connected device which will tell them who all came in contact in case of Virus attack. Also, IoT will support us in many other forms. We have to keep our mind open to the changes that comes with iot in order to experience complete usage of Internet Of Things . New and better ideas will be needed in future to help iot to grow..

Keywords: IOT, Internet of Things, Covid, Pandemic, Technology, Market, Precautions.

1.0 Introduction

The Internet of Things is revolutionizing the world clearing vision and creating new paths and industries for people to work on. The start of IoT identified in Smart watches, smart appliances which can be controlled remotely ultimately making our lives easier. These kind of projects got postponed and stopped because of the pandemic but now IoT got rise in health care by which health care sector is able to provide care in an effective manner. Now IoT is spreading its roots in all the other sectors per say smart watches and smart id cards having geofencing to follow the pandemic protocols.

IoT is also used in other safety devices which can be IoT active to keep us safe and secure in the times of pandemic which stresses that the pandemic isn't over yet and people are now forced to go out to avail all the emergency services. Its helpful in every way directly or indirectly, if the person is working remotely or physically IoT proved to be of huge help.

In upcoming years, as we have seen from where the IoT started and its growth is going to go way far. My hypothesis establishes the use IoT in ways we never imagined and its increasing growth rate as it is going to grow much faster in the future. It provides different industries, IoT in coming days will be seen in each and every possible industry one could think of. It will not just support human being but also will be powerful enough to help reduce the work pressure. Humans will now be majorly expected to see the initial functioning and its setup. More than half the world in upcoming years will be connected with IoT, 5G will be the fuel for the growth of IoT industries. There will be more of smart cities, smart cars and will prepare us for any challenge like Covid. With this the part of human handling technology comes in place, where we are majorly required to keep a check on the loops of tech and fraudulent activities

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IOT will also give rise to security and vigilance departments and will turn it into another career perspective.

IoT will definitely change the perspective of people regarding technology and its working. The times in which we grew is going to be majorly different from the times our future generation is going to see technology. They will become even more tech friendly and will know the boon and bane collectively.

2.0 Background or Literature Review

In 1982,modified coca cola vending machine at Carnegie mellon university became the first internet connected appliance,it reports the observer that the newly loaded drinks were cold or not.In 1994 reza raji described the concept of moving small packets of data to a large set of nodes to automate the systems. The field gets its start when bill joy envisioned device to device communication in 1999.

The term "Internet of things" quoted from Kevin Ashton of Procter & Gamble, later MIT's Auto-ID Center, in 1999, though he prefers the phrase "Internet for things". At that point, he viewed radio-frequency identification (RFID) as essential to the Internet of things, which would allow computers to manage all individual things.

When we define the term Internet of Things we can say that it is about internet being connected and making things works instead of people being connected. According to the Cisco System IoT was born somewhere between 2008 and 2009.

Iot gained popularity in 2010 when the information got leaked that Google street view device not only made 360 degree picture but also have data related to people's Wi-Fi and that time Chinese government announced to make IoT strategic priority in their 5years plan.

Then in 2012 theme of Europe's biggest Internet conference LeWeb was the "Internet of Things" and tech magazines started using IoT as their vocabulary to describe the phenomenon.

In October of 2013 IDC published a report that says IoT would be a $8.9 trillion market in 2020 and the term internet of things (IOT) reached the mass, marked awareness when in 2014 January Consumer Electronic Show in Las Vegas was held with iot as its theme.

Pre-covid iot was used in home to turn our air conditioners on and off with smart phone and in cars to provide shortest route and smart watches which track the daily activity. The iot provided the platform to collect and analyse the data and keep the important data and transform the use of technology.

At present, iot is used in hybrid with health care devices, it is the potential life saving technology in the health care industry. It can easily collect data from all the bedside devices and can be using all this to diagnose the problem in real time. This also improves the experience of the patients. This eliminates the chance of mistakes committed during the care taking. Internet of things save time and quickly monitors the devices which helps care takers to monitor and manage patients health saving precious time. Without even actually visiting the patient physically the expert is diagnosing the patient and studying the reports remotely and managing the health care environment efficiently.

3.0 Methods and Materials

The method section of study talks about the data taken of the impact of the Covid- 19 pandemic on the current market and the comparing the market what it was before getting hit by the Covid - 19. After reading a lot of different articles and following news for the longest of times, living with a pandemic in the absence of vaccine. The way people were reacting to it and trying to adjust in whatever ways they could lead to not just the growth in technology but maintenance of safety

protocols. Everybody started prioritizing their visit outside the home and took conscious steps to save them from the prevailing infection. The news related to the impact of covid19 as there is no vaccine and the anticipated vaccine to be expensive so taking precaution is any day a better option and in this time how iot came to help and the things became easier. The material is given on how covid impacts the iot market with regard to the material taken from Gilad David, a technology writer who worked with over 150 tech based giants and produces tech related content and also establishes a thought leadership in content market. Also, picking the sources from IoT Analytics and marketandmarkets Analysis, the data was studied.

Fig 1: Number of connected IoT devices
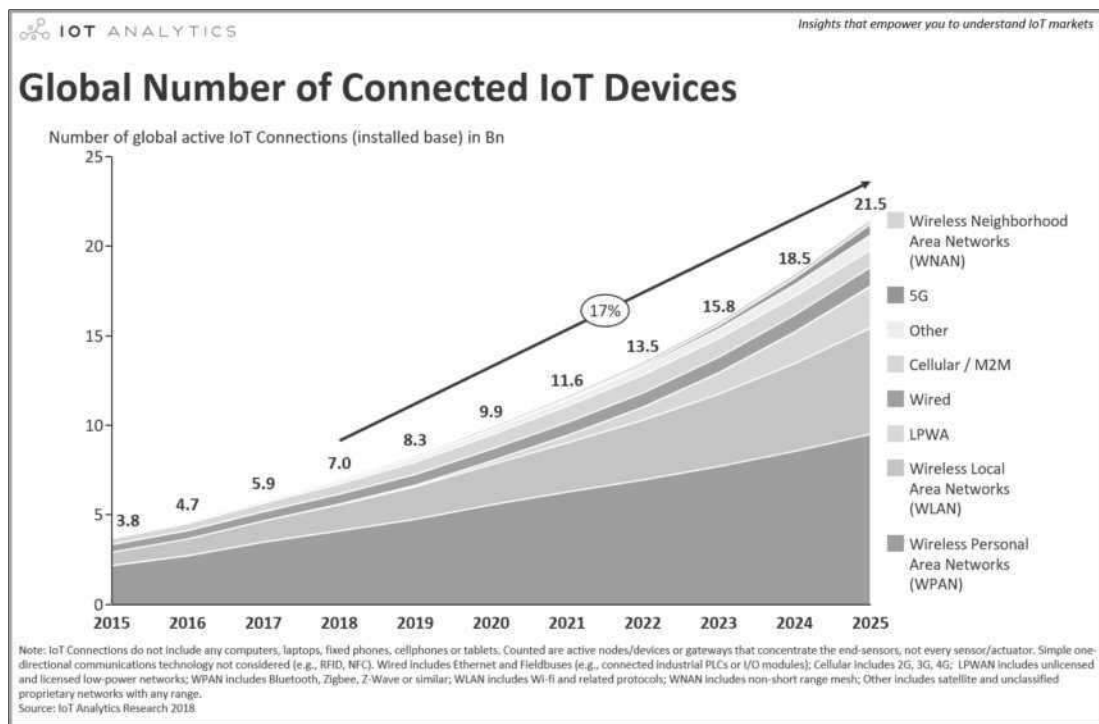
Using the material data present online on how many IoT devices were installed worldwide. In 2018, there were 7 billion IoT devices installed which reached to 26.6 billion in 2019. Which marked the substantial growth of the IoT in just a year, this speaks nothing less than how many devices were getting installed worldwide every second (the precise count is 127). After an unexpected manifold growth, the expert anticipation rolled out an estimate of installation of almost 31 billion devices and by 2021 it will reach up to 35 billion IoT installations worldwide. By the end of 2025, more than 75 billion devices will be connected by the web and related softwares.

With regard to the revenue for the IoT market, in 2016 the global spending in numbers for the IoT market was $737 billion. In 2018 the revue generated by North American Market was $83.9 billion. Whereas, coming to 2020 the global spending reach should be $1.29 trillion. The data for 2021 to 2026 anticipates the global growth, experts estimates that the IoT device market will reach $1.1 trillion. According to the study, the IoT technology will be adopted by 93% of enterprises. 80% of industrial manufacturing companies will adopt IoT technology. An expert analysis says that 90% of cars will be connected to the web through IoT technology. 3.5 billion cellular IoT connections will be installed.

The global impact of pandemic lead to increasing demand for the IoT in Asia pacific countries with high population. The use of IoT predicted to showcase a huge base for the growth of

technology amongst the hit of Covid - 19. Countries like, China and India will keep up the demand for major vertical of IoT. The use of IoT in health-care and utilities is a game changer. Since 2018 the increase in our futuristic thinking lead us to remote monitoring and making infrastructure accessibility during the times of pandemic less.

Fig 2: impact of covid 19 on IoT

IMPACT OF COVID-19 ON INTERNET OF THINGS MARKET, BY REGION (USD BILLION)
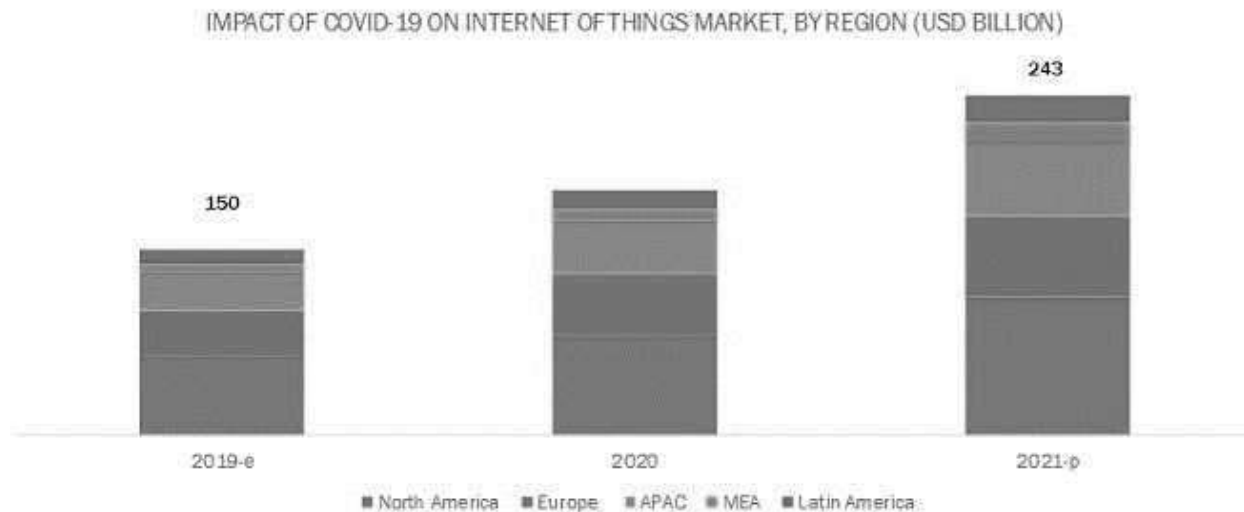
Source: MarketsandMarkets Analysis

4.0 Data and Results

In the initial days of 2020 the impact of Covid -19 was then starting to roll out. The impact of Covid - 19 on Internet of Things was expected to be huge and the market was expected to grow from USD 150billion in 2019 to grow to USD 243 billion by 2021. The compound annual growth according to the forecast was expected to be somewhere around 13%.

The growth of market after the effects of Covid rolling out completely focuses on the factors like remote working, the increased dependency on work from home initiative, attending all the meetings from the different locations, use of smart payment option to work on minimizing the sections of human presence and thus eliminating the human involvement. The Internet of Things proved to be the best way out to carry on the demand and service structure even when the world was hit by a pandemic and nearly everyone was expected to stay indoors and carry on with their lives.

This structure of living never happened, not in 100 years anyone witnessed any such thing which can bring the entire world to a halt and damage the working industry in ways unknown. Our being developed and already existing friendliness with the technology over the years helped us remain afloat and also grow through the pandemic sticking to the protocols of the pandemic.

It was major acceptance that the movement is limited for humans but the work will be done remotely. The companies tried moving a step ahead in transportation of essentials and reducing unnecessary movements.

Every possible way to put technology to an apt use and with this reducing cross infection.

Internet of Things has till this time already entered the market as we never imagined earlier. The Internet of Things entered the major sections like health care, medicine, monitoring, apps, health related all the portal were brought online in direct or indirect ways to re target the working in an

improved manner.

The Internet of Things has a major entry in the market related to health care sector at first so that a lot of supportive softwares were developed, trackers were developed in order to help people through this uncertain situations, helping people to stay protected in their comfort zone and work effortlessly.

No better time to experience the use of technology and see the wonders Internet of

Things was doing in an underlined manner already. The absence of vaccine took it a step ahead in making people realize how technology can be a good friend and help things make easier for us.

Analyzing the data and material present I found out the minute places where IoT secretly kept helping us and we never realized. It took the entire world to turn upside down to put technology to a good use and realize the friend existing in it. The little things which are now even smooth and actions done effortlessly are all a boon due to existence of technology in our lives.

5.0 Discussion

My idea related to iot is that it going to accelerate in upcoming years as there are more upcoming ideas and use In iot like many companies are using proximity sensors for their employees in work places to keep check on the employee following covid protocols even these help people if in case someone get infected with the virus it can be back traced from were it all started and how we can take more precautions. The data collected from iot will help machines to schedule the day. This will also help us to plan the way out of the virus and saving from the spread of covid and we can also stay ahead of it.

Different sectors keeping in mind,

The telemedicine will be able to get help in this as the company will have the past health record of their employee and if they get infected or any other emergency happens then the data can be shared with the hospital by iot.

If we see a work place there will be many devices but to distinguish the person we can use the biometric scanner, for example the person can scan their finger print in any of the device and it will be registered with his name for the day and the server will collect all the data under his name and can provide it later on. If in case the person forgets his device at home then he/she can scan their finger print and data will not get amalgamated or become a mess. This system can raise an alarm if anybody is in close proximity of the infected person.

Lets come back to home from work we know our place is sanitize but you just dropped some of your colleague and you don't know about the sanitization of your automobile so we can set up some UV lamps which kills bacteria and harmful viruses so our device will work in such a way the on installation it will tell how to set up and there are no blind spot which are kept from virus to stay at par.

When it get installed then we can check that there are no person in the vehicle through IoT so nobody gets harmed due to the adverse effects of the radiation and it can do its work properly to keep us safe. After the radiation sanitization, there will be a fail safe as the device is harmful so in any malfunction we cant take any chance it to go off on us so after completing its job its cover will be deployed and can only be removed only when we give it the command to do so.

In our homes we can install such devices and sensors to see and track the quality of air and when it goes high and get dangerous for us then the air purifier gets activated and when we reach home and wanna relax we can set up the sanitizer and air purifier system to turn off before we reach our home and in hospital also we can set up the UV devices to scan and clean the place before the

patient or any other person goes in.

With iot the infected person who is in self isolation we can track his place of visit and maintain his record. If he/she need something to his location we can send drones to him without any risk of cross contamination which keeps us safe and help the person also. There are many more ways on how IoT can grow and make our life much more convenient.

The Internet of Thing and the boom can be used right now and also in the upcoming years in an excellent and smooth manner. The uses of Internet of Things is done in places which are not even noticed by a layman at first.

6.0 Conclusion

In the current scenario of pandemic, there are many IoT projects which got canceled. Later we realized the use of making things automated in order to feel safe and making a risk free environment. It also provides us with the clarity in vision with the working of IoT. This is a future in which we are trying to replace machines with people making things contactless to stop the spread. As we move forward we have seen recession, economic drop and financial problems but IoT created new ways of income by creating new industries and introduced new verticals which gave rise to fresh idea accommodating technology as a great Athenian philosopher said 'Necessity is the mother of all inventions". This pandemic changed our perspective to see the world and give a boost to IoT sector and its technology to up rise and bring change in the world. AI and machine learning with IoT will be the new normal for the futuristic us

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Analysis of Cyber Security Infrastructure in Current Scenario

Anukool Bajpai* and Brahampal Singh**

ABSTRACT

Immense need for cyber security infrastructure to ensure the developing ICT infrastructure in present day information society needn't bother with any accentuation. ICT infrastructure is the string through which all basic public infrastructures are woven together. Presence of a reliable cyber security infrastructure is a precondition for all E-administration and E-business activities being taken world over. Endeavor is being made in this paper to introduce a preview of this infrastructure, likely patterns and goals that rise up out of this examination in Indian setting.

Keywords: *Cybersecurity; Infrastructure; Information and Communication Technology; Threats; cyberspace.*

1.0 Introduction

Basic infrastructures are irreplaceable for the cutting edge society (for example banking-money, vitality, communication, trade, medical care, transport), and their inability to meet a normal assistance level may significantly affect the general public. A rising issue is that infrastructures, as of recently free, are getting snared into network-of-networks. It is this interconnection where the information and communication advances assume a significant job. Following passage from the chief request of President George W. Hedge gave on 16 October 2001 sums up the main point of interest in the result of 9/11 attack on the exchange tower USA "The information technology transformation has changed the manner in which business is executed, government works, and public protection is led. Those three capacities currently rely upon an associated organization of basic information infrastructures. The assurance program approved by this request will comprise of persistent endeavors to make sure about information frameworks for basic infrastructure, including crisis readiness communications, and the physical resources that help such frameworks. Security of these frameworks is fundamental to the telecommunications, vitality, budgetary administrations, fabricating, water, transportation, medical care, and crisis administrations areas".

1.1 Threats to ict infrastructure

Intends to abuse, twist, disturb, and crush information assets run from programmer devices to gadgets, for example, electromagnetic weapons; coordinated vitality weapons; HPM (High Power Microwave) or HERF (High Energy Radio Frequency) firearms; and electromagnetic heartbeat (EMP) guns. The attack against an information infrastructure can be done with both physical actualizes (hammer, escavator, bomb, HERF, HPM) and cyber-based hacking devices (Chaturvedi et al, 2007). The equivalent is valid for the objective: It can be cyber, comprising for instance of information or applications on an organization, or physical, for example, PCs or a telecommunications link. Infrastructure danger framework recognizes four kinds of information attack, every one of the four of which include the vindictive utilization of the information infrastructure either as an objective or as a device.

2.0 Literature Review

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The Entrepreneurship Development Cell organizes many entrepreneurship development programmes to eliminate those who do not possess the basic capabilities for entering into business ventures, weed out such persons and help develop latest facilities of those who possess potential for becoming entrepreneurs.

2.0 Need for the Study

Government spends huge amount for the purpose of developing entrepreneurs in India. Most of the funds are funds are spent through DST (Department of Science and Technology), AICTE (All India Council for Technical Education), UGC (University Grants Commission), etc… to the educational institution to set up Entrepreneurship Development Cells. The role and functions of Entrepreneurship Development Cells are to develop the entrepreneurs in the colleges and universities. This study focuses to identify the consequences of Entrepreneurship Development Cells of Colleges at Madurai District in the present scenario

3.0 Statement of the Problem

The entrepreneurs are compelled to face the many challenges in the modern business world. To bring a start up for the product, it is a very big task for the entrepreneurs. There is a rapid development   in small scale industries like manufacturing and service sectors. The basic initiation is the process of making a prospect into an entrepreneur is identification of skilled capable youngsters who possess the courage, confident and willingness to face and take risks. This study analyses the roles and functions of Entrepreneurship Development Cells in Arts and Science Colleges of Madurai District, which were created with an intention of promoting entrepreneurship among the students.

4.0 Review of Literature

1. Saif Siddiqui "In the rural area, the development plan should be made on the basis of vocational pattern and a plan should not be imposed on all segments".
2. Srinivas, G. "the importance of entrepreneurial education among the students is to spread the message of entrepreneurship as one of the career option, teachers and mentors are very important to play the role".
3. Neal E. Thomberry "Large organizations focused on the term called corporate entrepreneurship and organizes management development programs to identify the managers can act as an indeed and being trained to act like entrepreneurs to create new value for the business".
4. Ahmed, K. "the need of the various training programme is to create awareness and also to inculcate the entrepreneurial opportunities and to develop entrepreneurial behaviour among the students".
5. Ranade "The success rate was reduced due to business environment deficiencies but not due to entrepreneurial inadequacy among the entrepreneurs. He also mentioned that the Entrepreneurship Development Programme models will be more dynamic, flexible, to meet the requirements of different economic, social and infrastructure strata existing in the country".

5.0 Objectives of the Study

1. To study about the profile of Entrepreneurship Development Cells
2. To study about the various programmes organized by the Entrepreneurship Development Cells
3. To know about the working style of various Entrepreneurship Development Cells
4. To suggest the policy recommendations based on the objective findings.

6.0 Research Methodology

Research Design used for the study	Descriptive Research Design
Data Collection Method	Data is collected through primary as well as secondary sources. • Through, questionnaire for the purpose of collecting primary data from the Entrepreneurship Development Cells in Arts and Science Colleges, Madurai. • Secondary sources consist of books, periodicals, newspapers and online resources.
Sample Size	In Madurai District, there are 15 Arts Colleges having Entrepreneurship Development Cells are taken as samples
Sampling Method	Census Sampling

7.0 Data Analysis, Interpretation and Hypothesis Testing:

The framed questionnaires were distributed to 25 Arts Colleges which are having Entrepreneurship Development Cells. The statistical tools like Chi-square, One way ANOVA, Factor analysis were used to analyze the study to bring out the significant relationship between variables.
Data Analysis and Interpretation:
• Demographic profile
• Reasons for not starting the business
• No. of Programmes organized
• Functions of ED Cells
• Types of Training provided by ED Cells
• Responsibilities of ED Cells
• Role of ED Cells
• Difficulties faced by ED Cells

Correlation between the Duration of Functioning of the ED Cells and Total number of programmes organized

Variables	R^2	Statistical Inference
Duration of Functioning of the ED Cells	0.462**	P<0.01, Significant
Total number of programmes organized	0.470**	P<0.01, Significant

**- Correlation is significant at 0.01level.

There is significant relationship between duration of functioning of the Entrepreneurship Development Cell and the total number of programmes organized. Hence, the hypothesis is accepted.

8.0 Findings

1. Majority of the Colleges have been functioning the Entrepreneurship Development Cells less than 2 years.
2. The major funding agency for the colleges with ED Cells is University Grants Commission (UGC) and Entrepreneurship Development and Innovation Institute (EDII).
3. There is a significant relationship between total number of programmes organized and the funds

received by the EDII Cell.

4. There is a significant relationship between the ED Cells and ED programs which includes Faculty Development Programme, E-Leader Workshop and Tamil Nadu Student Innovators Camp which are organized by the ED Cells

5. The total number of Arts and Science Colleges in Madurai is 35. But only 15 Arts and Science Colleges are having Entrepreneurship Development Cells and they actively organizes the programme with a motive to create entrepreneurs.

6. The factors such as creativity ability of the trainers during the training programme, and their experience, communication skills are extracted from the colleges that are having Entrepreneurship Development Cells and they are grouped together based on the analysis and finally termed as best quality of trainers during the training programme.

9.0 Suggestions

1. Participants (Students) involvement level in the programme shows the success of the training programme. The ED Cells makes a proper planning and design the programme according to the profile of the participant.

2. Proper advertisement for the programme should be made to make an outreach about the programme to the participants.

3. Training programmes organized by the ED Cells should focuses on methodology of the training, quality / capability of the trainers, infrastructural facilities and real practical exposure about the environment.

4. Entrepreneurship is also acting a base tool for Economic Development. So, every college planned to set up an ED Cell and organize valuable programme to develop the students as Entrepreneurs to the Society.

10.0 Conclusion

Unemployment is a major problem in our country. The rate of unemployment is growing day by day. The overcome the problem and also to develop the economy, the colleges and schools should create awareness of Entrepreneurship among the students. All the Entrepreneurs are not born but they can be made by inculcating the entrepreneurial skills.

The role of ED Cells is more important to develop the entrepreneurial quality among the students. This research has concluded that the roles and functions of ED Cells should be functioned effectively to make the students as entrepreneurs for developing the society and nation.

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Activism on Twitter: Effectiveness & Effects on Real-Time Policies

Aparna Menon*

ABSTRACT

With citizen journalism thriving on the microblogging platform of Twitter, it is vital to hypothesize the area of study in order to gain a better understanding of the newer pillars of democracy, essentially and, in turn upgrade the efficiency of the system and people, thus far. The subject of social 'Activism on Twitter' is generally ignored and associated with a sort of rant or amateur outcry. Even so, there are a few papers that touch upon the topic and open doorways to elaborate and concrete research zones.

There is a need for studies that focus on the more significant substance of a government – the masses. The case studies elaborate and look theorizing the cycle and interworking of digital activism, online communities and social structures on the digital media. Some successful, some failures and some in-between; the paper will look in depth for the reasons that effect the same – leadership, time, offline governments, etc.

Keywords: Digital Activism; Twitter; hashtags; Armchair activism; #MeToo; #OscarsSoWhite; #BringOurGirlsBack; #EleNao.

1.0 Introduction

The evolving media has created waves of changes in how things work across various spheres. One of the most interesting has to be social media. The political diaspora almost feet suffocated and overwhelmed by the influx of opinions, devoted ideologists, backlash, etc. on them, for them, about them. In terms of democracies, the people are taking to social media as they did the streets. Hashtags are the new placards.

The reason to choose Twitter for the purpose of this research is three-fold. First and foremost, most social media sites such as Facebook and YouTube are heavenly dictated by algorithms and hence, users are exposed to content that is personalized and in turn, likable and in tandem with their interests. Twitter is one such platform where that is not essentially the case. Secondly, Twitter seems to function or rank higher in political and public discussions than its counterparts; (as in, for example, Instagram is more entertainment-social and informal). Three, the ability to run campaigns – hashtags have become staple and an identity symbol. The simplicity of only #IStandWithCharlieHebdo is the essence of what makes these mass movements.

Public outrage is a term that has begun to associate with the social media; something that has forced political leaders to sit up and take notice of what's trending (a mere 1,200 tweets needed to get there). Now, the question is that is only them taking notice enough? Are there any systemic and/or constitutional changes that take place in response to the public putting their concerns on Twitter? The hypothesis is decidedly negative. Therefore, is this exercise hopeless?

The solution lies in a collective and sustained movement rather than anger and 'media trials.' The research will explore the aspect of efficiency in political discourses on Twitter. The research aims to look at major social media civic movements that may or may not have made an impact long term; and furthermore, look to address why/why not. Currently, the methodology will be based on qualitative and secondary data analysis.

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Academia has largely addressed and targeted specific electoral runs and analyzed them through the lens of social media. Through this paper, I hope to shed light on the undertheorized areas of the evolving political dialogues on Twitter as the testimony of the public. The paper also extends further study of scope on the themes of detailed case studies, interpersonal and mass political discussions amongst different socio-economic categories on the same platform and the success in changing, opening a subject or outlook to debate in the minds of the common man.

The micro-blogging site has an overarching reach on the political climates; as aforementioned, these community movements are a cornerstone in coming-of-age peoples' governments. Maybe it is simply a testament to our awareness as a consumer of democracy.

2.0 Objectives

1. Aims to look at major social media civic movements that may or may not have made an impact long term;
2. Address why/why not.
3. Give subjective solutions for the same, if needed.

3.0 Literature Review

The inspiration for this paper is drawn from a feature article by now Managing Editor, Sidin Vadukut of Mint, India titled Social (media) utility of outrage. He begins with an example from history, parallel to the social media protests we see today.

A Systematic Literature Review of Twitter Research from a Socio-Political Revolution Perspective by Ricardo Buettner and Katharina Buettner laid concrete groundwork especially, in terms of research objectives and methodologies. This paper can easily be classified as the main source in the secondary data collection. The study of different cases in terms of factors such as leadership, time frame, crowd, etc. has particularly aided me in working out the framework.

Identifying Stance by Analyzing Political Discourse on Twitter by Kristen Johnson and Dan Goldwasser is a good source for reading and knowledge as they have used statistics, mathematics and social theories to explain social media activism and phenomenon.

The Politics of Twitter: Emotions and the Power of Social Media by Constance Duncombe – emotion is a substantial pillar of digital activism. The paper reports on functionality of mass communication and following which, the escalation and/or de-escalation of conflict in scenarios of online protests.

The book, Digital Activism Decoded: The New Mechanics of Change by Mary C. Joyce was very insightful in its accuracies and dissection of social media activism. It aided in achieving my third objective, that of solutions.

Two articles done on particular cases - #Occupy Wall Street: Exploring Informal Learning About a Social Movement on Twitter by Benjamin Gleason and, Iran's Protests: Why Twitter Is the Medium of the Movement by Lev Grossman. These have helped develop factors such as leadership, time frame, crowd, etc. in the framework; and further, depicted how tangible success can be brought out through these movements. The 'Effectiveness… on Politics' is judged here.

4.0 Research Methodology

The methodology will be based on qualitative and secondary data analysis. The former will be the main focus.

Qualitative methodology will narrow down a few cases studies that needs studying (which

will then be compared and contrasted). The sample would consist of a comprehensive number of cases from around the world, with countries under different forms of government and/or those with any special characteristic (religion, diversity, etc.). After which, relevant Twitter data will be collected through API sources and/or those already available in the form of secondary data. These will be analyzed and pitted against the cases themselves. The determination and conclusion of the same will achieve the second objective.

I will also look at political campaign studies to gain perspective on case studies and treatment and the larger picture, as well.

The third objective will be achieved through qualitative studies (expert opinions, research papers, etc.), again. These deductions will also be drawn after analyzing the data collected at the second phase.

Case Study 1: #OscarsSoWhite
History of Case:

When the Academy awards declared A tweet from campaign finance lawyers, April Reign gave birth to the hashtag and ensuing movement, Oscars So White (#OscarsSoWhite). Here is the original tweet,

#OscarsSoWhite they asked to touch my hair. (Reign, 2015)

The African-American woman, on the 15th of January 2015 put out her emotions on the social media platform, Twitter regarding the Oscar nominations and committee being predominantly comprised of the white race. The hashtag spread fast with celebrities and other known faces, especially minorities.

Subsequence:

Even after the flare up in 2015, the nominations of the Academy the following year contained no actors of colour (the second time running). 2017 showed some improvement with actors of different ethnicities and films with Asian and Blacks nominated.

A few quotes to analyze the aftermath:

"It's lovely to see the work that's nominated reflect the world at large," said Barry Jenkins, an African-American directed (film: Hidden Figures) (The Guardian, 2017).

"We are now in year six, and every single year #OscarsSoWhite is mentioned again," April Reign said (The Jakarta Post).

The change is slow, but there.

Case Study 2: #BringBackOurGirls
History of Case:

On the night of 14–15 April 2014, 276 mostly Christian female students were kidnapped from the Secondary School in the town of Chibok in Borno State, Nigeria. Responsibility for the kidnappings was claimed by Boko Haram, an Islamist extremist terrorist organization based in northeastern Nigeria. (Wikipedia)

A hashtag, #BringBackOurGirls trended on Twitter, which gained worldwide recognition for the issue.

Yesterdays & Todays:

Even after the incident, it made few headlines in mainstream media. However, on social media, the story was picked up and repeated by people around the world using the hashtag #BringBackOurGirls. Two weeks of cyber-activism with the hashtag finally brought the issue to mainstream international attention; on May 6, 2014, The Washington Post reported

#BringBackOurGirls; #BringBackOurGirls had "now spread into a truly global social media phenomenon" (Taylor, 2014). The hashtag was mentioned more than four million times in 2014 (Stream, 2015).

Let us look at the impact: -

Some of the girls were rescued.

Former Nigerian President Goodluck Jonathan lost his reelection campaign to General Muhammadu Buhari on March 28, 2015. It was the first time a sitting president had been defeated in a Nigerian election (BBC, 2015). There was a viral video that made the rounds; the Nigerian co-founder of the #BringBackOurGirls movement, Hadiza Bala Usman saying, "Today is exactly ten months since our girls have been in captivity,"; "These girls were not protected. These girls were not cared for by the Federal Republic of Nigeria, under the watch of President Goodluck Jonathan." (Saharareporters, February 18, 2015)

However, no significant talks of terrorism or measures were put in place to ensure that such an incident did not repeat. Offline protests, on a small scale also took place. International figures such as Michelle Obama and human rights agencies, Amnesty intervened and spread awareness; urging governmental bodies to take concrete steps to get the girls back to the safety of their homes.

Here is a tweet from this year, 2020, that highlights the current situation:

I pray for the 112 girls are still missing, out of the 276 Nigerian school girls who were kidnapped, and taken by Boka Haram, in April 2014. #bringbackourgirls (KIKI)

Case Study 3: #MeToo
History of Case:

In 2006, the "me too." Movement was founded by survivor and activist Tarana Burke. (Burke)

Then, in October 2017, the #metoo hashtag went viral and woke up the world to the magnitude of the problem of sexual violence. American actress Alyssa Milano shared her story of sexual assault against Harvey Weinstein with the hashtag. What had begun as local grassroots work had now become a global movement — seemingly overnight. Within a six-month span, the message reached a global community of survivors. Suddenly there were millions of people from all walks of life saying "me too".

Progress:

The 'me too' movement was a predominantly Twitter citation; we can say that for very few case studies. The public reactions and emotions on the social media platform of Twitter came through the raw, unfiltered subject of sexual abuse. There is a focus on empathy and support as basic characteristics of human nature; and further encouragement of safe haven to speak up. (Lydia Manikonda, 2018)

That tweet, written after articles in the New York Times and the New Yorker recounted accusations of abusive behavior by Hollywood producer Harvey Weinstein, encouraged other victims of sexual harassment and sexual assault to share their stories as well. They did so in droves: The #MeToo hashtag was tweeted about 300,000 times on that first day alone.

A research team from Harvard Medical School and UC San Diego documented the extent of this self-education campaign by examining trends in Google searches between Jan. 1, 2004, and Oct. 14, 2017.

Here is a Table, highlighting the results of the research period of 8 months:
Table 1: Impact of #MeToo

S.NO.	SEARCHES ABOUT:	Imapct due to #MeToo (rise compared to if the hashtag had not happened)
1.	General sexual harassment and assault	40 – 54 million searches (rise of 86%)
2.	Reporting sexual harassment/assault	30% increase
3.	Training to prevent harassment and assault	51% increase

"Our findings demonstrate the power of grass-roots movements to respond to large-scale public health crises," the team concluded. (Los Angeles Times)

Speaking of long-term impact, we can see that four major outcomes can be seen till today.

Social ostracization of alleged abusers;

Encouraging survivors to come out; awareness

Harvey Weinstein's conviction based on several allegations;

The people who kept their silence were severely noted.

As seen from the results, although such civic movements are of significance to the society's social structure; the political and power structures went through only a minor tremor. (Though, there is overlapping of the three and others, for the sake of this argument, we try to separate them.) The third outcome served as the most concrete impact and can be associated with or seen as a change in long-term policies.

5.0 Comparison of Case Studies

The first study of OscarsSoWhite took place in a first world country and the people, authorities who were involved can be called the privileged lot compared to the Nigerian case study. Thus, the informed, educated ideology took over by a storm in the former's case and made waves.

In #BringOurGirlsBack the people, at the grassroot level who were affected by the issue did not have access to smartphones or Twitter. They had a group of representatives who put the subject on the map of Twitter. This is significant as Nigeria is a third world country and it took international intervention to solve a virtual internal problem.

The #MeToo is similar or comparable to #OscarsSoWhite as it takes place in almost the same environment. There were no repercussions, on the surface to the people who spoke out.

Most of the times digital activism is time-bound; as it will be overshadowed and sometimes, erased by the 'next big thing'. Thus, it helps if mainstream media picks up the issue and keeps it in conversations. It is vital to maintain the 'high' of the movement on social media, too; case in point, #OscarsSoWhite, in order to bring about big changes, we need to start with small steps. The movement kept calling out the committees when diversity was missing, and we see the Academy slowly coming out of its shell.

At times, movements go through a period of latency before picking up again. This can be attributed to the shallowness of social media and its users. A good example might be of the uproar following the alleged mafia involvement in the suicide of Indian actor, Sushant Singh Rajput. Twitter users jumped from one element to the next without sticking to one.

Here is a table giving an approximate idea:

Table 2: Comparison of Cases

S.NO.	CASE	COUNTRY/GOVERNMENT	INTERNATIONAL	Leadership for change	Ever-lasting Impact	TIME PERIOD
1	#OscarsSoWhite	USA/Democracy	No	No	Yes	On-going
2	#BringOurGirlsBack	Nigeria/Democracy	No	Yes	No	Few years
3	#MeToo	USA/Democracy	Yes	No	Can't say	Few years

Although, the intention is always to bring some kind of positive change (subjective), the pathway to its achievement in often blurred by the large numbers, spam, lack of organization, differing viewpoints, etc.

If we look at offline protests, say a Women's Rights March, we can safely assume that the participants are the ones that are in support of the issue; no opposing party would be present. But in case of Twitter or social media, we see opposing viewpoints and hence, there is an active lack of direction in the discourse. This was the case with the Oscars study and Me Too; with people chanting discriminations and 'false allegations.'

6.0 Other Note-Worthy Cases & Analysis

There are cases of digital activism where other forms of protests took place alongside it. Offline demonstrations, hunger strikes, occupations, etc. followed and are often associated with civil movements. Take the Umbrella Revolution for example. Twitter is what helped mobilize and organize the cause and after which, protests erupted in the streets. The social media platform also became a world's stage as the information about it and anger spread to different countries, with world leaders taking a stand on the issue, giving it prominence and building pressure on international authorities and the home country's government to respond to the retaliation in favour of the protesters. The Hong Kong protests can be citied as the most recent example of citizen activism which has Twitter in the centerfold.

Another example is that of the #EleNao movement. Although, it began as a Facebook group and grew into the streets, Twitter was an enabler in getting the work out to the world. The issue was centered around Brazilian presidential candidate, Jair Bolsonaro. After multiple accounts of sexual abuse accusations, the country's system still allowed him to contest the General Elections in the October of 2018. Women poured into the streets chanting Ele Nao, meaning 'Not Him' in Portuguese.

Both these cases have created ripples in water; desired outcomes had/has not come out yet. But these movements are bridging online and offline communities to form a united movement. (Olson, #BringBackOurGirls: digital communities supporting real-world change and influencing mainstream media agendas, 2016). On the while, social media have worked to disrupt oppressive governments and repressive policies worldwide as people have used social media to bypass traditional media to organize in-person protests and rallies (Studies).

7.0 Conclusion

Before going into decline and disappearing, a social movement…. will either succeed, fail, be

co-opted, repressed, or become mainstream.
sociologist, Charles Tilly. (2018)

Digital media has the power to create, sustain and destroy. The success or failure of a social movement is a testimony to the willpower of the people involved. When speaking in terms of hashtags, it doesn't take much to get a subject trending. But keeping it there is the task. Social consciousness is as fickle as a mass's attention span. This is the main challenge in bringing solid turnovers. Because only if there is prolonged effort, will there be concrete future.

Another aspect that is vital is a ring leader. Due to the lack of leadership, masses tend to lose their sense of purpose. A captain supplies the much-needed words of encouragement. But that is not the only responsibility of his/her. The leader is much like the representative of the entire group's interest. This is especially useful when pitching to those in-charge (such as government bodies) to make changes in laws or policies; essentially, act as lobbyists for the period. Albeit Twitter did not play the central role, #SaveTheInternet is a widely quoted example for the same. The hashtag, that arose in India highlighted the need for net neutrality. Interest groups included individuals, businesses, etc. This movement was hailed as a massive victory for a public movement. A comedy group, 'All India Backchod' (AIB)'s viral video is what sparked the debate. (2018) Following which, Nikhil Pahwa came into the picture. This tech journalist is accredited by many for steer-heading the cause. This clearly establishes the necessity of a leader to condense the demands of the social group.

As we progress, the amalgamation of technology, government and people have become a complex and sometimes, rewarding process. If we were to study the depth and breadth of such unions, gather and theorize; then, we would make better use of institutions around us and be able to use them for our wellbeing.

Although, it is difficult to conclude on on-going social events and their long term impact, a few final markers:

Digital activism has strived due to the lack of traditional gatekeeping methods in other forms of media.

The element of citizen journalism also is highlighted on Twitter.

The voice of the marginalized (often ignored by funded traditional media) is amplified.

8.0 Future Scope

As mentioned before, the breadth and depth of studies in the arena are not much. There are a few studies that explore individual cases and those are the ones that has crossed all boundaries. The lesser remarkable hashtags have not found a place in academia. There are numerous reasons why some movements have not made a permanent mark; it is necessary to study that area to make sure an individual's words (containing a hashtag that can change the world) are not lost in the ocean of Twitter's characters.

Cyber-communities have for setting the agenda for mainstream media sources (Olson, #BringBackOurGirls: digital communities supporting real-world change and influencing mainstream media agendas).

Numerous cases can be studied to analyze how Twitter, digital activism works to drive mainstream media conversations, which is vital for the state media and governments to sit up and take notice of the subject from the lens of a national issue that needs redressal.

Furthermore, e-activism also covers the gap in news reportage in conventional media. Feminist issues and other class and discrimination issues gain centerstage on Twitter. News channels and/or newspapers do not give enough spaces for these subjects to be discussed in depth. Thus, studies can be conducted on specific themes to explore the difference between the two classes.

Another aspect in how the minority communities is given a pedestal on Twitter. The impact

of the same can be studied to make the process and transitions easier for the people, themselves, legislative, executive and judiciary.

There are also articles that such as 'Outrage Culture Is Ruining Foreign Policy' by Steven A. Cook which illustrated the not-so-obvious issues with digital civic activism. Further theses on under-the-carpet issues would be interesting.

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Proposed Framework to Manage Traffic Signal Efficiently and Automatically

Mukta Sharma* and Samad Ahmed**

ABSTRACT

The rising number of vehicles on road is leading to massive congestion and several hours of Traffic-Jams, especially in metropolitan cities. Congestion is a difficult issue to deal with as the commuters need to wait for traffic signal to go green. Therefore, a good traffic management is the immediate urge of the day. It is essential to have automatic traffic management signals that helps in organizing the flow of traffic on the roads, which will provide safety and assures smooth flow of traffic on the roads.

This paper has been written with the quest to find a solution to automate the traffic signals using Ultra-Sonic sensors. In this paper, the authors have demonstrated how using ultra-sonic sensors will help in evaluating the traffic density and managing the traffic signals. The sensors are used to map the traffic density and then automate it using a program which will automatically sort the data coming from the sensors in a descending order and based on the highest and lowest densities the lights will be allotted to the selective lanes. This will not only make it hassle free to manage traffic but also avoid massive traffic jams in the city. This will entirely work on the solar energy, making it cost efficient and energy saving for a green and smart city.

Keywords: Ultra-sonic sensors; Traffic management system; Traffic efficiency

1.0 Introduction

Initially, the traffic management was majorly handled by traffic police especially on the roads with peek pressure and no traffic light functioning due to power cut. After a proper training using signs, gestures and whistle the cop used to manage the traffic. Later traffic lights were connected with power backup to manage the power cuts. Now in various parts solar power is used to manage the traffic signals. The traffic signals now work 24*7 without fail; with proper power backup. Traffic signals are the control devices which alternately direct the traffic to stop or proceed at intersections using red (stop), green (go) and yellow (anticipation of red light, slow down for stoppage). [7]

1.1 Conventional traffic management system

The system used is semi-automatic i.e.: the police controller on the duty had to change the time limit manually every time there's a change in traffic density, or during a holiday the limit has to be set at a very minimum point.

The policemen also switch the system to standby mode at midnight in which the yellow light blinks so that the driver looks carefully and then pass, although this system is very prone to accidents.

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1.1.1 Classification of traffic signals- [14] [7]

The signals are classified into the following types:

- **Fixed Time Signals**-Depending upon the traffic intensities, the timings of each phase of the cycle is predetermined. The draw backs of this signal is, the cycle of red, yellow and green goes on irrespective whether on any road, there is any traffic or not. Traffic in the heavy stream has to stop at end phase.

- **Manually Operated signals**- In these types of signals, the traffic police watch the traffic demand from a suitable point during the peak hours at the intersection and varies the timings of these phases and cycle accordingly.

- **Traffic Actuated (automatic) Signals**- In these signals the timings of the phase and cycle are changed according to traffic demand. They use computer, called a "signal controller," which determines the timing and even the sequence of traffic movement for each phase and cycle, based on what vehicles or pedestrians are detected at the intersection.
  - In semi-actuated signals, the normal green phase of a traffic stream may be extended up to a certain period of time for allowing the vehicles to clear off the intersection.
  - In fully-actuated signals, computers assign the right of way for the traffic movement on turn basis of traffic flow demand.

- **Adaptive Signal Control Technology** (ASCT) adjusts the timing of red, yellow and green lights to accommodate changing traffic patterns, ease traffic congestion, and improve safety. [1] [2] [13] [16]

2.0 Related Work/ Review of Literature

Ultrasonic sensors work by emitting sound waves at a frequency too high for humans to hear. Then they wait for the sound to be reflected back, calculating distance based on the time taken. This is similar to how radar measures the time it takes a radio wave to return after hitting an object. [5]

While radar, or even light-based sensors, have a difficult time correctly processing clear plastic, ultrasonic sensors have no problem with this. In fact, they're unaffected by the color of the material they are sensing.

On the other hand, if an object is made out of a material that absorbs sound or is shaped in such a way that it reflects the sound waves away from the receiver, readings will be unreliable.

If one needs to measure the specific distance from your sensor, this can be calculated based on this formula:

Distance = ½ T x C

(T = Time and C = the speed of sound)

At 20°C (68°F), the speed of sound is 343 meters/second (1125 feet/second), but this varies depending on temperature and humidity. [3]

Specially adapted ultrasonic sensors can also be used underwater. The speed of sound, however, is 4.3 times as fast in water as in air, so this calculation must be adjusted significantly. [12]

Ultra-sonic sensors are used by traffic management system in numerous ways to manage traffic. For instance, it is used for parking, are also used to avoid accidents, in case of red light still any driver drives the car will lead to accident. Ultra-Sonic sensors with cameras are used for challan. [15]

Ultrasonic sensor functions originally to measure the distance and the speed of vehicles to determine the congestion on road. In general, ultrasonic sensors will fire ultrasonic waves into an area, after the waves touch the target surface, the target will reflect back the wave.

The solutions provided by many authors over the internet and in events such as hackathons include various other technologies to counter this traffic condition in cities,

The one which was awarded in the hackathon 2019 consist of camera modules in which the density was picture based and the footage of the traffic was sent to the servers which was then processed by the algorithm to detect vehicles and according to which estimating the density in each lane of the junction.

But this system has its own drawbacks such as: -

- Expensive to install and maintain
- Uses more energy due to many camera modules
- Cloud storage is expensive
- Has climatic restrictions such as visibility (in dense fog or heavy rains visibility decreases drastically)

The other solution proposed by a group of students was to use EMP (Electro-magnetic Pulse) which will run along each lane and emit a magnetic field in which if any metallic object (vehicles) approaches the magnetic field will be disrupted and it will be counted as an element for traffic and then the data will be mapped and the lights will be allotted accordingly, but this system has some fatal flaws: - [2][3][8]

- Electromagnetic pulses can damage or can permanently destroy electronics, which nowadays every vehicle is equipped with.
- Many people having metallic implants can also be affected by these magnetic pulses which is lethal.
- This system will consume too much electricity and will fall short of solar energy during rainy days or at night.
- Small metallic elements (debris) can be collected on the poles of the electromagnet which can be dangerous for the rubber tires and for general public too.

In 2019, The Smart India Hackathon hardware edition held at Reva university. The term for smart traffic system came into light by the winning team by using IOT (internet of things) and cameras to see what kind of vehicles are on the roads and the density of traffic. The whole idea was supported by the raspberry pie (Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation in association with Broadcom). This collected data was to be uploaded to the cloud servers enabling smart communication.

This proposed system bagged the first place but this has some major drawbacks-

i. The estimated cost of installation and maintenance cost of cameras and servers was too much. In fact, 5 cameras per lane were to be used, which makes it 20 cameras per junction and installing them at such large scale looked very expensive.

ii. These cameras can easily be destroyed by the course of nature and had estimated life of 5 years or so maintain them will be a big task for the traffic department.

iii. The third and the most important one was the visibility, as fetching data from the visuals through the camera, weather can be a big problem for these cameras for e.g.: - during rainy days the visibility decreases and during winters fog can create total blind spots for these cameras resulting in inaccurate readings which may lead to mismanagement of the traffic again.

The proposed solution faced major drawbacks. It is not feasible and is not up to the mark when put through a practical approach.

   i.   Manual operation of traffic signal when there's a change in traffic density (including the info of the interview)

   ii.   Insufficient distribution of time across all lanes resulting in traffic jam

  iii.   Any technical issues in the traffic signals isn't reported and fixed for days resulting in accidents and manual policing to maintain the traffic flow.

   iv.   Proposal of installing camera-based traffic mismanagement system which uses much more storage and energy and is expensive to maintain and install.

   v.   drawbacks of the camera-based system (visibility, weather conditions, maintenance, installation cost)

3.0 Research Objective
   i.   To find gap in existing Traffic System

   ii.   To automate the traffic system which can handle the congestion and can adjust the traffic lights

  iii.   To propose a model or framework which will adjust the light signal according to the traffic density

4.0 Research Methodology

An interview with an on duty traffic police in Delhi, India, was conducted to know more about the existing traffic system. The interview was open-ended and this was brought to the notice that nothing is automated yet. The latest upgradation in Delhi traffic management was the addition of solar panels.

The traffic police intimated that during the rush hours with change in traffic density, the man on duty has to manually change the time intervals of all the lanes for smooth flow of traffic. This manual feeding of the time intervals is still inappropriate and doesn't solve the problem of assigning the time according to the lane traffic. The roads having less traffic still gets the same interval, as the lane having much more traffic density which makes it difficult to manage the flow of traffic efficiently. These insufficient time gaps create traffic jams due to the lanes having heavy traffic density doesn't get enough time to be cleared.

Even if the there is any technical problems in these traffic signals the fixing and reporting takes at least 1 week to come into action and fix the problem. Which makes that region an accident-prone area when there's no policemen on duty or during late night hours when the traffic is less and people try to jump the signals, which make them prone to some accident.

In the conventional traffic management system, traffic signals are turned off after 1am or 2am because there's nobody to monitor the signals and there's very less traffic density at this hour of the day which is a major drawback of this system it needs to be monitored or else it doesn't adapt to the environment conditions.

5.0 Basic Terminology Used

5.1 Hardware/software
➢ Arduino
- Arduino is a single-board microcontroller for using electronics in multidisciplinary projects more accessible.
- The hardware consists of an open-source hardware board designed around an 8-bit Atmel AVR microcontroller, or a 32-bit Atmel ARM.
- The software consists of a standard programming language compiler and a boot loader that executes on the microcontroller.
- The open-source Arduino environment makes it easy to write code and upload it to the I/O board. It runs on Windows, Mac OS X, and Linux.

- The Arduino integrated development environment (IDE) is a cross-platform application written in Java programming, and is derived from the IDE for the Processing programming language and the wiring projects. [5][6]
- ➢ Proteus
- Proteus is a simulation and design software tool developed by Lab Center Electronics for Electrical and Electronic circuit design. It also possesses 2D CAD drawing feature.
- It is a software suite containing schematic, simulation as well as PCB designing. ISIS is the software used to draw schematics and simulate the circuits in real time. The simulation allows human access during run time, thus providing real time simulation. [9]

5.2 Hardware requirement
- Processor: intel dual core or above
- 2GB RAM
- Hard disk: 512MB
- Ultra-sonic sensors
- Arduino UNO circuit board

5.3 Software requirements
- Operating system: Windows 7, 8, 10
- Arduino IDE
- Proteus 8 (simulation software)

6.0 The Proposed System Design

Ultra-sonic sensors will be fitted into the roads starting from the red lights and till a 1 km stretch on the same road. These sensors emit ultra-sonic sound that cannot be heard by human ears, these sensors will be set at a range from how far they can emit signal and if any object is standing on it, the signal sent will return from a shorter distance which will trigger the program that a vehicle is standing above it and it will be counted as a traffic density element.

More the number of sensors showing a "positive" object detection more the density of that particular lane. This will work the same for the rest of the 3 red lights, combining the data of all these 4 red light's ultra-sonic sensors. The program for the **Arduino UNO** will take data every second from the sensors and then map the density according to the conditions predefined in the code itself. The program will automatically change the lights reading the data in real time. [5][6]

The time duration for green light will be also allotted according to the density of the lanes e.g.: the densest lane will get 90 seconds next dense will get 60 seconds and 3rd densest will get 40 and the least dense will get only 30 seconds. (time may vary according to the data fetched by the sensors and specified by the programmer).

Arduino IDE (integrated development environment) has been used for programming the circuit for the functioning of the sensors, data will be fetched every second from the sensors and 3 conditions will be proposed to the programmed IC

- Case 1: when A has more traffic elements than B
- Case 2: when B has more traffic elements than A
- Case 3: when A and B both have the same amount of traffic density elements

Let us discuss the Case 1, it will program the circuit to give the green light to the sensor A, as it has more traffic elements than B.

In Case 2, it will program the circuit to give the green light to the sensor B, as it has more traffic elements than A.

In Case 3, it will program the circuit to toggle between both sensors to given equal amount of time to both the lights so that there is no delay between the 2 lanes having equal amount of traffic elements.

These three cases will be implemented to all of the four lanes and their sensors respectively

creating a loop in which the sensor will fetch data in real time and the program will sort all of the lanes and address them with lights accordingly. This will increase the efficiency of red lights and will consistently decrease the chances of regular traffic jams in a city.

Fig 1.0 [ultra-sonic sensor]

In smart traffic management system three steps are involved in order for its functioning: -
  i.   The ultra-sonic sensors feed data to the algorithm.
 ii.   The algorithm maps the data fetched by the sensors in a descending order.
iii.   Red/green lights to each lane is allotted according to that sorted data by the algorithm.

All of the above steps work simultaneously to make sure that the traffic lights get real time traffic density data and the time intervals between each lane is based on the density of traffic.

This system solves every problem that we face with the existing solution as well as with the conventional systems i.e.: -
  i.   It is totally automated and works in real time so it doesn't need any manual adjustments when traffic densities vary.
 ii.   It clearly works on the traffic density so it doesn't allot insufficient time intervals to the traffic lanes and the traffic is managed more efficiently.
iii.   This system is feasible for both installation and maintenance and it doesn't require any storages to work and store the data it works in real time.
 iv.   Ultra-sonic sensors measure distance by emitting ultra-sonic sound waves (20 kHz or more) which is inaudible to human ears and hence isn't dependent on visuals like the camera-based traffic system.
  v.   Weather conditions doesn't affect the accuracy of the sensors they can work under water (1530m/s which is actually 4.3 times faster than that of air) and as well as in air(340m/s), unlike camera-based systems the fog and heavy rains cannot affect the functioning of these sensors.

6.1 Working of the smart traffic management system

The sensors installed on the roads will emit a high frequency sound and if an obstacle stand in its way the sound wave will be reflected and returned from a shorter distance which will be accounted for a traffic density element.

Sensors on each lane will send the data to the algorithm which will check for 3 conditions: -
CASE 1: - When both sensors show equal amount of traffic density the circuit toggle the green light between them in equal intervals of time. **(Fig 1.1, 1.2,1.3)**

Fig.1.1 [when both sensors show same density, green light is given to any one sensor]
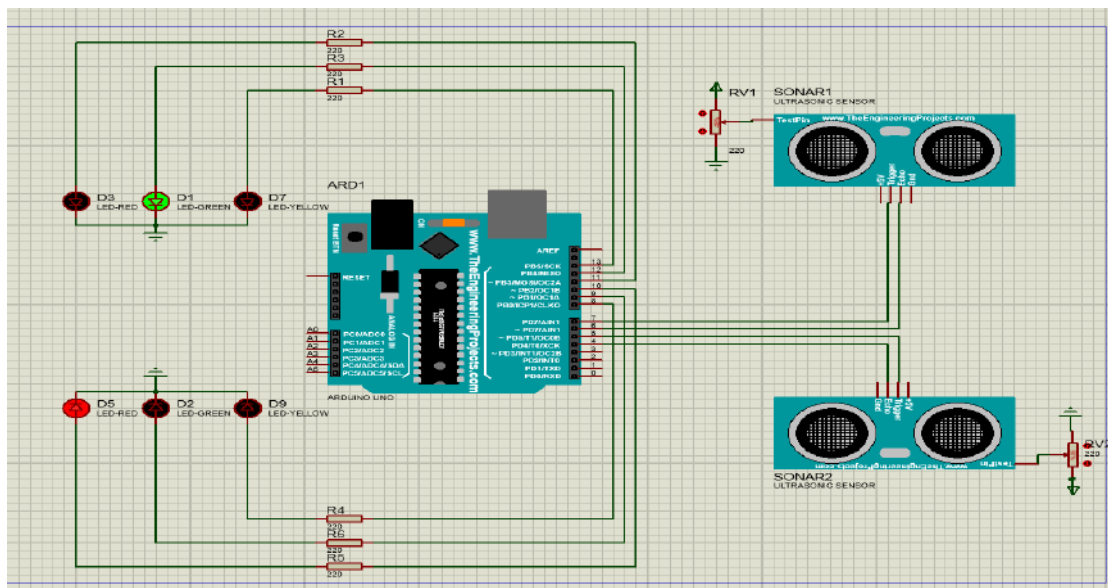
Fig1.2 [then the system toggles between the two sensors.]
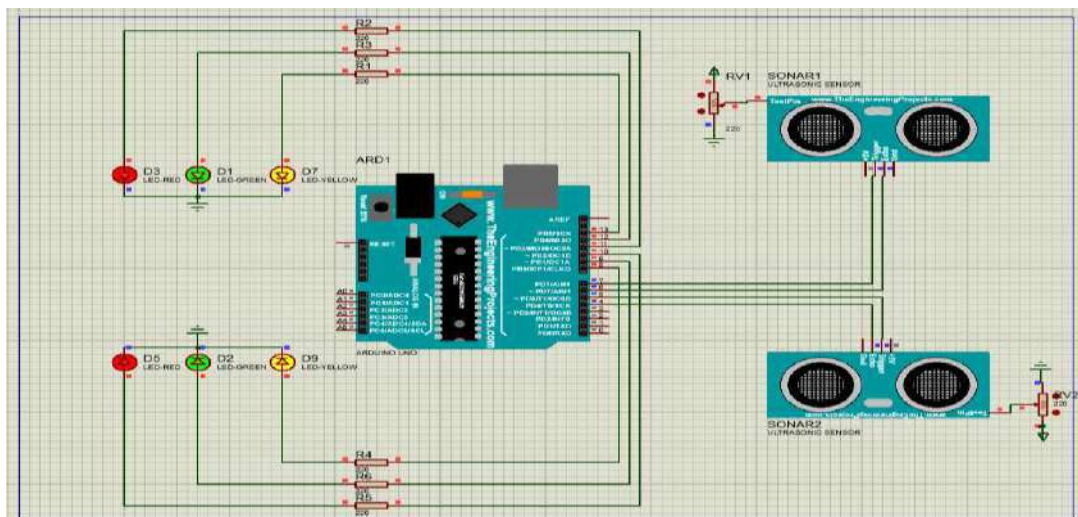
Fig1.3 [and then green light is given to the other sensor in equal time]
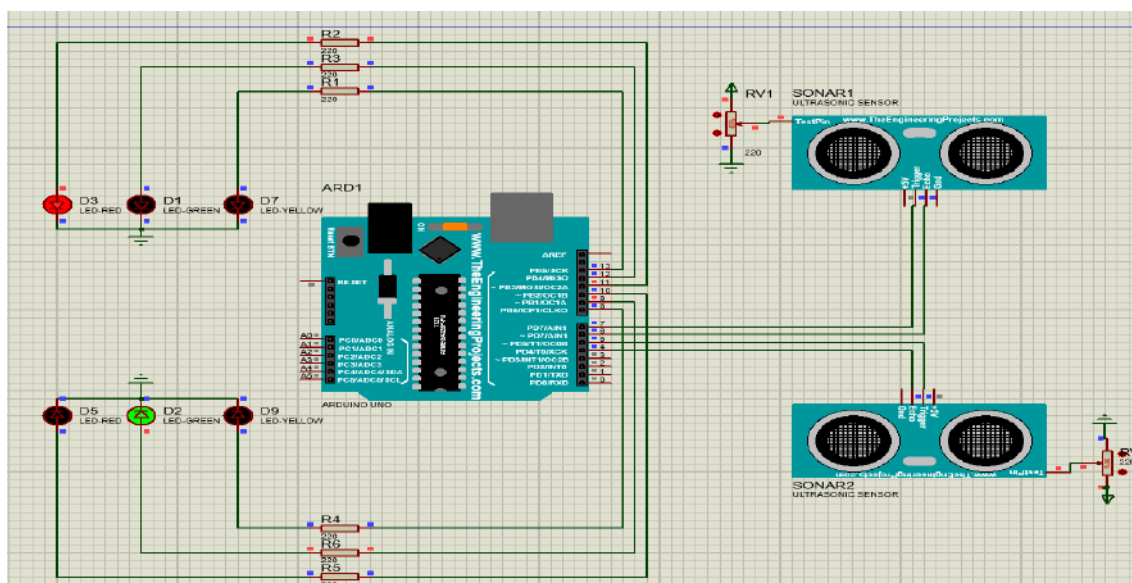
CASE 2: - When Sensor A shows more traffic density than sensor B, green light is automatically allotted to the sensor A. (**Fig1.4**)

CASE 3: - When Sensor B shows more traffic density than sensor A, green light is automatically allotted to the sensor B. (**Fig 1.5**)

Fig1.4 [When sensor A shows traffic density, green light is given to sensor A]
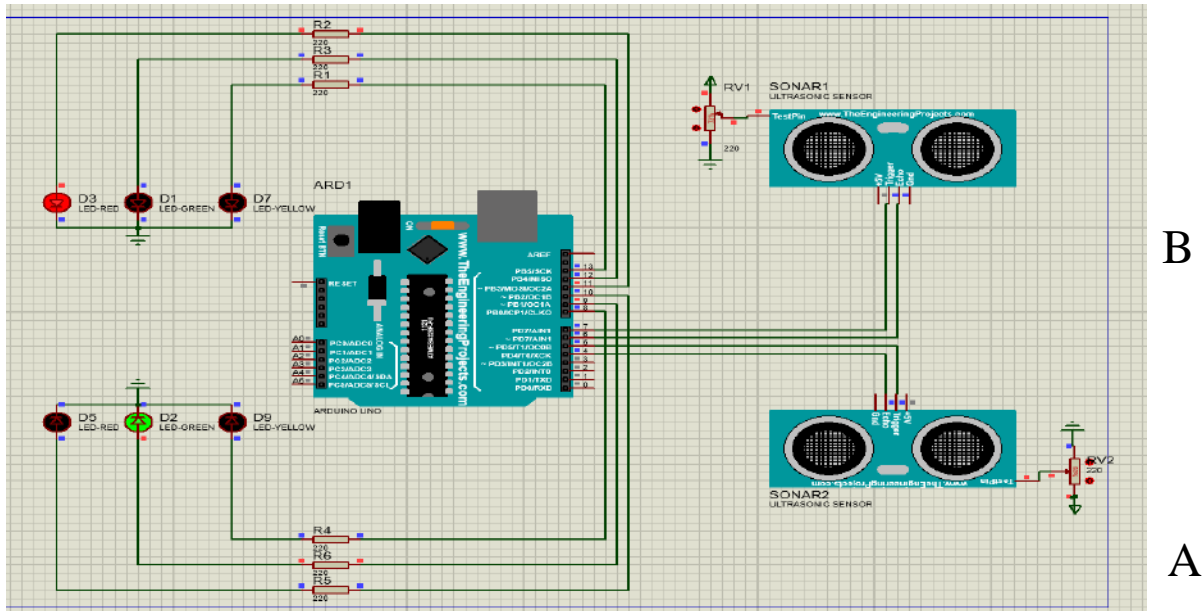
Fig1.5 [when sensor B shows traffic density, green light is given to sensor B]
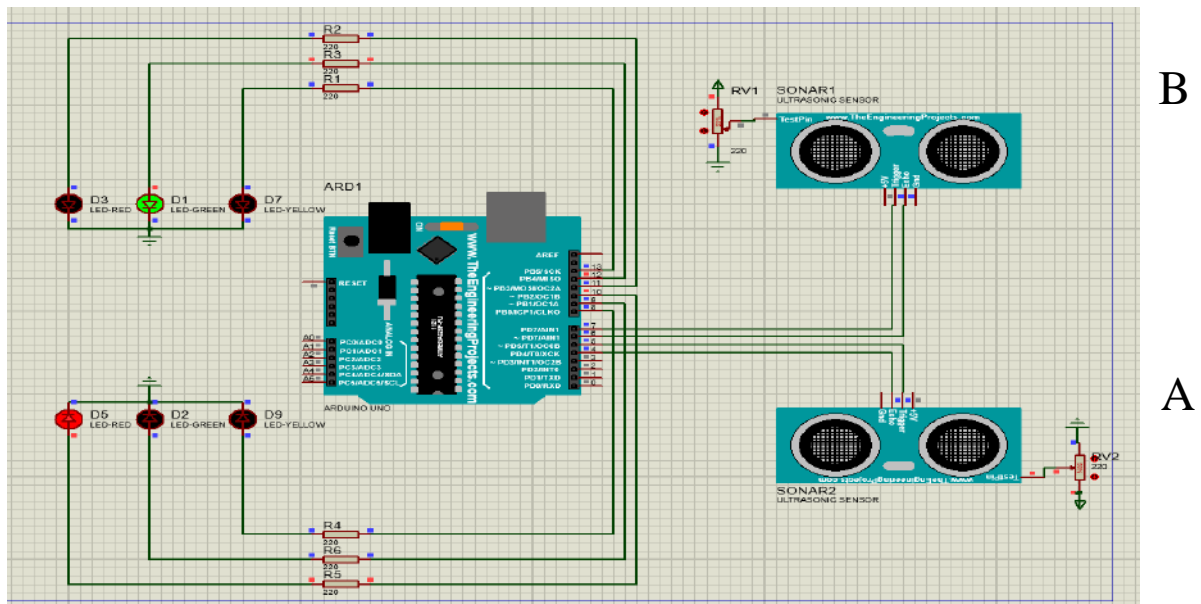
Based on these conditions the red/green lights will be allotted to the lanes. It will work in a loop which will ensure its real time nature of functioning.

7.0 Conclusion

The use of sensors and automation will take the traffic management system to another level, this technology is better than the existing ones in a very practical way.

The ease of installing this system and implementation is very cost effective and environment friendly, it has more advantages than the other solutions provided by various other authors. The system is able to cover most of the weaknesses of other traffic management systems.

Commuters who had been suffering due to massive traffic jams and failed signal systems will get a big relief, casualties will be reduced by large number. The route that emergency vehicles follow will be cleared in no time. It'll be far more efficient than the conventional timed traffic signal which creates a lot of delay between each green light thus having increased chances of massive traffic jams in cities during working hours.

The ultra-sonic signal control is best suited to improve the efficiency in all the scenarios, when traffic demand is unpredictable, in low volume or during peak hours, when traffic demand is high and predictable. Traffic Management using Ultra-sonic sensors performed better.

8.0 Future Scope

Future research could aim to implement Artificial intelligence for more precise and accurate data mapping and density analysis, it will also benefit the emergency vehicles which can be identified by the system from a distance.

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Superstitions & Misbeliefs: A Remedy for Hysteria in the Absence of a Cure

Aditya Mahaseth*

ABSTRACT

There have been various huge pandemics recorded in mankind's set of experiences where pandemic related emergencies have caused colossal negative effects on public well-being, economies, and even national security all around the world. But, along with such effects, the threat of a global outbreak of an infectious disease influences the psychological behaviour and health responses. Superstitions & misbeliefs act tools for coping up with such uncertain times. People resort to all kinds of folk remedies and superstitious solutions to find a cure to a disease in pursuit of protecting their loved ones. In such terrible times, different mass media plays variety of roles and can have both positive and negative effect on the society. The purpose of this study is to investigate the connection between superstitious believes, misinformation and global outbreak of infectious diseases, providing a summary of key features with consequent discussion on topics like psychology behind superstitions, link between superstitions and global outbreaks of infectious diseases using the cases of Tuberculosis pandemic and the current COVID-19 pandemic.

***Keywords:** Superstitions & misbeliefs; Disease outbreak; Ffolk remedies; Psychological behaviour; Mass media..*

1.0 Introduction

Uncertainty is surrounding us, never more so than today. The current COVID-19 pandemic has uplifted vulnerability over the economy, business, funds, connections, and obviously, physical and emotional wellness. However, as individuals, we need security. We need to have a sense of security and have a feeling of authority over our lives and prosperity. Dread and vulnerability can leave you feeling stressed, restless, and frail over an incredible course. It can deplete you emotionally and trap you in a spiral of unending "what-ifs" and most pessimistic scenarios about what tomorrow may bring.

In the past, in the absence of scientific explanation, superstitious beliefs and unfounded assumptions about what causes deadliest plagues and contagious diseases led to horrific outcomes. We can view such beliefs as a part of "copying mechanism", as the environment was filled with uncertainties. Tuberculosis in the late 17th century was believed to be one of the deadliest common diseases around. It was estimated to have caused more deaths than any other pathogen in world history. The lack of medicine and knowledge about germ-theory and contagion in the middle ages led to absolutely no cure and treatment. When there was no faith in medicine and science left, people resorted to a number of misbeliefs. By the 1800s, New England region in the United States, one of the most famous myth emerged - "The Vampire or Undead." Tuberculosis left victims to look lifeless, as if the life-force was sucked out of them. The townspeople could not just stay back and watch their loved ones pass away one by one, due to which soon a rumor started to spread around that the deceased family members wake up during night and claims the lives of the members who already are suffering from Tuberculosis.

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This was done to "make-sure" the dead stays dead, but this didn't end here. The ash was then mixed with warm water or milk and fed the suffering members, but in the end, it didn't cure them.

Superstitions still holds a prominent in human psyche. Take the current COVID-19 pandemic as an example. The virus is believed to emerge from Wuhan province in China, in December 2019. Initially the virus was under-estimated, as a number of rumors and misinformation spread across the world thanks to social media. As of now, with at least, 6,28,136 new daily cases of the virus and 9,353 deaths daily worldwide as for November 17, 2020, the gravity of the unfolded crisis is undeniable. Just like in the case of Tuberculosis in the middle ages, people resorted to "magical thinking" and superstitious behavior, particularly when there seem to be few ways to exert control over a situation. Indians believe in myths and superstitions in large numbers, irrespective of religion. Superstitions have a deep-rooting in our culture and still holds. Such thinking has been passing on from generation to generation, therefore, in times of uncertainty and vulnerability, emergence of superstitious beliefs was bound to manifest. A variety of superstitions and religious practices against the global threat of COVID-19 can be found in India, such as consumption of so called "elixirs of life" like G*owmutra* and *Gangajal*, worshiping the virus as a "goddess", participating in religious performances and rituals, the list goes on.

During such terrible times, mass media have various roles and responsibilities. This includes spreading awareness, tracking number of cases and deaths, influencing behaviour and reinforcing public health response. But, mass media can also have a rather negative impact in the communities, by spreading misinformation and fake news, which calls for necessary actions to be taken and formulation of new policies.

2.0 Review of literature

1. Michael E. Bell in their research paper **"Vampires and Death in New England, 1784 to 1892"** describes how during the 18th & 19th Century, the New England region of the United States was in the grips of a terrible Tuberculosis epidemic. Not willing to watch as, one after another, their family members died, some New Englanders resorted to an old folk remedy whose roots surely must rest in Europe. Called vampirism by outsiders (a term that may never have been used by those within the communities themselves) this remedy required exhuming the bodies of deceased relatives and checking them for "unnatural" signs, such as "fresh" blood in the heart. The implicit belief was that one of the relatives was not completely dead and was maintaining some semblance of a life by draining the vital force from living relatives. This showed how far the desperation for a cure can take humanity, when their are no answers from science and medicine.

2. **Sarah A. Lauer** in their research paper **"The Social Impact of the Misconceptions Surrounding Tuberculosis"** describes that Tuberculosis, for much of its history, was not understood. People put forth various theories addressing questions such as what caused it, how it spread, and who was most likely to get it, among others. They address many of the misconceptions surrounding tuberculosis in three different time periods: ancient times, the Middle Ages, and the 19th-20th centuries. In ancient times, the lack of understanding of tuberculosis resulted in the discrimination and isolation of the sick. In the Middle Ages, kings used tuberculosis to secure political power over their subjects. In the 19th and 20th centuries tuberculosis was both romanticized and feared, depending on the region of the Western world. Stereotypes were formed around victims of tuberculosis as society tried to make sense of a disease they did not understand.

3. **Steven Taylor** in their book **"The Psychology of Pandemics : Preparing for the Next Global Outbreak of Infectious Disease"** describes that that psychological factors also play an important role

in the way in which people cope with the threat of a global pandemic and its consequences, such as the loss of loved one. Although many people cope well under threat, many other people experience high level of distress or a worsening of per-existing psychological problems, such as anxiety disorders and other clinical disorders. Psychological factors are further important for understanding and managing broader societal problems associated with pandemics such as factors involved in the spreading excessive fear. He explains why the psychological "footprint" of a pandemic is far greater than the medical "footprint." He further explains how a increasing number of people turn towards "folk remedies" as a desperate measure to protect their loved ones.

4. Ankuran Dutta in their research paper **"Beliefs and Superstitions about COVID-19: Observations in India under Lockdown "** describes how superstitions and misbeliefs are still active in the diverse social structure that characterizes India. Social media in particular has been swamped by hundreds of beliefs and superstitions during the COVID-19 pandemic, primarily 'infecting' digitally literate people who are unable to check the fake and unthinkingly pass on suspect messages going viral. Common people in general have been found wanting in responding to calls for greater awareness and necessary behavioural change towards adopting safe practices. Mainstream media in India has been largely playing its role in educating people about the pandemic and thereby contributing towards inculcating scientific temper, but more needs to be done. He further throws light upon common superstitions Indians have followed during the COVID-19 pandemic.

5. [Kumar Chandan Srivastava](#), [Deepti Shrivastava](#), [Kumar Gaurav Chhabra](#), [Waqar Naqvi](#), [Arti Sahu](#) in their research paper **"Facade of media and social media during COVID-19: A review"** describes how medical misinformation and unverifiable content about the COVID-19 pandemic are spreading on social media at an unprecedented pace. Mitigating the advent of rumours and misinformation during the COVID-19 epidemic is crucial, since misinformation and fake news creates panic, fear and anxiety among people, predisposing them to various mental health conditions. Instead of considering social media as a secondary medium, it should be utilized to convey important information.

6. "Coronavirus: Group hosts 'cow urine party', says COVID-19 due to meat eaters" (The Hindu, March 14, 2020) states that people lined up for their share of cow urine in a party organized by the president of Akhil Bharat Hindu Mahasabha-Swani Chakrapani as him and his followers believed that cow urine can cure COVID-19. He further claimed that the virus was sent from God to punish people who ate non-vegetarian food. Union Fisheries, Dairying and Animal Husbandry Minister Giriraj Singh told reporters on March 6 the World Organisation for Animal Health as well as Indian food safety regulator FSSAI have said there was no scientific evidence to prove transmission of coronavirus from animals to humans.

7. "Coronavirus is now a Deity in many many Indian villages, Being worshiped with flowers and sweets" (News18, June 8, 2020) states that Coronavirus, which is believed to have originated in China's Wuhan and has thrown the entire world out of gear, is now a goddess in India. 'Corona Mai' is being worshiped in parts of Uttar Pradesh, Bihar, Jharkhand and Assam. Different types of rituals such as digging a pit, filled with water is offered sweets and flowers, ritual performances and *poojas* are being conducted, religious songs are being sung by groups of ladies, for the goddess "Corona Mai" to spare the lives of their loved ones and themselves.

3.0 Methodology

Qualitative methods were used to gather data regarding the research topic from people of all ages in Delhi, India. These methods included a survey with 11 close-ended questions & 1 open-ended question that assessed factors such as how aware are the people regarding present superstitions allied with COVID-19 pandemic, impact of self-isolation on their minds, desperate measures adopted by them to protect themselves and their loved one from the disease, how believing in superstitious beliefs have impacted their mental state and what form of media do they believe are responsible for spreading fake news and such superstitious beliefs. The survey recorded responses from a total of 55 respondents, each having different opinions and views.

4.0 Objectives

● To study the psychological impact of superstitions & misbeliefs.
● To study why such beliefs still arise in modern culture.
● To study the role of superstitious beliefs during a disease outbreak.
● To study the impact of different mass media during a disease outbreak.
● To study the roles & responsibilities of mass media during a disease outbreak.

5.0 Data Analysis

1. Age

Table No. 1 Depicting Age of Respondents		
Age	**Frequency**	**Percent**
15-25 years	24	43.6
26-35 years	12	21.8
36-45 years	5	9
46-55 years	11	20
Older than 55 years	3	5.4
Total	**55**	**100.0**
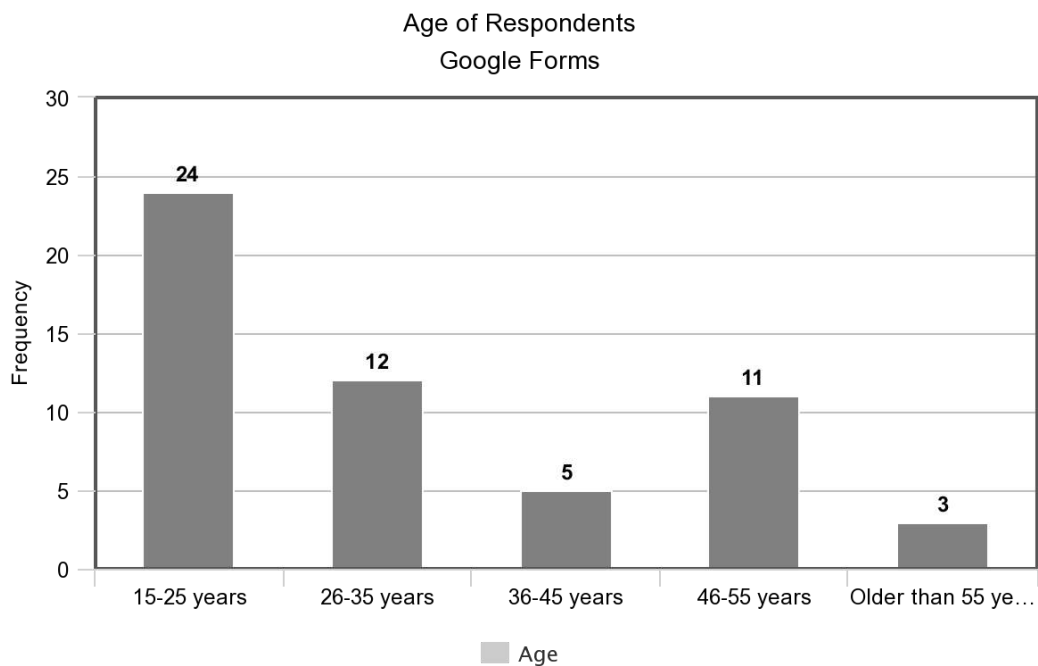
Age of Respondents
Google Forms

Interpretation

As per the data, the maximum number of respondents belong to the 15-25 years age group, which is 43.6%. The second highest age group is 26-35 years with 21.8%, followed by the 46-55 years age group which is 20%., followed by the age group of 36-45 years and the group with the least number of respondents is older than 55 years, which is 5.4%.

Q1. Were you tested positive for COVID-19?

Table No. 2		
Options	**Frequency**	**Percent**
Yes	22	40
No	22	40
Didn't get tested	11	20
Total	**55**	**100.0**
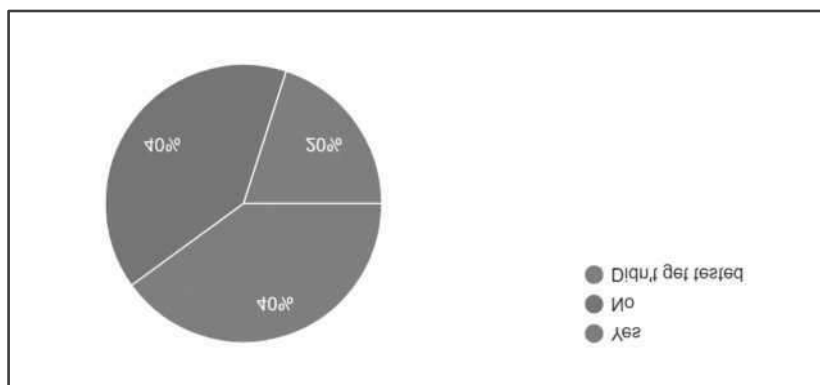
Interpretation

As per the data, majority of the respondents didn't get tested and those who did get tested were not tested positive for COVID-19, which is 40% in both groups. People who tested positive for COVID-19 are fairly lower, which is 20%

Q3. If yes, were you symptomatic or asymptomatic?

Table No. 3		
Options	**Frequency**	**Percent**
Symptomatic	14	53.8
Asymptomatic	12	46.2
Total	**26**	**100.0**
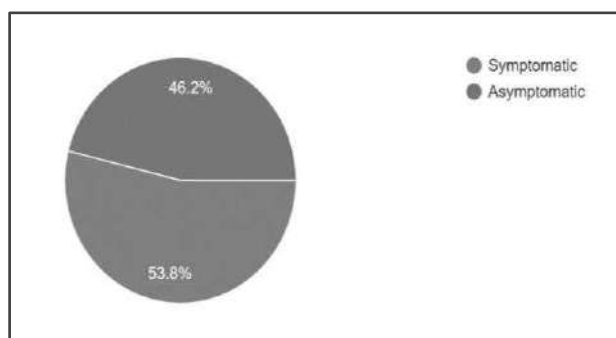
Interpretation

As per the data, majority of the respondents who tested positive for COVID-19 were symptomatic, which is 53.8%. Whereas, the rest were asymptomatic, which is 46.2%.

Q4. Did you take any home remedial measures for boosting your immunity?

Table No. 4		
Options	**Frequency**	**Percent**
Yes	41	74.5
No	14	25.5
Total	**55**	**100.0**
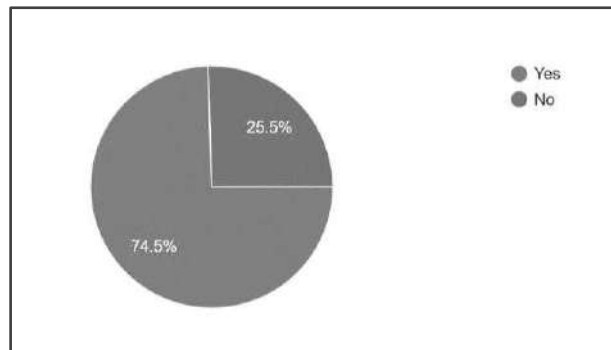
Interpretation

As per the data, majority of the respondents adopted for different home remedial measures for boosting their immunity, which is 74.5%. Whereas, others did not take any home remedial measures, which is 25.5%.

Q5. If yes, what measure did you adopt?

Table No. 5		
Common Home Remedial Measures	**Frequency**	**Percent**
Vitamin Supplements	7	16.3
Ayurvedic Remedies	15	34.9
Homemade Immunity Boosters	8	18.6
Homeopathic Medicine	4	9.3
Avoiding food from restaurants and increased consumption of fruits	7	16.3
Exercise	2	4.7
Total	**43**	**100**
Total Number of Responses	**17**	

HOME REMEDIAL MEASURES ADOPTED AGAINST COVID-19
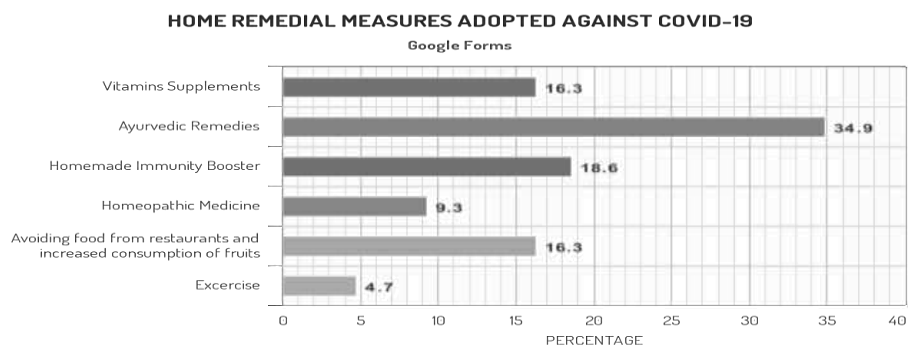
Interpretation

As per the data, majority of the respondents adopted Ayurvedic Remedies, which is 34.9%, followed by Homemade Immunity Boosters, which is 18.6%, followed by Vitamin Supplements and Avoiding food from restaurants and increased consumption of fruits, which is 16.3%, followed by Homeopathic Medicine, which is 16.3%. Exercise had the least frequency, which is 4.7%.

Q6. What effects did the pandemic & self-isolation have on your mental health?

Table No. 6		
Options	**Frequency**	**Percent**
Fear of infection	25	23.1
Stress & Anxiety	31	28.7
Depression	14	12.9
Mood Swings	37	34.2
Other	1	0.9
Total	**108**	**100**
Total Number of Responses	**55**	

MENTAL EFFECTS OF THE PANDEMIC & SELF-ISOLATION
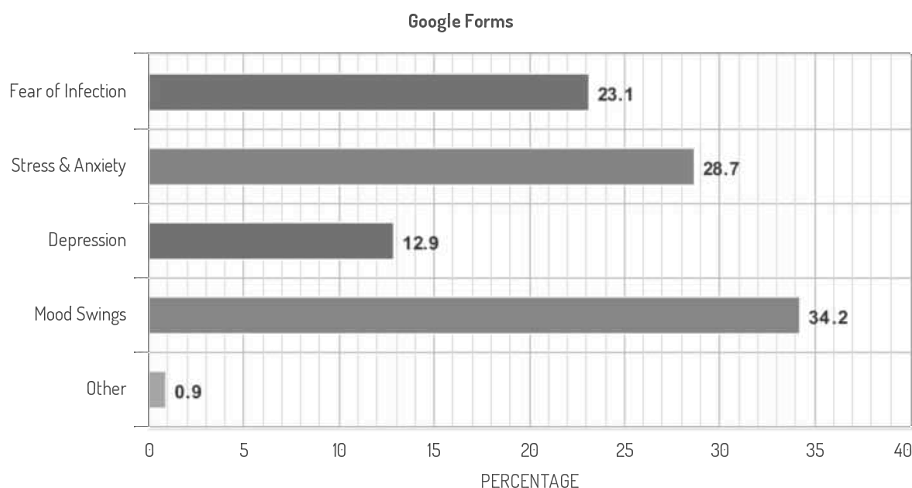
Interpretation

As per the data, majority of the respondents had mood swings due to the pandemic and self-isolation, which is 34.2%, followed by Stress & Anxiety, which is 28.7%, followed by Fear of Infection, which is 23.1%, followed by Depression, which is 12.9%. Other effects had the least frequency, which is 0.9%.

Q7. Did you believe the rumor that the COVID-19 virus would die with a rise in temperature in summer?

Table No. 7		
Options	**Frequency**	**Percent**
Yes	13	23.6
No	28	50.9
Maybe	14	25.5
Total	**55**	**100.0**
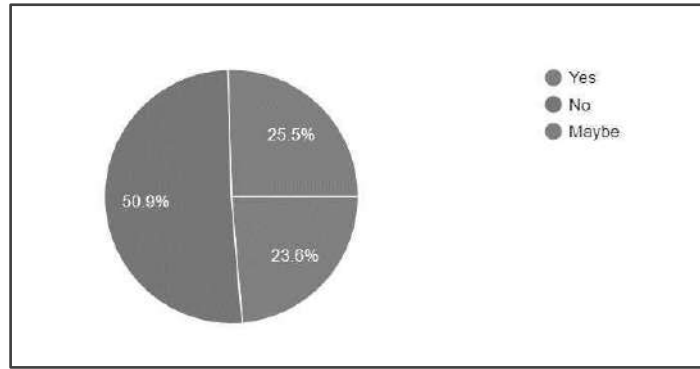
Interpretation

As per the data, majority of the respondents did not believe the rumor, which is 50.9%, followed by the group which who was not sure, which is 25.5%. The group which did believe the rumor were the lowest, which is 23.6%.

Q8. If yes, what effect did it have on your mental state?

Table No. 8		
Options	**Frequency**	**Percent**
Positive	19	54.3
Negative	11	31.4
Other	5	14.3
Total	**35**	**100.0**
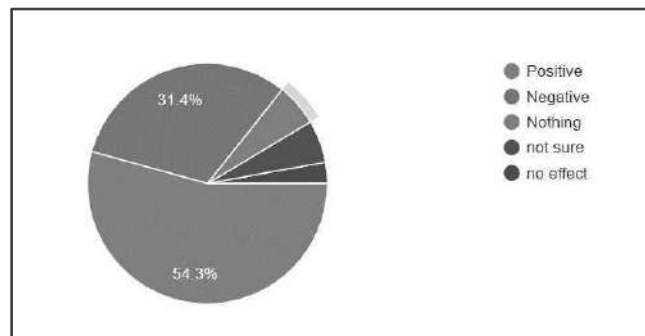
Interpretation

As per the data, majority of respondents who did believe the rumor had a positive effect on their mental state, which is 54.3%, followed by people who had a negative effect, which is 31.4%. Rest of the respondents belonged to the 'other' category and basically had no effect.

Q9. Did you participate in support of the Government campaign by banging utensils and clapping?

Table No. 9		
Options	**Frequency**	**Percent**
Yes	37	67.3
No	11	20
Didn't believe	7	12.7
Total	**55**	**100.0**
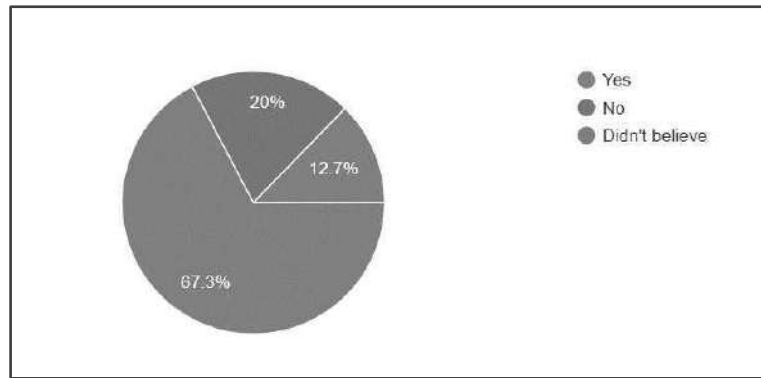
Interpretation

As per the data, majority of the respondents participated in support of the Government campaign by banging utensils and clapping, which is 67.3%, followed by the group which did not participate, which is 20%. Rest of the respondents didn't believe in so, which is 12.7%.

Q10. If yes, what effect did it have on your mental state?

Table No. 10		
Options	**Frequency**	**Percent**
Positive	29	67.4
Negative	8	18.6
Other	6	13.8
Total	**43**	**100.0**
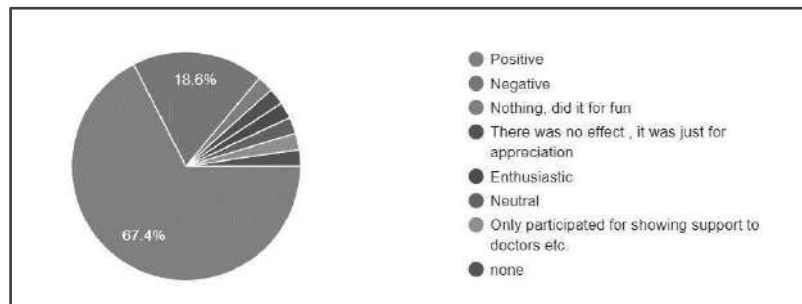
Interpretation

As per the data, majority of people who did participate in the government campaign had a positive impact on their mental state, which is 67.4%, followed by the group which had a negative impact on their mental state, which is 18.6%. Rest had effects other than the two options such as enthusiastic effect, neutral effect etc,which is 13.8%.

Q11. Which of the following superstitious beliefs related to COVID-19 are you aware of?

Table No. 10			
Options	**Frequency**	**Percent**	
Drinking or bathing in cow urine	29	27.3	
Worshiping the goddess "Corona Mai"	12	11.3	
The virus would not affect vegetarians	14	13.2	
Lighting incense sticks made from cow dung	8	7.5	

Mass banging of utensils and clapping	31	29.2	
Other	12	11.3	
Total	**106**	**100**	
Total Number of Responses	**55**		

MENTAL EFFECTS OF THE PANDEMIC & SELF-ISOLATION

Google Forms
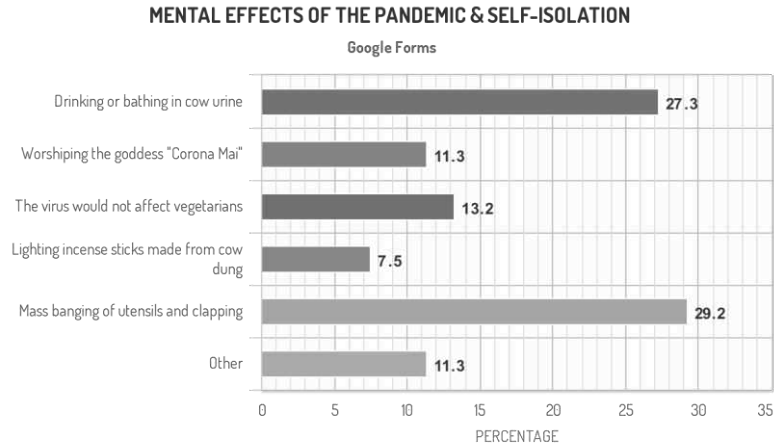
Interpretation

As per the data, majority of the respondents were aware of Mass banging of utensils and clapping, which is 29.2%, followed by Drinking or bathing in cow urine, which is 27.3%, followed by The virus would not affect vegetarians, which is 13.2%, followed by Worshiping the goddess "Corona Mai" and other, which is 11.3%. Respondents were least aware of the superstition "Lighting incense sticks made from cow dung."

Q12. Did you participate in any religious practices for protection against the disease?

Table No. 12		
Options	**Frequency**	**Percent**
Yes	10	18.2
No	24	43.6
Do not believe in such practices	21	38.2
Total	**55**	**100.0**
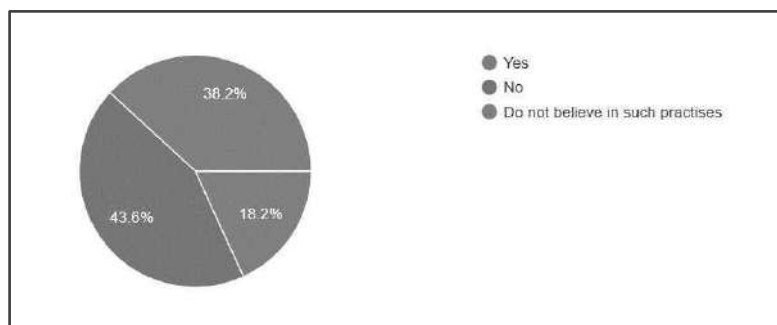
Interpretation

As per the data, majority of the respondents did not participate in any religious practices for protection against the disease, which is 43.6%, followed by the group which didn't believe in such practices in the first place, which is 38.2%. Rest, participated in such practices with a hope to get protection against COVID-19, which is 18.2%.

Q13. Which form of media do you believe is responsible for spreading fake news regarding the virus?

Table No. 13		
Options	**Frequency**	**Percent**
Traditional Media - Newspaper, TV & Radio	1	1.8
Social Media	21	38.2
Both	33	60
Total	**55**	**100.0**
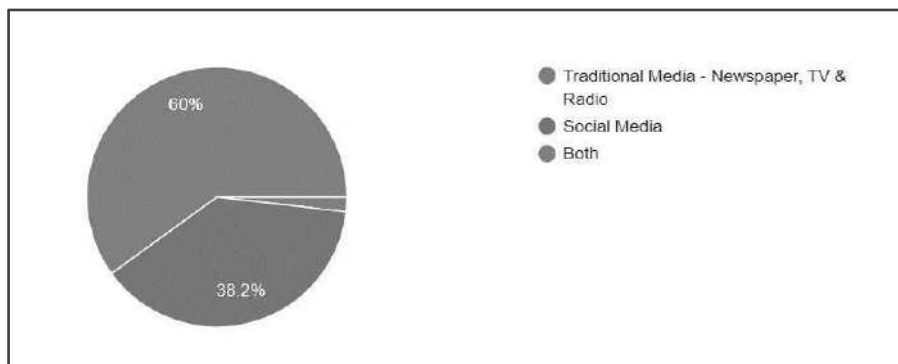
Interpretation

As per the data, majority of the respondents believe both traditional media and social media are responsible for spreading fake news regarding the news, which is 60%, followed by the group which believed social media is responsible for so, which is 38.2%. Rest believed traditional media is responsible for spreading fake news regarding the virus, which is 1.8%.

6.0 Findings

- ✓ After the analyzing the data, we conclude that a majority of the respondents that were tested positive for COVID-19 were symptomatic, although another half that were asymptomatic, were very close to 50% of the total respondents. This indicates the fact that the immunity of Indian population is rather strong.
- ✓ The fear of the disease made majority of the respondents opt for a variety of home remedial measure for boosting there immunity. This indicates the impact of the disease outbreak on people, and how it brings out a necessary behavioral change in habits related to physical health and immunity of people.
- ✓ Majority of the respondents opted for Ayurvedic remedies for boosting their immunity. This is due to the fact that this alternative medicine system has its historical roots in the Indian subcontinent. For centuries, this system has provided the cure for many health issues and diseases. As of now, their is no cure for COVID-19, so it is important to boost immunity for reducing its ill-effects, due to which Indians relied on traditional, ages old Ayurvedic recipes.
- ✓ Other measures included taking supplements, immunity boosters, increased consumption of healthy foods such as fruits and vegetables, avoiding food from restaurants and exercise, which focuses on increasing intake of necessary vitamins and nutrients, keeping the body fit and reducing chances of contact with the virus.

- ✓ As per the data, people had many ill-effects on their mental heath as well. Due to COVID-19

being a serious threat, fear of infection was common among people, whereas, self-isolation brought loneliness into people's life which most commonly caused mood swings, followed by stress and anxiety and depression. Such responses makes coping up with such mental issues, an important topic. People should take the help of their family and friends, and should consult experts.

✓ Although half of the respondents didn't believe the rumor that claimed death of the COVID-19 virus in summer, a portion of the other half did or were not sure if they believed it or not. This indicates how desperate people becomes for a global threat to die, as they know that if it doesn't die, the lives of their loved ones and themselves will be at stake.

✓ Majority of the respondents did participate in support of the government campaign by banging utensils and clapping while the motives were different. Some did so to show a sense of gratitude towards the front-line workers who were putting their lives at stake such as doctors etc. While others just did so as the whole activity was enthusiastic and fun. The whole event's motive was to show gratitude towards the workers on the front-line, but the reception of this message turned out to be a bit faulty as many groups of people came together to participate in the event, ignoring social distancing. Many rumors also arose, claiming the "positive vibrations" from the activity would subdue the disease.

✓ High number of respondents were aware of the usage of cow urine for curing the disease. This was so, because from ages, *Gowmutra* or cow urine has been used by people as they believe it's the cure for every health issue. Followed the superstitions and misbeliefs like the virus didn't affect vegetarians, as initially it was believed that the virus travelled from animal meat and many narrow-minded Indians believed non-vegetarians are "sinners", and, people worshiping the virus as a goddess for sparing their lives, as a desperate measure.

✓ While majority of the respondents were young adults, the data shows that people did not participate or did not believe in religious practices for protection against the disease., while the older portion of the respondents did participate. This indicates the difference is mindsets between younger and older generation, and highlights performing religious practices as another desperate measure for protection against the disease.

✓ Believing rumors and participating in religious practices had mostly a positive effect on mental health of the people. This indicates that believing some misbeliefs and superstitions can provide people a soothing effect, relieving them from stress, anxiety and fear of infection, and that's why superstitious beliefs still arise in modern society also.

✓ Majority of the respondents held both forms of media - traditional and social media responsible for spreading fake news regarding the disease while most leaned towards social media. This indicates that social media can be an unreliable source of information, as it lacks fact-checking, but also traditional media must not use sensational news as a ticket for more TRP, readership or listeners, and should focus more on important news.

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Image Enhancement Based on Nuclear Fusion using Magnetic Confinement

Indu Sharma*, Chandiakditya kumawat**, V.K. Panchal*** and Gaurav Jindal****

ABSTRACT

The multi scale retina with color healing (MSRCR) has shown itself to be a very flexible automatic image enhancement algorithm that simultaneously presents dynamic range compression, color fidelity, and shade rendition. A range of algorithms exist that provide one or greater of those capabilities, but now not all. In this paper we evaluate the performance of the MSRCR with strategies that are extensively used for photo enhancement. Specifically, we examine the MSRCR with color adjustment methods together with gamma correction and gain/offset utility, histogram modification techniques including histogram equalization and manual histogram adjustment, and other greater powerful strategies consisting of homomorphic filtering and burning and dodging'. The comparison is executed through testing the suite of photo enhancement methods on a fixed of numerous snap shots. We locate that although a number of these techniques paintings well for some of those photographs, best the MSRCR performs universally well at the check set.

Video cameras have these days end up commonplace diagnostic gear in Magnetic Confinement Nuclear Fusion. They offer critical statistics for each the control of the experiments and the physical interpretation of the effects. Since those cameras can produce up to masses of kilo frames according to 2nd and their information content can be very one of a kind, relying on the experimental situations, several new image processing equipment needed to be devised to absolutely make the most these diagnostics. New Structural sample reputation algorithms had been advanced to retrieve the desired facts from the sample recognition algorithms have been advanced to retrieve the desired facts from the huge reservoirs of video frames in a green and reliable way. Specific actual time algorithms, based totally at the computational paradigm of Cellular Nonlinear Networks, were carried out on FPGAs to identify hot spots at the vacuum vessel and consequently to shield JET plasma facing additives. Various devices getting to know gear, mainly Support Vector Machines, were given Hu moments as input to routinely identify plasma instabilities. The method of the optical float has allowed deriving data about the motion of objects in three dimensional spaces even though they were detected by using a unmarried camera. A new anomaly detector based on a unique interpretation of external guide vectors is being examined with very nice outcomes. Many of the more innovative solutions are primarily based on pretty popular strategies and are therefore anticipated to be applicable additionally in different fields of research.

Keywords: *Real time image processing; Infrared Thermography (IR); SVM Regression; multiscale retinex with color restoration (MSRCR); Non-linear Point Transforms; Histogram Equalization; Point operations; Homomorphic filtering; Manual Burning and Dodging.*

1.0 Introduction

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The Multiscale Retinex1 (MSR) is a generalization of the single-scale retinex2 4 (SSR), which, in turn, is based upon the ultimate model of Land's middle/surround retinex5. The cutting-edge model of the MSR combines the retinex dynamic range compression and shade constancy with a shade 'recovery' filter that provides notable colour rendition6 eight. This version of the MSR is known as the Multiscale Retinex with Color Restoration (MSRCR). The MSRCR has been examined with a totally big suite of snap shots and has consistently tested to be higher than any conventional photograph enhancement approach.

Transforms consisting of the logarithmic remodel or the 'square-root' transform; and global transforms along with histogram equalization [9], homomorphic filtering [10], and guide 'burning and dodging.'

FOR human beings visible notion constitutes the primary supply of statistics. The part of the Brain devoted to photograph processing is considerably large than the only of all the other senses. On the alternative hand, only these days, with the appearance of cameras and computers, it has come to be smooth to seize and store pics on outside helps and no longer in reality on character recollections. Whereas as much as the end of the 19 century most effective artists and illustrators had the privilege of producing images, normally on some form of paper or canvass, these days it has become viable for everyone now not handiest to file man or woman frames but also whole movies. In unique digital video cameras have stepped forward and superior so much that they are now discovered in a selection of gadgets, inclusive of cellular telephones, portable virtual assistants, handheld online game consoles and an entire host of different transportable gadgets Video cameras have consequently come to be a tool of comfort, they're being used often to file, create and percentage facts and they are now gambling every day a more position in society, media and way of life [1].

The continuous progress in camera technologies has resulted in commercial products with performance that have become very appealing in many scientific applications. In Magnetic Confinement Nuclear Fusion (MCNF), the number of cameras deployed on the various Experiments has increased steadily in the last decades. Nowadays they have become routine diagnostics with multiple applications, ranging from protection of the first wall to the analysis of plasma instabilities and even the characterization of turbulence.

The foremost challenges to picture processing for MCNF may be grouped into four classes. First of all, the retrieval of the vital data from the repositories of pictures has emerged as pretty a mission. JET database for instance has grown to be quite large, exceeding ninety Terabytes, of which at the least 1/2 is made from motion pictures [2].

The 2d problem is constituted by way of the need to acquire at the least a simple stage of information from the movies in real time. This is complicated through the truth that the typology of objects to be detected could be very wide and that the overall look of the frames (from historical past luminosity to the level of noise) can alternate dramatically from experiment to test.

To overcome this issue parallel computation is required, which has been completed at JET by means of implementing the computational paradigm of Cellular Nonlinear Networks [4] on FPGAs (see section 3). Various system learning strategies have proved additionally to be crucial to properly classify the diverse items acting in the frames especially of the visible cameras (see also phase three).

The third major group of challenges is the want of providing diverse types of statistics for bodily research. An ordinary requirement is the speed of objects, instabilities, pellets or others, captured through the cameras.

Another category of challenges for picture processing in MCNF is connected to photograph interpretation and mainly to the need to become aware of anomalous behavior inside the discharges. A new event detector, based totally on Support Vector Machines (SVM) [6], has been lately advanced at JET and its miles being applied to this hassle of anomaly detection.

2.0 Related Theories and Methods

2.1 State-of-the-art Techniques

In this section we in brief describe the traits of a number of the state-of-the-art techniques maximum typically used for photo enhancement.

2.1.1 Gain/offset correction

One of the maximum common strategies of enhancing a photo is the application of a gain and an offset to stretch the dynamic range of an photo. This is a linear operation and hence has restricted achievement on scenes that embody a miles wider dynamic range than that that may be displayed. In this example, loss of detail occurs due to saturation and clipping in addition to because of negative visibility in the darker regions of the photograph. This process will offer a great visible representation of the authentic scene.

2.1.2 Histogram Equalization

A worldwide approach that works nicely for a wide sort of pictures is histogram equalization. This approach is primarily based at the idea of remapping the histogram of the scene to a histogram that has a close to-uniform probability density function.

This results in reassigning dark regions to brighter values and bright regions to darker values. Histogram equalization works well for scenes which have unimodal or weakly bi-modal histograms (i.e. Very dark, or very brilliant), however now not so nicely for the ones pix with strongly bi modal histograms (i.e. Scenes that comprise very darkish and very vivid regions).

Point operations

Figure 1 indicates a collage of pictures that compares the output of the MSRCR with the factor transforms. As may be seen, the MSRCR furnished the exceptional standard visual nice in every case. The techniques which include histogram equalization perform properly for a huge variety of scenes; however they also fail for a large set. The MSRCR outperforms the alternative techniques universally.

Homomorphic filtering

Figure 2 suggests an assessment of the MSRCR with homomorphic filtering. The homomorphic clear out constantly furnished splendid dynamic variety compression however is lacking in very last coloration rendition. The output of the homomorphic filter out in impact appears extraordinarily hazy as compared with the output of the MSRCR although the dynamic range compression of the 2 methods seems to be similar.

Manual Burning and Dodging

Figure three shows a comparison of the MSRCR with the consequences obtained via the use of manual burning and dodging. The manually processed photo indicates an improvement over the unique as far because the data and detail within the darkish regions is worried however it lacks the vividness and coloration saturation that the MSRCR picture retains and even enhances.

There is obvious streaking from the very local operation of the tool stroke—this could be eliminated but only at the expense of adding considerably to the total processing time.

In the high detail areas where there are sharp differences in reflectance, a tool with size approaching that of a single pixel would be required to bring out all the details. Since the time needed for enhancing a region is roughly in inverse proportion to the size of the tool being used for the processing, this suggests that a very large amount of time would be needed to perform such an

enhancement. On a scene-by-scene basis, the time and effort required for manual manipulation can be reasonable; but the MSRCR produces images that are equivalent or better in quality at a fraction of the time. Because the visual quality of manual burning and dodging is solely limited by the patience and time commitment of the user, the case shown is perhaps typical of the performance achieved by the persistent non-specialist.

REAL TIME IMAGE PROCESSING FOR PROTECTION AND CONTROL INFRARED THERMOGRAPHY FOR PROTECTION OF THE FIRST WALL

The functionality of materials to resist the strength loads precipitated with the aid of thermonuclear plasmas constitutes one of the essential issues at the route to a commercially viable nuclear fusion reactor. Therefore a good sized a part of the clinical and technological efforts on current Tokomaks is devoted to figuring out the exceptional combination of materials able to withstanding the energy and particle loads of high temperature plasmas without spoiling their performance. This hassle, very sizeable for ITER, is already vital on JET and could represent one of the primary components of each the operation and the scientific activity after the setup of the brand new be wall and the W diverter.

Since excessive temperature plasmas do no longer emit infrared radiation, InfraRed thermography (IR) is a very useful device to decide the surface temperature of the plasma dealing with additives. For protection and in preferred for feedback programs, the analysis of the photos ought to be finished in real time.

A series of serial codes, implementing traditional image processing algorithms based on linear algebra, have been developed at JET to identify the hot spots on JET internal surface of the vacuum vessel. Hot spots are regions of the plasma facing components which during a discharge reach temperatures above a certain threshold determined on the basis of machine protection requirements. These traditional algorithms have a very high accuracy and indeed manage to identify the hot regions with practically 100% of success rate. These results have been verified using a database of 11300 frames of JET wide angle IR cameras, which have been all analyzed manually by the experts to determine the hot spots. An example of detection of hot spots is given in the bottom picture of figure 1.

The essential weak spot of this answer is that those serial algorithms present a computational time which relies upon strongly on the contents of the pics. If the variety of pixels to be processed increases so does the computational time. This is illustrated in parent three in which the frames of a video received at some stage in a discharge are analyzed and the computational time required for each one has been calculated. In trendy, for the more common components of the video, the set of rules manages to procedure approximately fifty five frames in keeping with 2d however in some special instances; the desired time can even exceed 9 seconds. This isn't always a very quality scenario because anomalous frames are those that usually imply that something isn't right with the discharge and an urgent selection need to be taken.

To overcome this problem, the Cellular Nonlinear Network (CNN) paradigm has been tested [4]. A CNN usually consists of a bi dimensional array of cells, the evolution of which is modeled by a nonlinear dynamical system and depends on the current state of the cell and on the states of the cells in its neighborhood (usually, a 3x3 sub matrix surrounding the target pixel).

IMAGE PROCESSING OF VISIBLE VIDEOS FOR INSTABILITY IDENTIFICATION

The results of the hot spot detection are quite positive but they have been obtained using frames of JET IR camera. Since high temperature plasmas do not emit in the IR, these images are

relatively clean and in any case much less complex than the ones of the visible, which can present a much more involved phenomenology. The videos detecting radiation in the visible can indeed be much more affected by reflections, emission due to plasma instabilities, emissions due to objects, dusts or flakes, dropping into the plasma etc. Also the general level of background luminosity can vary significantly from one experiment to the other. Therefore even a simple thresholding step cannot be performed in the usual simple way. To obtain the results presented in this sub section, the first extraction of the high luminosity pixels has been performed by first blurring the original image. This is achieved by replacing the grey level of each pixel with an average over a suitable area surrounding it. Then the blurred image has been subtracted from the original one and then the thresholding is performed on the difference. This is the only robust way identified to perform even this seemingly simple preprocessing step. One important objective of image processing for visible cameras in JET has been the real time identification of Multifaceted Asymmetric Radiation from the Edge (MARFE) events [9]. These instabilities manifest themselves as ribbons of radiations moving up and down the vacuum vessel on the high field side, as shown in figure 4.

To automatically identify these instabilities a classifier based on Support Vector Machines has been trained. More than 4000 frames have been analyzed manually to provide the training and the test sets (60% and 40% of the frames respectively). Since the objects to be detected change position and rotate during the time evolution of the discharge, the simple barycenter's of the ribbon like regions due to the MARFEs are not enough to guarantee a sufficiently high rate of success. To improve the success rate additional information is required, which has been provided as the first two Hu moments. The Hu moments are a combination of central moments of an object in an image, which are practically invariant under rotation, translation and rescaling [10].

3.0 Research Gap

The most research limitation to image processing for Magnetic Confinement using Nuclear Fusion may be classified into four classes. First of all, the retrieval of the vital data from the repositories of pictures has emerged as mission. JET database for instance has grown to be quite large, exceeding ninety Terabytes, of which at the least 1/2 is made from motion pictures [2].

The other group of challenges is the want of providing diverse types of statistics for bodily research. An ordinary requirement is the speed of objects, instabilities, pellets or others, captured through the cameras.

Another category of challenges for image processing in Magnetic Confinement Nuclear Fusion is connected to photograph interpretation and mainly to the need to become aware of anomalous behavior inside the discharges.

4.0 Proposed Work

Fusion diagnostics translate physical behaviors into reproducible structural shapes in the signals. Studying the phenomena of interest typically requires constructing unique databases to consciousness the records analysis method on the trouble at hand. To this end, particular patterns (i.E. Physical activities) should be discovered inside massive databases.

In general, pattern location has been historically completed in a manual manner. This looking manner turns into intractable in massive databases or under lengthy pulse conditions. The proliferation of diagnostics that use cameras creates an even worse state of affairs with reference to saved statistics and pattern vicinity.

The computerized seek of bodily events in alerts has been recently taken into consideration

for nuclear

Fusion environments. A novel and usual method, Universal Multi-Event Locator (UMEL), lets in the automatic location of events in waveforms and video-films. This technique is primarily based on assist vector machines regression estimations to perceive and discover specific signatures within the alerts which include edges, peaks or textures. These footprints allow the characterization of neighborhood facts both within the time (or space) area or inside the frequency (or spatial frequency/wavenumber) domain or in both.

Simple linear regression consists of minimizing a regularized error function. To obtain sparse solutions in the case of SVM regression, the quadratic error function is replaced by an e-insensitive error function [15]. This defines a region which provides zero error if the difference between the regression estimation and the target value is less than µ.

The SVM regression presents two specific varieties of assist vectors, the ones which are inside the insensitive place and the ones which are outdoor this place. The help vectors which lay outdoor the insensitive place are referred to as outside guide vectors and can be interpreted because the symptom of in particular abrupt modifications within the behavior of the sign. This is the translation proposed in [6] for time collection and carried out to pictures in this paper. The quantity of outside support vectors is indeed an illustration of huge modifications in the arrival of an character frame with appreciate to the common frame in the same video. This is shown graphically in figure 8. The snap shots, which present features significantly distinct from the standard frames, are characterized via an excessive wide variety of outside support vectors. The variety of external support vectors lets in consequently identifying the frames wherein something anomalous is present in the image. The number of external support vectors can be used as an anomaly detector. The advantage of this solution is, among other things, its absolute generality. The approach can be applied to any type of image and is equally useful in analyzing other types of signals, such as time series.

5.0 Results

The automatic nature of the process also enables us to use the same set of parameters 'blindly' for each and every image that is encountered. Of course, there are a few images for which the MSRCR has sub-par performance. But these are fairly rare and generally relate to defects in the original Image data—such as preferential clipping of a spectral band. We are currently investigating methods to detect such scenes and adaptively adjust the MSRCR to correct for these sub-par performances. adaptively adjust the MSRCR to correct for these sub-par performances.

Figure 1: A comparison of the MSRCR with point operations. Top row: original; second row: histogram equalization; third row: gain/offset; fourth row: gamma non-linearity; bottom row: MSRCR

(a) Original (b) Homomorphic filter (c) MSRCR

Figure 2: A comparison of the MSRCR with images enhanced by homomorphic filtering. The dynamic range compression achieved by

the two methods is comparable, but the MSRCR produces images that possess much better contrast and sharper colors

(a) Original (b) Manual burning and dodging (c) MSRCR

Figure 3: Comparison of the MSRCR with Manual 'Burning-and-Dodging.' The Manually Enhanced zimage was Produced using the

burning and dodging tool provided in Adobe Photoshop 4.0. Circular tools with soft edges were used to modify the color content of

different regions. The total time to produce this enhanced image was 20 minutes. The MSRCR image took 45 seconds on a PentiumPro

200MHz machine.

(a) Original (b) Manual burning and dodging (c) MSRCR

6.0 Conclusion

We have supplied a brief description of the maximum commonly used photograph enhancement strategies and compared their operation with the multiscale retinex with color recovery. We have proven that the MSRCR outperforms those strategies in all cases in terms of dynamic variety compression accomplished, and the rendition of the very last color photograph.

The automatic nature of the manner additionally enables us to use the equal set of parameters 'blindly' for every and each image that is encountered. Of direction, there are some snap shots for which the MSRCR has sub-par overall performance. But these are pretty uncommon and generally relate to defects within the unique Image records—along with preferential clipping of a spectral band. We are presently investigating methods to stumble on such scenes and adaptively modify the MSRCR to correct for these sub-par performances.

New photograph processing tools are indispensable in MCNF to protection operate the subsequent generation of gadgets and to maximize their clinical exploitation. The peculiarities of films of high temperature plasmas require in addition traits. The appropriate advances variety from

photo processing (an photo as enter to the analysis method to offer an picture as output), to photograph analysis (an picture as enter to offer a quantitative dimension as output) and photo interpretation (an photograph as input to reap a high stage of interpretation as output). Particular attention will must be dedicated to the extraction of useful statistics in real time. Further progress could be additionally very applicable inside the area of anomaly detection. From the point view of the hardware, parallel computation and radiation hardness is sincerely some of the foremost issues for the future.

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Awareness of Growing Cyber-crimes in Society 4.0

Vinita Sharma* and Tanu Manocha**

ABSTRACT

In the fast-paced Information and communication technology, cyber-crimes are also evolving and growing very fast thereby increasing damage of the organizations and individuals universally. This paper is an attempt to get an overview of the different trends of cyber-crimes, to spread awareness of cyber-crimes among people so as to increase security of the people of Delhi and NCR from cyber-crimes.

Since Internet has become a basic need of life in metro cities today for almost every individual, increased dependence on Internet has led to the rise of cyber-crime and one of the best ways of protection from cybercrimes is its awareness. The paper intends to understand the level of awareness about various cyber-crimes present in the era of Society 4.0 in capital of India. The paper also identifies the importance of being acquainted with the effects of cyber-crime and awareness of the methods of prevention.

Keywords: Cyber-crime; Analysis; Cyber security; Society 4.0

1.0 Introduction

Society 5.0 was proposed in the 5th Science and Technology Basic Plan as a future society that Japan should aspire to. There is a need of society 5.0 as it ensures no humans is left behind, as it emphasizes on well –being and happiness of humans. It is a human centric approach which balances the economic advancements with the resolution of social problems that highly integrates cyber space and physical space. The current society which is prevailing is society 4.0 and is called as informational society and prior to Society 4.0 we have Society 3.0 , Society 2.0 and Society 1.0 which is termed as Industrial Society, Farming Society , and hunting society respectively.

Society 4.0 is an important part of the Social Innovation. After development of various types of previous societies, Society 4.0 started with the innovative and supporting technologies of Wi Fi, computers, satellite, internet, smart phones. The data generated is stored in a cyberspace called as cloud and this can be accessed through internet to retrieve and analyze the data.

2.0 Literature Review

2.1 Cyber Crimes in Society 4.0

Every coin has two sides. Although Society 4.0 has filled our lives with lots of comfort in terms of exchange, maintenance of data and communication worldwide through information and communication technologies, it has given a fear of data theft too.

Symantec report published in January 2019 reveals that "Globally India is the third least honest country on the Internet". (Symantec, 2019) Among Indian cities, most cyber-crimes take place in Bangalore followed by Mumbai and New Delhi. Among Indian cities, most cybercrime takes place in Bangalore. 76% of Indians have been victims of some form of cybercrime.

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60% have been victimized because of computer viruses and malware. 45% of cyber-crimes in India were never resolved. Over the last 5 years, there has been a 457% increase in cybercrime in India"

Figure 1 – Society 5.0

*Source - **https://myrepublica.nagariknetwork.com/news/toward-society-5-0/***
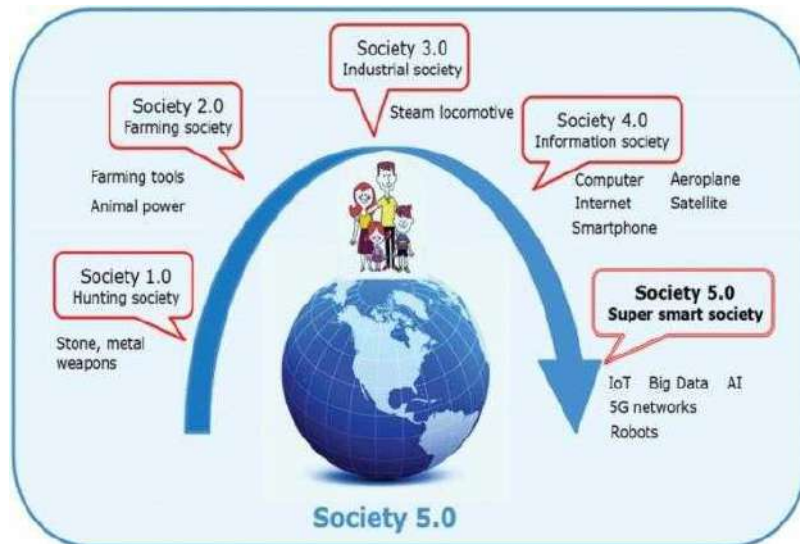
(ET, 2018) On 19th October, 2018 India faced a banking nightmare. The State Bank of India (SBI) blocked 6 lakh debit cards after a reported malware-related breach in a non-SBI ATM network. In what is possibly India's largest financial data breach, nearly 32 lakh debit cards across 19 banks, including HDFC Bank, ICICI Bank and Axis Bank, were compromised.

Cybercrime has become a bitter reality of the world whereas very little is known about it universally. Cyber-crime has affected the organizations in all arenas (Bendovschi A, 2015). According to (Chen et al, 2016) explains that there is no single universally accepted definition of cyber-crime, but several arguments may be found in literature over it. The European Commission defined it as, "criminal acts committed using electronic communications networks and information systems or against such networks and systems. (Chen, 2016) explains that definition incorporates about the crimes which were facilitated by computers and those that were committed against them.

According to a report by Times of India dated November, 2019 discloses that Cyber-crime cases in Delhi & NCR are increasing almost exponentially in the last 5 years. Cases on objectionable posts on social media were increasing very fast till 2018 but have started decreasing. There is a significant decrease in the number of arrested cyber criminals within the difference of one single year by 2019.

2.1.1 Types of cyber-crimes

Mike McGuire and Samantha Dowling, in 2013, suggested that cybercrimes can be explained easily after dividing into two different categories, which are, computer-enabled cyber-crimes and computer-dependent cyber-crimes. (Karali, 2015)

The most prevalent cyber-crimes in India may be listed as below -
1. Virus/Worms Attacks- which includes Worms, Trojan Horses and Denial of Service
2. Hacking
3. Identity Theft
4. Cyberstalking

5. Credit/debit card theft over a phone call/e mail/sms
6. Fraud bank transactions
7. Data Piracy.
8. Pornography/child Cyberbullying Cyber terrorism.
9. SQL Injection
10. Logic Bomb
11. Phishing
12. Spoofing
13. Email bombing or Spamming
14. Web Jacking
15. Data diddling
16. Salami Slicing Attack

2.2 Cyber-security - A prerequisite for Society 4.0

India's cyber security is going through a development phase, by using various innovative techniques and tools to protect from cyber-attacks and threats. According to PWC report 2019 "India's cyber security needs are not different from that of the rest of the world, there are a host of areas which require unique approach. Keeping in mind India's business landscape and her needs for cyber security tools and solutions, we have zeroed in on seven cyber security trends for the Indian market in 2019". (PWC, 2019)

2.3 Significance of awareness of cyber-crimes

Awareness about cyber-crime is essential for the youth (Levin et al., 2008). According to (Curtis and Colwell, 2000; Wang et al., 2008) explains that the risk in cyber space can be reduced by educating young people about the cyber- crime. More awareness and knowledge will help the people to decrease the cyber –crimes. This knowledge and awareness can be done by providing various training programme, resources for compliance, protection of personal information and also to develop policies, rules and regulations, Chawki (2005).

Choi (2008) emphasizes on the " Effectiveness of university programs in promoting knowledge and values about cybercrime as these programs could improve future behavior of students' towards cybercrime in terms of safety and security. This would establish norms and adjust prospects for illegal or delinquent behaviors". According to the literature review, it indicates that age, gender and knowledge have significant impact on cyber-crime.

3.0 Research Methodology

After completion of the literature review, both primary data and secondary data were used to examine the level of awareness of the residents of Delhi and NCR for cyber-crimes and means of cyber security. Convenience sampling is used for collection of data. For primary data collection questionnaire was developed and distributed randomly among the groups of different age groups who were the residents of Delhi and NCR. The questionnaire has demographic based, cyber-crimes based and cyber-laws based questions. The current study is based on 134 responses.

3.1 Analysis of primary data

Analysis of data is done, and it is an attempt to understand and connect to the different aspects of investigating different cyber-crimes.

Analysis of data gave a clear picture of the level of awareness of respondents for cyber-crimes and its prevention. A brief description of questions and analyzed results from the questionnaire are as

below:

3.1.1 Age Group

The questionnaire was distributed among 134 participants. The chart clearly indicates that maximum respondents were 18-21 years of age is 65% whereas 31% of the respondents were between 22-25 years of age and 4% of respondents were more than 25 years.

Figure 2 – **Age Groups of Respondents**
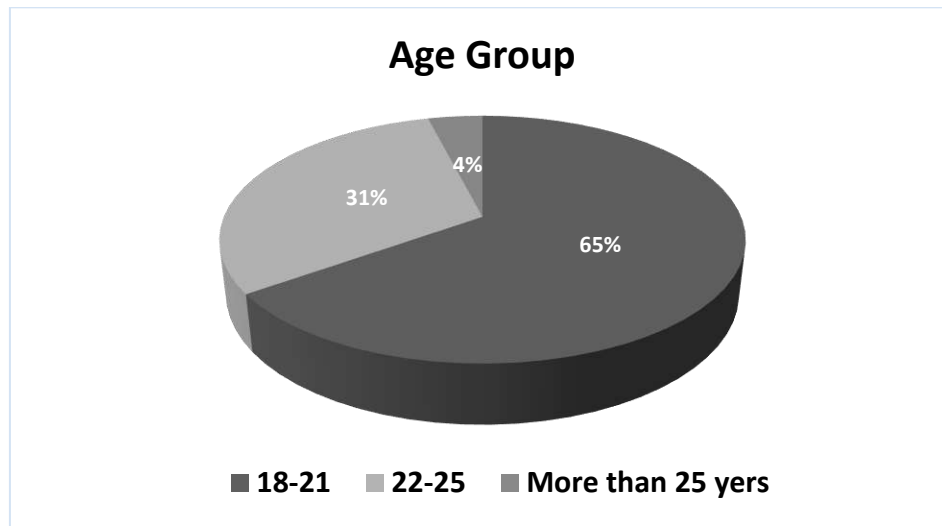
3.1.2 Gender

Gender plays an important role while doing such kind of analysis. It was observed that out of 134 respondents 36% were females and 68% were males.

Figure 3 – **Gender of Respondents**
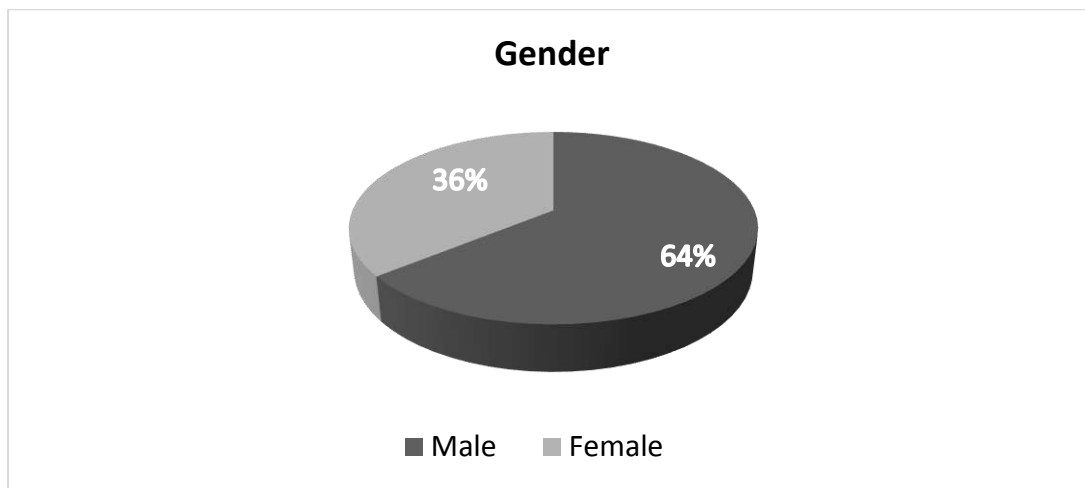
3.1.3 Qualification

Majority of the respondents of the questionnaire were post graduate i.e. 63% and 21% were graduates. That indicates that maximum respondents were highly educated people living in the capital of the country.

Figure 4 – Qualification of Respondents
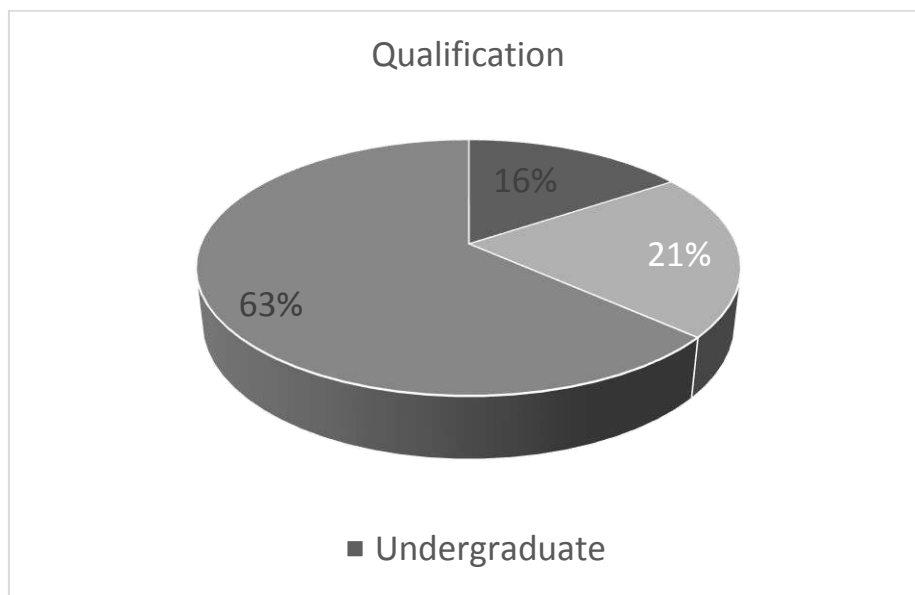
3.1.4 Perception of Awareness of Respondents

- 64% of the total respondents had this opinion that they are very well aware of the cyber-crimes.
- 19% of the total sample had a perception that they were moderately aware of the different types of cyber-crimes.
- 11% had very less awareness of cyber-crime and 6% of them admitted that they do not know anything about cyber-crimes.

Figure 5 – Perception of Awareness of Cyber-crimes
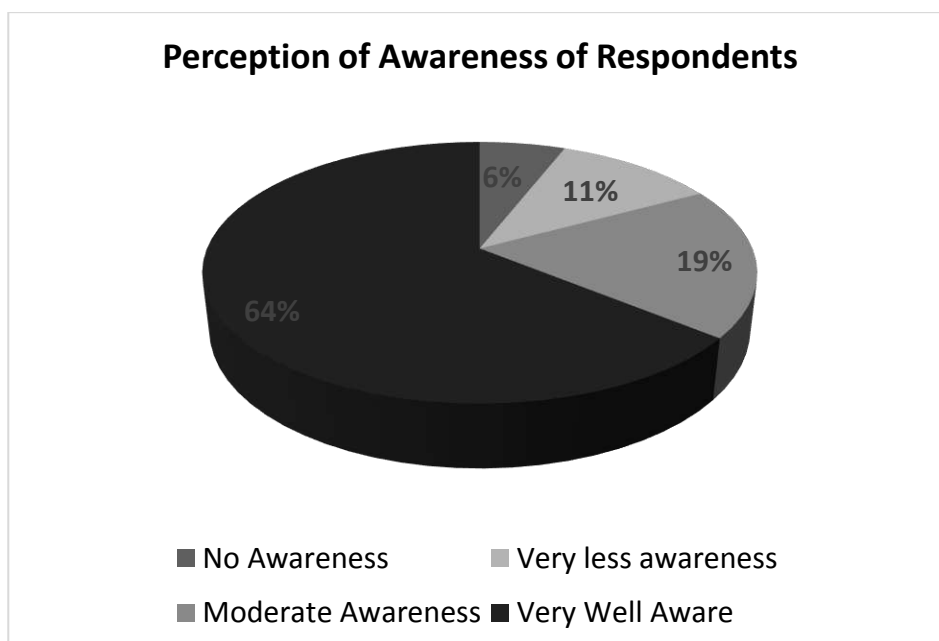
3.1.5 Awareness of the respondents with various types of cyber-attacks

In the questionnaire, a list of 18 different types of cyber-attacks was provided to the

respondents for the purpose to know about the maximum well known cyber-crime among the respondents.

The maximum known cyber-crime came out to be hacking.

The next best known cyber-attack is Credit/Debit Card Fraud, followed by fraud Bank transactions and then virus/worms attacks.

Figure 6 – Best known Cyber-attacks

Types of Cyber Attacks

Attack	Value
Salami Slicing Attack	6
Logic Bombs	9
Data Diddling	17
Web Jacking	22
SQL Injections	23
Denial-of-Service Attacks	34
Cyber Stalking	64
Cyber Terrorism	64
Spoofing	65
Phishing	87
Cyberbullying	89
Data Piracy	94
Spamming	98
Identity Theft	98
Virus/Worm Attacks	110
Fraud Bank Transactions	116
Credit/ Debit Card Fraud	124
Hacking	130

3.1.6 Awareness of cyber laws in India

Maximum respondents accepted that they are unaware of the any kind of anti-cyber-crime law or scheme in India. (45.4%). 35.3% respondents were aware of IT Act of India, 2000, 33.6% respondents were aware of 'Cyber- crime Unit of Delhi Police'. Few respondents were also aware of

the cyber security portals but the percentage of awareness was very low.

Figure 7 – Awareness of Cyber Laws

Cyber Laws in India
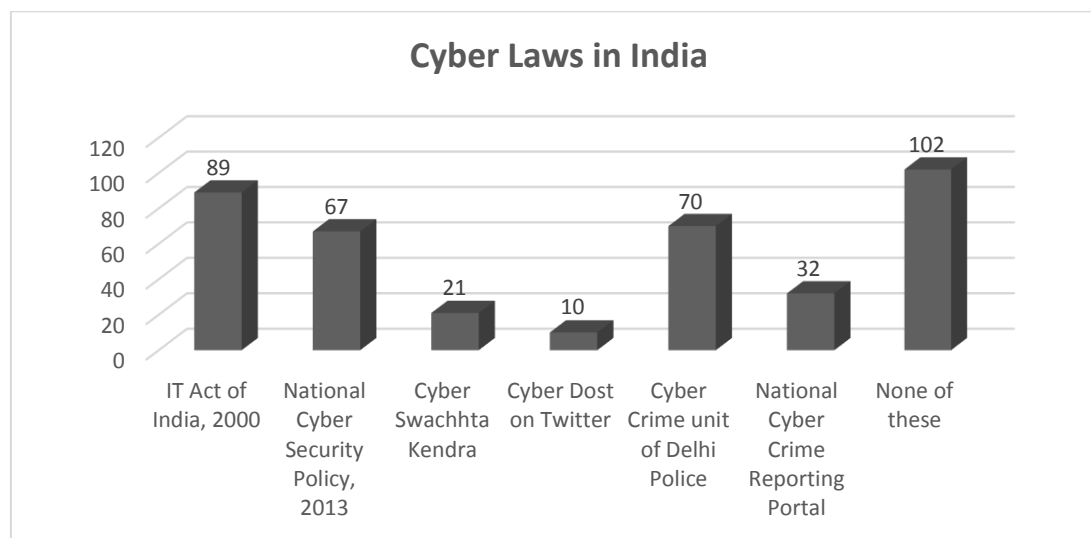
4.0 Conclusion

With the development of new emerging technologies which are leading to the emergence of a new society which is a combination of both digital as well as the physical environment, enhances the communication ability and also developing human-machine based interacting system and also involves the huge volume of data sets.

Cyber-crimes are increasing day by day in newer forms. Therefore, in the era of Society 4.0, where working with computers, use of smart phones and Internet, exchanging data through social media has become a life style of Delhi and NCR, awareness of cyber-crimes is one of the measures of being cyber-safe.

With more innovative practices, Industry 4.0 which constitutes both information technology and operational technology has bought new challenges and the major concern is about new challenges and the major concern is about the cyber security, in which government has also initiated with great efforts against these kinds of cyber security attacks.

This research work can be concluded with the statement that people of Delhi feel that they are well aware of cyber-crime, but they are required to have more knowledge of cyber-crimes as well as cyber laws. Actually, people know about those cyber-crimes which are more common in media. At the same time, cyber laws in India and Delhi are very less known to them.

More awareness of cyber-crimes will lead to use more measures to be taken for the cyber-security. And that will be one of the most prominent prevention measures for the Society from cyber-attacks.

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Quantum Cryptography: Future of Today

Vashnavi Tariyal*, Gunjan Sharma** and Shikha Bhalla***

ABSTRACT

In today's world where everyone relies mostly on the internet for information exchange, security has become a major area of concern. Traditional cryptography makes use of powerful encryption methods to obscure the message from the intruders. Most of the encryption techniques that we use today are based on large numbers that are difficult to factor. A typical computer may take millions of years to intercept the code, but with the advent of Quantum Computers, there is a possibility, that time taken to break the code may be reduced by a significant amount and current encryption techniques may become fragile. Therefore need has arisen to address the security aspect with respect to these powerful Quantum Computers. Quantum computer as for now is a theoretical concept, but the researchers are striving hard to come up with a working model of these powerful computers that is proposed to be much faster than the binary computers and it is possible that quantum computers may replace binary computers in the near future. Quantum Cryptography is one of the promising cryptographic techniques in this context that will primarily address the security aspect of Quantum Computers. The main objective of this paper is to find and analyze the difficulties faced during QKD due to various factors and why still Quantum cryptography is not fully adopted, also the traditional cryptography is also compared with the powerful Quantum Cryptography along with a brief overview of Quantum Cryptography, QKD and its working.

1.0 Introduction

The term cryptography word "crypt" means "hidden" and "graphy" stands for "writing". Cryptography is the process of converting plain text into unintelligible text and vice-versa so that it could be transmitted securely to its intended recipient. It is part of the broader field of cryptology, which also includes cryptanalysis, known as the art of code breaking. [1] The information that we need to encode is called plaintext or the original text. It could be in any form of like characters, numbers, pictures or images, or any other kind of information. The plaintext that will be encrypted is called cipher text, it refers to the series or string of "meaningless" data or "unclear text" that nobody must understand, except the receiver (after decoding back).It is the data that will be transmitted through the network or a communication channel. Many different algorithms are now used to transform plaintext into cipher text. [1][2]Cryptography techniques can be divided according to their standard principles or protocols they follow. But here, we are only concentrating on the two types of cryptography technique- Classical Cryptography and Quantum Cryptography.

A. Classical Cryptography

Classical cryptography is based purely on mathematics.

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The high security of classical cryptography is based on the mathematical problem for the instance factorization of large numbers. A string of data which is known as key is used to control the change of the data from plain text to cipher text. This technique helps to keep data safe as it requires the key for decrypting the original information from the cipher text. Classical Cryptography has two types of techniques: - [2]

1) **Symmetric Cryptography:** Symmetric key cryptography is also known as private-key cryptography or single key cryptography. In this a single key is used for both encryption and decryption. Key must be kept secret between the sender and the receiver. Both the sender and receiver must have a copy of the secret key and they both share same copy of key.[3]

Fig 1: diagram showing the private key cryptographic technique[3]
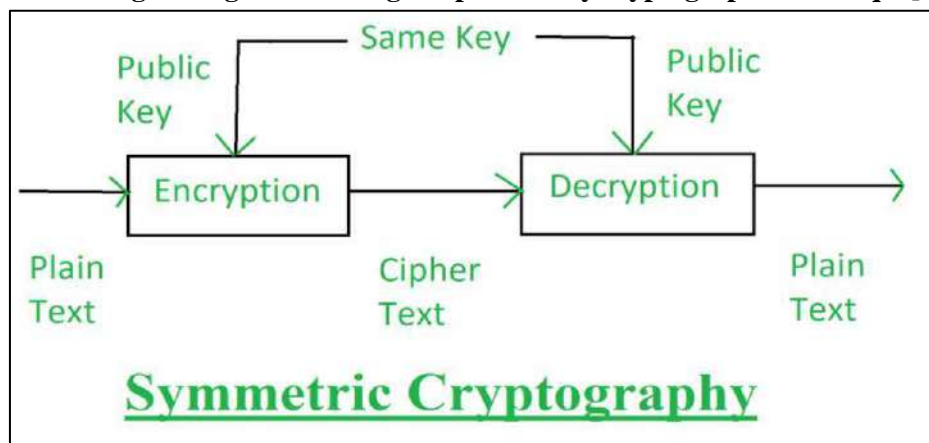
2) **Asymmetric Key Cryptography:** This two-key system is also known as the public key system. It uses two separate keys that is receiver's public key for encryption and receiver's private key for decryption instead of single shared key. Using this public-key cryptographic method, the sender and receiver are able to authenticate one another as well as protect the secrecy of the message.[1][3]

Fig 2: block diagram depicting the public key cryptographic technique[3]
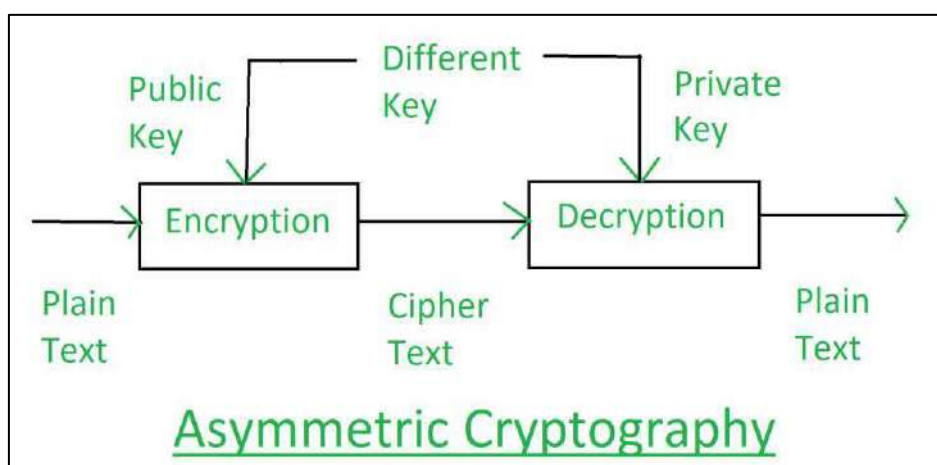
B. Quantum Cryptography

As computers have grown more powerful and with the emergence of quantum computers, factorization of large numbers have become easy – no secret would be safe, hence there is an alternative and more safer option to traditional cryptography- that is Quantum Cryptography, one that's just not hard to break but impossible to break .The word quantum refers to the most fundamental behavior of the smallest particles of energy and cryptography means secret writing what makes it so powerful is that instead of math it relies on the laws of physics. Quantum Cryptography is also called as Quantum encryption as it applies the principles of quantum mechanics.[4] A technology that hides information in photons or the particles of light. The most important thing is that quantum cryptography is the only known secure method for transmitting a key at least in theory. The Quantum cryptography uses the two important principles of quantum mechanics - first is of the principle of photon polarization and the other is the Heisenberg Uncertainty principle. The idea of Quantum cryptography was proposed first by Stephen Wiesner, who in the early 1970s introduced the concept of Quantum conjugate coding[5]. For Quantum cryptography these three basic things are needed with some other components of telecommunication - a quantum channel, a photon source, a photon detector. If anyone is eavesdropping then, according to the principles of quantum physics, the polarization of the photons is affected, and the recipient can tell that the message isn't safe anymore. [11]

C. Bits and Qubit

So before proceeding further the difference between bit and qubit should be well known. Well, in case of classical cryptography, all information is in the form of 0's and 1's (bits) for both sending and receiving, while qubits or quantum bits have a different behavior while sending and receiving and are used in quantum computers. In classical cryptography, the value of the key is always the same, it does not matter how you read it, but this is different in the case of quantum cryptography. In quantum cryptography the value of the bit depends on how one measures it (measure the value of qubit). Qubit is the basic unit of quantum information. Qubits can have up to 2 bits (due to entanglement). In order to get the right value, you also need to measure the qubit in the right way.[6] The qubits are connected through entanglement. Entanglement refers to a connection that makes each of the qubits react to a change in the state of other qubits instantaneously; no matter how near or far they are from each other. If the qubit is measured incorrectly then a random bit value is received (or incorrect data). [10] In order to transmit the qubits, polarizers are used.

Fig 3: figure depicting classical bit and qubit[12]
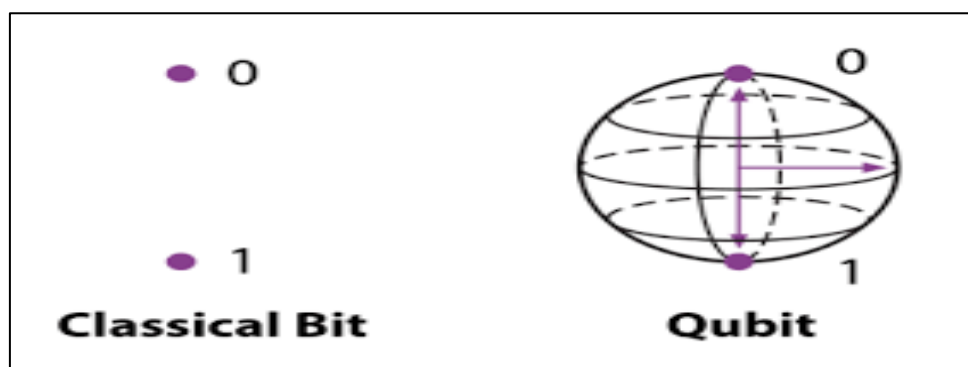
D. Photons

Photons are the smallest measure of light, and they can exist in all of their possible states at once- diagonally, vertically and horizontally. One photon represents a qubit. They are also referred to as some zero-mass particles and are never in a stationary position. These light quanta can be used to carry information. [6]

Fig 4: diagram depicting two basis- rectilinear basis and diagonal basis
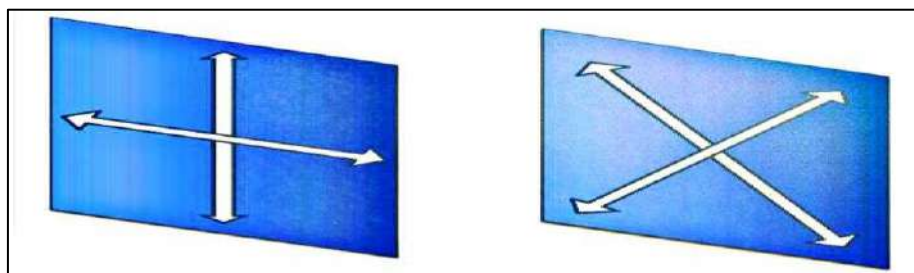
1) Photons and Polarizers

- A single photon is discharged from a light source and moves through a linear polarizer. If a horizontal polarizer is used, a horizontal polarized photon is transmitted. In this situation (horizontal). This process creates a qubit with horizontal polarization.
- When the horizontally polarized photon moves through a horizontally/vertically-intended polarizing beam disjoin, it always remains its horizontal polarization.
- If that horizontally polarized photon moves through a diagonally-oriented polarizing beam disconnect.[11]

Fig 5: diagrams representing the above three mentioned statements respectively[12]
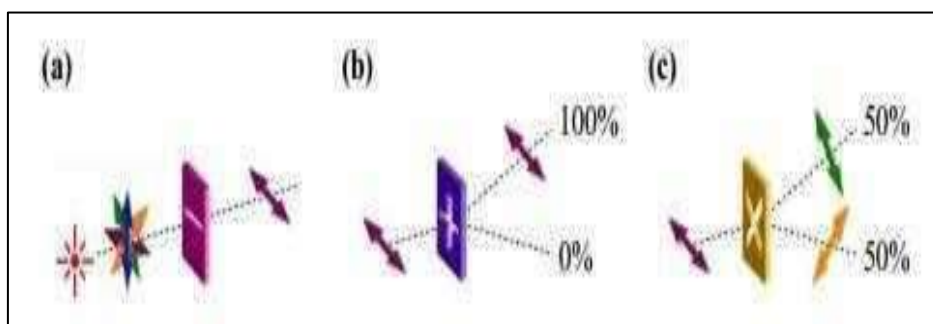
Fig 5: Polarized photons and corresponding bit values[12]
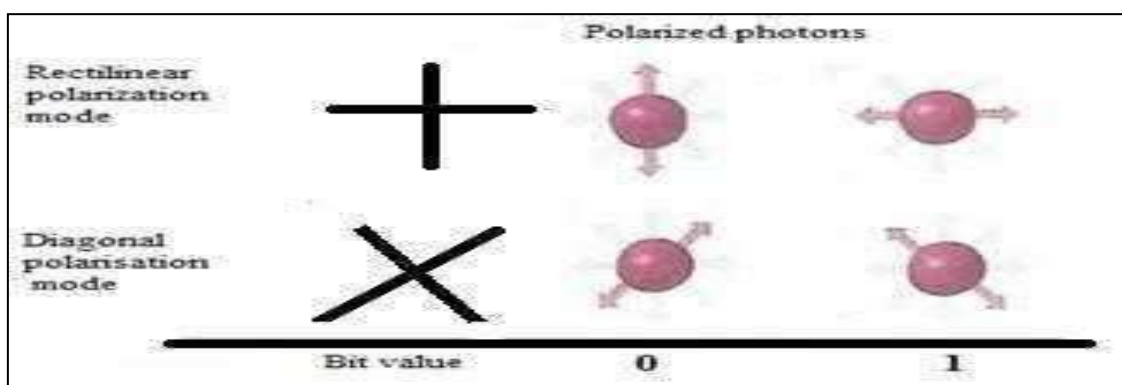
2) How does a photon become a key: Each type of a photon move represents a single piece of information usually 1 or 0, for binary code. This code uses strings of ones and zeros to create a coherent message. For example, 11100100110 could correspond with "h-e-l-l-o". A low level language (binary code) can be allocate to each photon, like a photon that has a vertical spin (|) can assigned a 0. It uses the properties of quantum physics to scramble information at the physical network layer. Post-quantum and quantum-resistant cryptography efforts, however, remain focused on developing encryption methods that are based on hard math problems the kind that quantum computing is not easy to solve.

2.0 Principles of Quantum Mechanics used in Quantum Cryptography

It is easy to understand Quantum cryptography but the complexity behind it totally lies in the principles of quantum mechanics, all these principles plays an important role in Quantum Cryptography.

- The particles that make up the universe are uncertain and can simultaneously exist in more than one place or more than one state of being.
- The Photons are generated randomly in one of the two quantum states.
- One can't measure the quantum property without changing or disturbing it.
- Some of the quantum properties of a particle can be cloned, but not the whole particle.[7]

3.0 A Brief about Qkd

The most well known application of Quantum cryptography is Quantum key Distribution (QDK). QKD ensures a secure communication based on the law of physics rather than math, but QKD should not be confused with Quantum cryptography. It is used to generate and distribute the key, not for transmission of information. With quantum cryptography a key is a stream of photons or light particles. They have a property known as spin which can be changed when it passes through a filter. The key produced can be used with any selected standard encryption algorithm to encrypt the information that can be transmitted over a communication medium. It actually enables two parties (sender and the recipient) to produce a shared random key which is a secret key which is only known only to them, that can then be used to both encrypt the message and decrypt message. Unlike mathematical encryption that is generally used in classical cryptography, quantum cryptography uses the principles of quantum mechanics (physics) to encrypt data and make it near to unhackable. Mainly, quantum cryptography based on the photons and quantum properties to develop systems that are not easy to decrypt. Quantum cryptography uses photons to transfer key from sender to receiver. Once the key is transmitted, coding and encoding using the secret-key method can take place. [1][4] [5]

1) Unique feature of Quantum key distribution

In quantum key distribution the two communicating parties (sender and receiver) can detect the presence of any third party i.e. the intruder trying to gain some information about the key. This is basically possible because of the aspect of quantum mechanics - the process of measuring a quantum system in general disturbs the system. The intruder trying to eavesdrop on the secret key must measure it in some or the other way thus introducing some inconsistency. This can be done by using quantum superpositions or quantum entanglement and by transmitting information in quantum states; in such a way communication system can be implemented that detects eavesdropping. [11]

4.0 A Brief Working of Quantum Key Distribution, Bb84 Protocol

QKD protocol, BB84, was named after Charles Bennett and Gilles Brassard. Photons are used to transmit data from one location to another using a fiber optic cable(or free space); this cable may or may not be secure. Let's say Ron and Lisa wants to communicate with each other. They both are connected using a quantum communication channel which allows quantum states to be transmitted. Using Quantum Key Distribution(QKD), the photons are transmitted(one at a time)by the sender Ron through a polarizer(filter) which randomly gives one out of the four possible polarizations and bit designations - Vertical(One bit), Horizontal (Zero bit), 45 degree right(One bit), or 45 degree left(Zero bit). The photons can be sent in superposition state, they transform into a fixed state only when they are read, measured or observed. The photons then travels to Lisa(receiver), which uses two beam splitters – horizontal/vertical and diagonal) to read the polarization of each photon. The receiver does not know which beam splitter to use in advance so; he has to guess which beam splitter to use for each photon. Once the series of photons has been sent, the receiver informs the sender which beams splitter was used for each of the photons in the exact sequence they were sent, and then the sender compares that information with the sequence of polarizers used to send the key. The photons that were read using the wrong beam splitter are discarded, and the resulting sequence of bits becomes the key. If an intruder named Tom tries to eavesdrop on the ongoing conversation and he reads or copies the photon in any way, the state of the photon's will change which will in turn bring errors in the quantum key. By this way the sender Ron and receiver Lisa will come to know that the key has been compromised and hence they will discard the key. Lisa now has to send a new key to Ron so that they could use that key to encrypt and decrypt the information.[8][11]

Fig 5: A diagram that depicts the basic working of Quantum cryptography
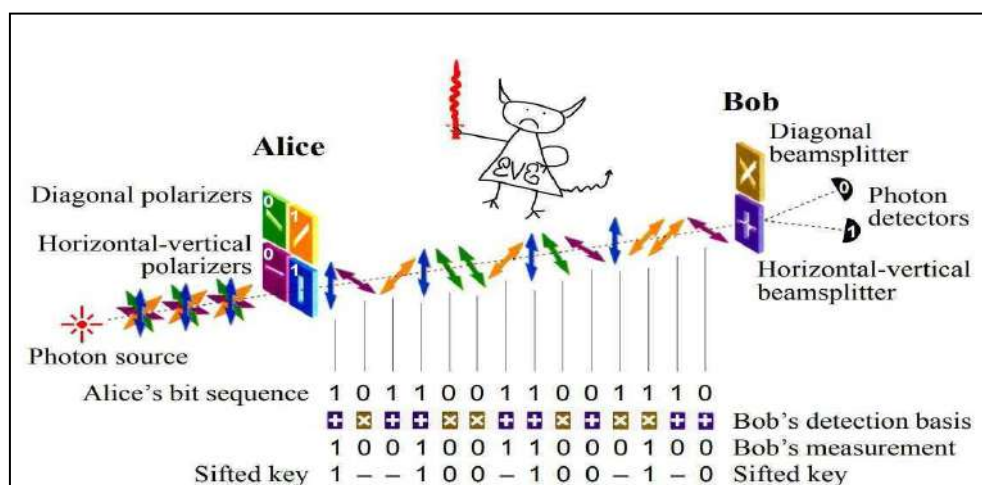
5.0 Major Problems in The Quantum Cryptography and Qkd

The security of QKD protocol can be a solid proof of security, but its implementation in real scenario often have imperfections that may be overlooked in the theory[3]. By exploiting such flaws, various attacks, targeting the source(the detectors), have been proposed. With regards to entangled photons, which is proven to be absolutely secure, there are some serious practical problem such as- the cost, another problem is that QKD depends on authenticated classical channel, distance is another factor- the fiber based Quantum Cryptography works only for short distances though the limit can be extended with the help of repeaters but it will definitely create weak points, the error rate is also typically high ,and also keeping the photons entangled long enough to meet the needs of the real

world. Though this kind of system is perfect in theory, but very hard to implement in practice also keeping in mind the real world scenarios.[6]

6.0 Comparative Study of Traditional Cryptography and Quantum Cryptography

Unlike Traditionally cryptography Quantum Cryptography is based on laws of physics rather than mathematical computation. Quantum cryptography does not have some important features such as digital signature, certified mail etc as compared to Classical cryptography which includes all such features. Quantum Cryptography is sophisticated and hence not widely used while traditional cryptography on the other hand is currently being used widely used all over the world. Quantum cryptography or quantum key distribution(QKD) solves the problem of key distribution by allowing the parties to exchange the key with complete security, as assured by the laws of quantum physics. The distance of communication of Quantum cryptography is limited to a few miles whereas communication range of traditional cryptography is millions of miles. As Quantum cryptography is a future technology hence it is not tested fully and it is in its initial stage but classical cryptography is deployed and tested. As it is an emerging technology therefore the cost is high as compared to traditional cryptography. [6]

7.0 Conclusion

Modern computers are likely to be replaced by the Quantum Computers in the near future; hence security aspect must be dealt in accordance with Quantum Computers. Soon the Quantum Computers will likely to break many current encryption protocols hence Quantum Cryptography is the solution that will be almost full-proof in this context. In this paper, attempt has been made to discuss the security aspect with respect to Quantum Computers. Also we have tried to cover and discuss few major areas of it including the working of Quantum cryptography. It is one such technique that may combat against many attacks during the transmission. Quantum cryptography is also compared with the traditional cryptography. Quantum Cryptography through QKD offers the ability and solution that is desired to keep the information safe and secure in all possible manner. Despite all the security provided by this type of cryptography, it definitely has few flaws one of the major flaws is - the length or distance under which the system will work, which is limited. Quantum cryptography and its applications is the future of cryptography and hence is a great area of study today. Quantum cryptography is still a wide area of research which is not fully covered yet such as how a proper quantum key distribution can be done, what are the types of attacks possible and how to prevent them, photon stabilization is another area of research which is under covered and many other such questions. Quantum cryptography is an arising technology and has been experimentally proven feasible so far. This may not be a need for today but with no doubt, it will be a need for tomorrow.

8.0 Acknowledgement

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Cloud Computing Security Using Blockchain Technology

Santosh Kumar Singh*, P.K.Manjhi** and R.K.Tiwari***

ABSTRACT

A blockchain is essentially a disbursed database of records, or public ledger of all transactions or digital events which have been completed and shared among participating parties. Each transaction inside the public ledger is established by way of consensus of a majority of the participants within the gadget. As soon as entered, records can in no way be erased. The blockchain carries a sure and verifiable document of every unmarried transaction ever made. Bitcoin, the decentralized peer-to-peer virtual currency, is the most popular instance that uses blockchain era. The virtual foreign money Bitcoin itself is pretty controversial but the underlying blockchain era has worked flawlessly and observed wide range of programs in both economic and non-economic world.

the principle speculation is that the blockchain establishes a system of creating a allotted consensus in the digital online global. This lets in collaborating entities to know for sure that a virtual event took place by means of developing an irrefutable record in a public ledger. It opens the door for growing a democratic open and scalable virtual economic system from a centralized one. There are exquisite opportunities on this disruptive generation, and the revolution on this space has simply all started.

This white paper describes blockchain era and a few compelling specific packages in each financial and non-monetary quarter. Cloud file storage solutions generally face demanding situations in regions inclusive of security, privateness and data manage. The important problem is that one has to accept as true with a 3rd party with one's exclusive documents. Storj gives a blockchain based peer-to-peer disbursed cloud garage platform.

Keywords: Blockchain; Safety; Cryptography; Verification; Cloud computing.

1.0 Introduction

A blockchain is essentially a distributed database of information, or public ledger of all transactions or virtual events which have been executed and shared amongst collaborating events. Every transaction in the public ledger is confirmed through consensus of a majority of the members inside the machine. As soon as entered, information can in no way be erased. The blockchain incorporates a positive and verifiable document of every unmarried transaction ever made. to use a fundamental analogy, it's far less difficult to thieve a cookie from a cookie jar, stored in a secluded region, than stealing the cookie from a cookie jar saved in a market region, being located by using thousands of humans.

Bitcoin is the maximum famous instance that is intrinsically tied to blockchain generation. It's also the most controversial one because it helps to allow a multibillion-greenback international market of anonymous transactions without any governmental manage. Therefore it has to deal with some of regulatory issues related to country wide governments and monetary establishments.

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However, Blockchain generation itself is non-controversial and has laboured perfectly over the years and is being correctly carried out to each economic and non-financial global programs. Remaining yr., Marc Andreessen, the doyen of Silicon Valley's capitalists, listed the blockchain dispensed consensus model because the maximum crucial invention for the reason that internet itself. Johann Palychata from BNP Paribas wrote inside the Quintessence magazine that Bit coin's blockchain, the software program that allows the virtual forex to feature must be considered as an invention like the steam or combustion engine that has the ability to convert the sector of finance and past [1].

Modern-day virtual financial system is based totally on the reliance on a certain depended on authority. All on line transactions depend upon trusting a person to inform us the reality— it could be an email provider telling us that our electronic mail has been added; it is able to be a certification authority telling us that a positive digital certificates is sincere; or it can be a social network such as Facebook telling us that our posts regarding our lifestyles activities have been shared simplest with our pals or it may be a financial institution telling us that our cash has been added reliably to our expensive ones in a faraway us of a. The reality is that we live our life precariously in the digital world by using relying on a third entity for the safety and privateness of our virtual property. The reality stays that these third celebration resources may be hacked, manipulated or compromised.

This is where the blockchain era comes available. It has the capacity to revolutionize the digital international via permitting a allotted consensus wherein every and every on-line transaction regarding virtual belongings, past and gift, can be confirmed at any time inside the destiny. It does this without compromising the privateness of the digital property and parties worried. The dispensed consensus and anonymity are two crucial traits of blockchain technology.

The benefits of Blockchain technology outweigh the regulatory troubles and technical demanding situations. One key emerging use case of blockchain era includes "smart contracts". Clever contracts are basically pc applications that can automatically execute the phrases of a settlement. Whilst a preconfigured situation in a clever contract amongst collaborating entities is met then the parties worried in a contractual agreement may be robotically made payments as according to the settlement in a transparent manner [2].

Smart belongings is some other associated concept that's concerning controlling the possession of a belongings or asset thru blockchain using clever Contracts. The property can be physical such as vehicle, house or cell phone, or it is able to be non-physical along with stocks of a organization. It should be mentioned right here that even Bitcoin is not clearly a currency: Bitcoin is all about controlling the ownership of money.

Blockchain era is locating packages in huge range of regions; both monetary and non-economic.

Monetary institutions and banks no longer see blockchain technology as a danger to traditional business models. The sector's largest banks are in truth looking for opportunities in this region by doing studies on progressive blockchain applications. In a recent interview Rain Lohmus of Estonia's LHV financial institution advised that they observed Blockchain to be the most examined and comfortable for some banking and finance associated programs.

Non-economic programs opportunities also are infinite. We will envision putting evidence of existence of all criminal documents, health statistics, and loyalty payments inside the track enterprise, notary, non-public securities and marriage licenses within the blockchain. With the aid of storing the fingerprint of the virtual asset rather than storing the virtual asset itself, the anonymity or privateness objective can be accomplished [3].

In this record, we consciousness at the disruption that every industry in these days' virtual economic system is dealing with due to the emergence of blockchain generation. Blockchain technology has capability to emerge as the new engine of increase in virtual financial system wherein

we're increasingly more the use of net to behaviour digital commerce and proportion our non-public facts and lifestyles activities.

There are notable opportunities in this space and the revolution on this space has simply begun. In this file we cognizance on few key programs of Blockchain era within the location of Notary, coverage, personal securities and few other thrilling non-economic packages. We begin via first describing some records and the era itself.

Section I: BlockChain Technology

1. Short History of Bitcoin

In 2008, a man or woman (or group) writing under the name of Satoshi Nakamoto published a paper entitled "Bitcoin: A Peer-To-Peer digital coins gadget". This paper described a peer-to-peer version of the digital coins that might permit on line bills to be sent at once from one party to any other without going through a economic organization. Bitcoin became the primary awareness of this concept. Now "crypto currencies" is the label that is used to describe all networks and mediums of change that uses cryptography to cozy transactions-as in opposition to those structures wherein the transactions are channelled via a centralized relied on entity [2].

The author of the first paper desired to stay nameless and consequently no person is aware of Satoshi Nakamoto to these days. Some months later, an open source application enforcing the brand new protocol became released, beginning with the Genesis block of 50 coins. Everybody can installation this open supply program and end up part of the Bitcoin peer-to-peer community. It has grown in popularity on the grounds that then.

The popularity of the Bitcoin has by no means ceased to increase seeing that then. Furthermore, the underlying Blockchain era is now locating new range of packages past finance.

2. Blockchain Technology: How does it work?

We give an explanation for the idea of the blockchain by way of explaining how Bitcoin works since it's miles intrinsically connected to the Bitcoin. but, the blockchain era is applicable to any virtual asset transaction exchanged online.

1. Validate Entries
2. Shield Entries
3. Hold historical document

Internet trade is completely tied to the economic institutions serving as the trusted 0.33 party who process and mediate any digital transaction. The role of depended on 0.33 celebration is to validate, guard and maintain transactions as proven in discern 1. A certain percentage of fraud is unavoidable in on-line transactions and that desires mediation via monetary transactions. This results in excessive transaction charges.

Bitcoin makes use of cryptographic evidence in preference to the consider-in-the-1/3-celebration mechanism for two willing parties to execute an internet transaction over the net. each transaction is covered thru a virtual signature, is sent to the "public key" of the receiver, and is digitally signed the use of the "non-public key" of the sender. Which will spend money, the proprietor of the cryptocurrency desires to prove his ownership of the "non-public key".

Figure 1: Traditional Online Financial Transactions using third trusted party (Banks, PayPal, etc.)

The entity receiving the virtual currency then verifies the virtual signature, which implies ownership of the corresponding "private key", by using the "public key" of the sender on the respective transaction.

Each transaction is broadcasted to every node within the Bitcoin community and is then recorded in a public ledger after verification. Every singled transaction wishes to be proven for validity earlier than its miles recorded within the public ledger. The verifying node needs to make certain two matters earlier than recording any transaction:

1. Spender owns the crypto currency, via the virtual signature verification on the transaction.

2. Spender has enough crypto currency in his account, via checking each transaction against the spender's account, via checking each transaction against the spender's account, or "publics key" that is registered inside the ledger. This guarantees that there's enough balance in his account earlier than finalizing the transaction.

However, there's question of keeping the order of those transactions which are broadcasted to each other node within the Bitcoin peer-to-peer community. The transactions do no longer are available order wherein they're generated, and subsequently there may be a want for a gadget to make certain that double-spending of the crypto currency does now not arise. Thinking about that the transactions are handed node by node via the Bitcoin network, there's no guarantee that orders wherein they are received at a node are the equal order in which these transactions were generated.

The above manner that there may be a need to expand a mechanism in order that the entire Bitcoin community can agree regarding the order of transactions, which is a frightening mission in an allotted machine [3].

The Bitcoin solved this problem by using a mechanism this is now popularly called Blockchain era. The Bitcoin device orders transactions by way of placing them in companies known as blocks and then linking those blocks through what's called Blockchain as proven in discern 2. The transactions in a single block are taken into consideration to have passed off on the identical time. These blocks are related to each-other (like a chain) in a proper linear, chronological order with each block containing the hash of the preceding block.
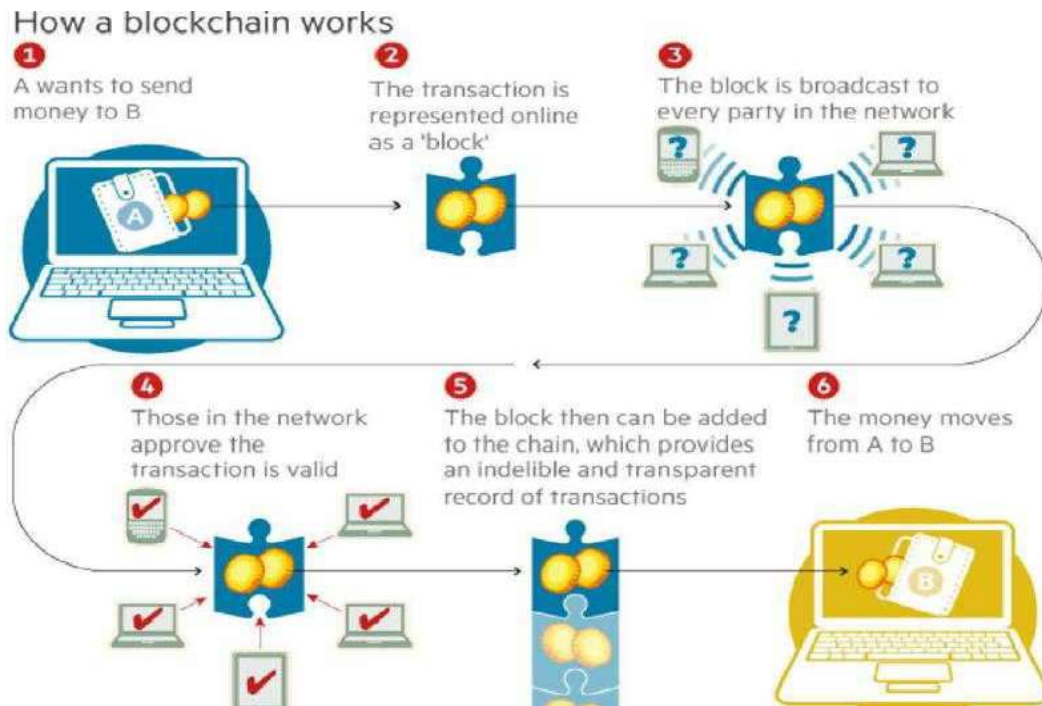
Figure 2: Financial Transactions using the BlockChain Technology [2]
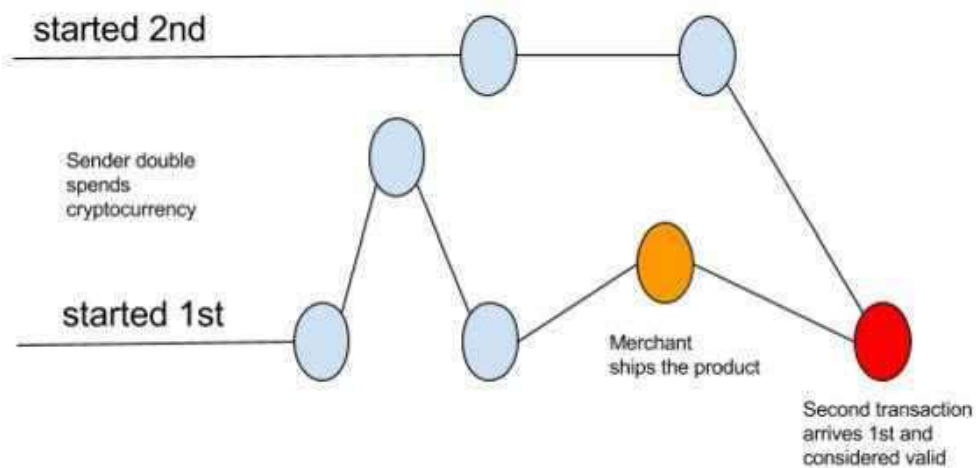
Figure 3: Double spending due to propagation delays in peer-to-peer network.

There still stays one more problem as shown in parent three: Any node within the network can collect unconfirmed transactions and create a block after which broadcast it to the relaxation of the network as a proposal as to which block should be the next one inside the blockchain. How does the community determine which block need to be next inside the blockchain? There may be more than one blocks created by different nodes at the identical time. You'll depend on the order in view that blocks can arrive at one-of-a-kind orders at distinct points inside the community.

Bitcoin solves this hassle with the aid of introducing a mathematical puzzle: each block could be everyday inside the block chain provided it consists of an answer to a very special mathematical hassle as shown in discern four.

This is also referred to as "evidence of labour": a node generating a block wishes to show that it has placed enough computing assets to clear up a mathematical puzzle. As an example, a node may be required to discover a "nonce" which while hashed with both transactions and hashes of previous blocks produces a hash with certain wide variety of leading zeros. The average attempt required is

exponential inside the quantity of 0 bits required but verification process is very simple and may be achieved via executing a single hash [4].
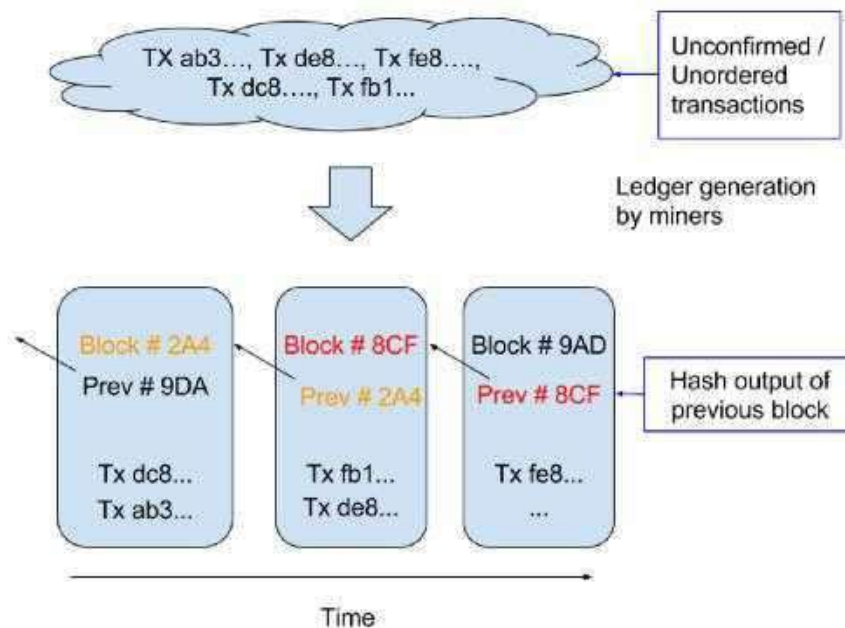
Figure 4: Generation of BlockChain from unordered transactions

This mathematical puzzle isn't trivial to solve and the complexity of the trouble may be adjusted so that on common it takes ten mins for a node in the Bitcoin community to make a proper bet and generate a block. There is very small opportunity that more than one block could be generated within the machine at a given time.

The first node, to clear up the problem, declares the block to the relaxation of the network. Once in a while, however, more than one block can be solved on the identical time, main to numerous viable branches. But, the math needed to be solved is very complex and subsequently the blockchain speedy stabilizes: after this, every node is in settlement approximately the ordering of blocks.

The nodes donating their computing assets to solve the puzzle and generate blocks are referred to as "miner" nodes" and are financially provided for their efforts.

The community most effective accepts the longest blockchain as the legitimate one. consequently, it's miles next to not possible for an attacker to introduce a fraudulent transaction since it has now not best to generate a block by using fixing a mathematical puzzle, however it also has to race mathematically towards the coolest nodes to generate all subsequent blocks in order for it to make the opposite nodes in the network take delivery of its transaction and block because the valid one as shown in figure 5. This task turns into even extra tough due to the fact blocks in the blockchain are linked cryptographically together [5].
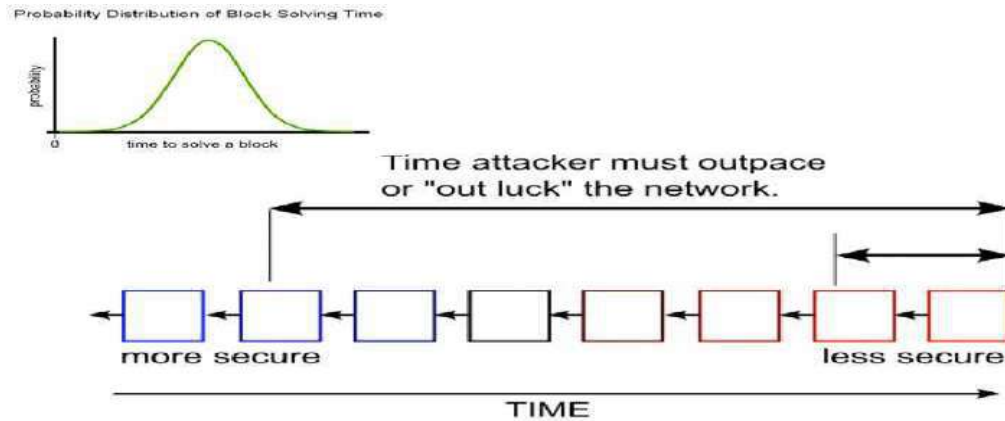
Figure 5: Mathematical race to protect transactions

Section II: Existing Market

Blockchain era is finding applications in each financial and non-monetary regions that traditionally relied on a third trusted on line entity to validate and protect on-line transactions of virtual assets. There has been every other utility "smart Contracts" that was invented in 12 months 1994 via Nick Szabo. It became a brilliant concept to automatically execute contracts among collaborating events. Now the two packages, Blockchain and clever Contracts can work collectively to trigger bills while a pre-programmed situation of a contractual agreement is triggered.

Smart Contracts are contracts that are routinely enforced by means of computer protocols. The usage of blockchain era has made it a great deal less difficult to sign up, verify and execute them. moreover, open source groups like Ethereum and Codius are already enabling clever Con-tracts using blockchain generation and plenty of agencies which operate on Bitcoin and blockchain technologies are beginning to aid smart Contracts.

Particularly, Ethereum has created lot of exhilaration for its programmable platform competencies. The agency allows everybody to create their very own cryptocurrency and use that to execute and pay for clever Contracts, whilst it additionally possesses its personal cryptocurrency (ether) that's used to pay for the offerings. Ethereum is already powering a huge variety of early applications in areas together with Governance, self-sustaining banks, keyless get right of entry to, crowd funding, economic derivatives trading and agreement, all via the usage of smart Contracts.

companies along with IBM, Samsung, Overstock, Amazon, UBS, Citi, eBay, and Verizon Wi-Fi, to name a few, are all exploring alternative and novel makes use of the blockchain for his or her very own packages. 9 of the world's biggest banks which include Barclays and Goldman Sachs5 have recently joined forces with the ny based economic era company R3 in September 2015 in an effort to create a framework for the usage of the blockchain era in the economic marketplace. This is the first time banks have come to paintings together to locate programs of blockchain technology. leading banks like JPMorgan, nation street, UBS, Royal financial institution of Scotland, credit score Suisse, BBVA and Commonwealth financial institution of Australia have joined this initiative [5].

Now we flip to provide a quick description of the kinds of interesting programs and tasks that modern and visionary corporations are doing on this space.

Section III: Applications of Technology in both Financial and Non-Financial Areas

1. Financial Applications:
•   Non-public Securities

Its miles very costly to take a agency public. A syndicate of banks should work to underwrite the deal and appeal to buyers. The inventory exchanges list organization stocks for secondary market to characteristic securely with trades settling and clearing in a well-timed manner. it is now theoretically feasible for agencies to immediately difficulty the stocks through the blockchain. These shares can then be purchased and bought in a secondary marketplace that sits on top of the blockchain. Here are some examples:

NASDAQ non-public equity: NASDAQ launched its personal fairness change in 2014 [6]. This is supposed to offer the key functionalities like Cap desk and investor relationship control for the pre-IPO or private companies. The current system of trading shares in this trade is inefficient and gradual because of involvement of a couple of third parties. NASDAQ has joined fingers with a San Francisco based totally begin-up referred to as chain.com [7] to implement personal equity change on top of Blockchain. Chain.com is imposing Blockchain primarily based clever contracts to put into effect trade capability. This product is anticipated to be speedy, traceable and efficient. Medici is being evolved as a securities change that uses the Counterparty implementations of Bitcoin 2.zero. This gets rid of the want for an intermediary, together with a broker, alternate or financial institution. Block movement is an open source project with consciousness on facet chains to keep away from fragmentation safety and different troubles associated with opportunity crypto currencies. Coin setter is a big apple based Bitcoin exchange. it's miles operating on a venture Highline, a technique of the usage of the blockchain to settle and clear economic transactions in T+ 10 mins in preference to the standard Three or T+2 days. Augur is a decentralized prediction marketplace with a purpose to allow customers to buy and promote stocks in anticipation of an occasion with the possibility that a particular outcome happens. This could also be used to make monetary and financial forecasts based totally at the "expertise of crowds". Bit stocks are virtual tokens that live within the blockchain and reference precise assets which include currencies or commodities. The Token holders might also have the precise function of incomes interest on commodities, which includes gold, and oil, as well as bucks, Euros and forex units.

• Coverage

Belongings which may be uniquely identified by one or greater identifiers which are hard to wreck or replicate can be registered in blockchain. This can be used to confirm possession of an asset and additionally hint the transaction records. Any property (physical or digital together with real estate, automobiles, bodily belongings, laptops, different valuables) can probably be registered in blockchain and the possession transaction history may be demonstrated by everyone, in particular insurers. Ever ledger is a business enterprise which creates everlasting ledger of diamond certification and the transaction history of the diamond the use of blockchain. The traits which uniquely discover the diamond inclusive of top, width, weight, depth, coloration and many others. Are hashed and registered within the ledger. The verification of diamonds may be accomplished via coverage agencies, regulation enforcement businesses, owners and claimants.

2. Non-economic applications:

• Notary Public

Verifying authenticity of the record may be achieved using blockchain and removes the need for centralized authority. The file certification provider allows in evidence of possession (who authored it), proof of existence (at a positive time) and proof of Integrity (not tampered) of the documents. Stampery is a corporation which could stamp e-mail or any documents the use of block-chain. It simplifies certifying of emails through simply emailing them to an e-mail mainly created for each consumer. Regulation companies are the use of Stampery technology for a very cost effective manner to certify files. Through coin is one of the corporations which

use clearinghouse protocol for notary carrier. Block Notary is an iOS app which helps you create evidence of lifestyles of any content (photograph, documents, any media) the use of TestNet3 or a Bitcoin community. Crypto Public Notary makes use of Blockchain of Bitcoin to notarize files by using the usage of trivial quantity of Bitcoin to file the report's checksum in a public blockchain. Proof of lifestyles is some other service which uses blockchain to SHA256 digest of the file in Bitcoin blockchain. Ascribe is some other employer which does authorship certification the usage of blockchain. It also offers transfer of possession provider with attribution to the authentic writer.

Applications of Blockchain in the Music Industry

The track industry has long gone a big trade in ultimate decade because of the growth of internet and availability of a number of streaming offerings over the internet. this modification is impacting every person inside the track enterprise: artists, labels, publishers, songwriters and streaming service providers.

• Decentralized proof of life of documents

Validating the lifestyles or the possession of signed files is very crucial in any felony answer. The traditional document validation models rely on primary government for storing and validating the documents, which presents a few obvious safety demanding situations. Those models turn out to be even greater hard because the files become older.

The blockchain era offers an alternative version to proof-of-lifestyles and possession of legal documents. Proof of existence is a easy carrier that permits one to anonymously and securely save online evidence of existence of any document.

The fundamental benefits of safety and privateness that allow a person to give decentralized evidence of the file that couldn't be modified by way of a 3rd party. The life of the file is established the usage of blockchain that does not rely upon a unmarried centralized entity. Evidence of existence net service is available at https://proofofexistence.com/.

• Decentralized storage

Cloud report storage solutions including Drop field, Google power or one force are developing in popularity to save documents, photos, and video and track files. No matter their reputation, cloud report garage answers typically face challenges in areas along with protection, privacy and information manage. The predominant issue is that one has to trust a third party with one's private documents.

Storj presents a blockchain based totally peer-to-peer dispensed cloud storage platform that lets in users to switch and percentage statistics without relying on a 3rd party Statistics Company. This allows human beings to percentage unused internet bandwidth and spare disk area of their personal computing devices to those trying to keep large files in return for Bitcoin based micropayments.

Absence of a important control gets rid of most conventional information screw ups and outages, as well as drastically increasing security, privateness and records manipulate. Storj's platform depends upon a project set of rules to offer incentivization for customers to properly participate on this community. On this way, Storj can periodically test the integrity and availability of a document cryptographically, and offer direct rewards to those keeping the document.

In this situation, Bitcoin-based totally micropayments serve as each an incentive and method of payment even as a separate blockchain is used as a statistics keep for report metadata.

• Decentralized IoT

IBM, in partnership with Samsung, has advanced a platform ADEPT (self-sufficient Decentralized Peer to peer Telemetry) that uses factors of the bit coin's underlying layout to construct a dispensed network of gadgets, or decentralized internet of factors (IOT). ADEPT makes use of 3

protocols within the platform: Bit Torrent (document sharing), Ethereum (smart Contracts) and TeleHash (Peer-To-Peer Messaging). Filament is a start-up that offers a decentralized IoT software stack that uses the Bitcoin blockchain to permit gadgets to hold precise identities on a public ledger.

• Net applications

call coin is an alternative blockchain technology (with small versions) this is used to put into effect a decentralized version of domain name Server (DNS) that is resilient to censorship. Public Key Infrastructure (PKI) era is broadly used for centralized distribution and control of virtual certificate. Each device needs to have root certificate of the Certification Authority (CA) to confirm virtual signature. While PKI has been broadly deployed and highly a success, dependence on a CA makes scalability a problem [10].

Conclusion

Blockchain is Bit coin's backbone technology. The distributed ledger functionality coupled with the security of Blockchain makes it a very appealing technology to solve the modern monetary as well as non-economic industry troubles.

There's sizable interest in Blockchain-based business applications and as a result several begin-united states running on them. Massive financial establishments together with Visa, MasterCard, Banks, and NASDAQ, are making an investment in exploring packages of modern-day commercial enterprise fashions' on Blockchain. In fact, a number of them are trying to find new enterprise fashions inside the global of Blockchain.

Storj presents a blockchain based totally peer-to-peer distributed cloud storage platform that allows users to switch and share statistics without relying on a 3rd party information issuer. Having stated this, we must be seeing extensive adoption in a decade.

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A Study on Internet of Things

Neha Aggarwal* and Rachna Dutta**

ABSTRACT

Presently we are living in a time of Information Technology where every single individual needs to become IT occupant either purposefully or unexpectedly. Innovation assumes an indispensable job in our everyday life since most recent couple of decades and some way or another we as a whole are relying upon it so as to acquire greatest advantage and solace. This new time outfitted with most recent approaches of innovation, edifying world as Internet of Things (IoT). Web of things is such a predefined and stately space which drives us to this present reality situations where each item can play out some undertaking while at the same time speaking with some different articles. The world with brimming gadgets, sensors and different articles which will impart and make human life much better and simpler than at any other time. The research paper provides an outlook of current research work on IoT in terms of technology used ,an architecture and applications of IoT. It additionally features all the issues identified with advances utilized for IoT, after the writing audit of research work. The fundamental reason for this study is to give all the most recent advances, their comparing patterns and subtleties in the field of IoT in orderly way. It will be useful for additional exploration.

Keywords: Internet of Things.

1.0 Introduction

Internet of Things can be characterized as the assortment of two terms: one is Internet, which is characterized as systems of systems which can interface billions of clients with a few standard web conventions. Web associate a few various areas and office while utilizing extraordinary innovations. A few gadgets like versatile, individual frameworks and business associations are associated with Web. The subsequent term is Thing, this term is fundamentally intend to these gadgets or items which transform into keen objects. In addition this it is likewise a piece of all objects of this genuine world. The advanced world collaborates with the physical world utilizing a plenty of sensors and actuators .Vermesan et al. defined the Internet of Things as simply an interaction between the physical and digital worlds. IoT can likewise be characterized as "An open and far reaching system of insightful items that have the ability to auto-arrange, share data, information and assets, responding and acting in face of circumstances and changes in the condition

2.0 History of IoT

The IoT space prompts universe of innovation and correspondence to another time where articles can convey, register and change the data as per the necessities. This situation of correspondence has as of now been begun yet didn't get acknowledgment. The term Web of Things was begat by Kevin Auston, the Official Director of Auto-ID Labs in MIT in 1999. The idea of IoT first turned out to be extremely well known through the Auto-ID focus in 2003 and in related market examination and it's publications[1]. At the point when the idea of such correspondence appeared, changed organizations concentrated on it and attempted to perceive it's hugeness and started to distinguish its job and the associated future angles, at that point these organizations began putting resources into the area of IOT in various periods however at customary interims of time[9]..

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Year Industrial Participation & Involvement

2000 - LG announced its first Internet of refrigerator plans

2003 - RFID is deployed in US Dept of Defence

2005 - UN's International Telecommunications Union (ITU) published its first report on the Internet of Things

2008 - Recognition by the EU and the First European IoT conference is held. A group of companies launched the IPSO Alliance to promote the use of IP in networks of "Smart Objects" and to enable the Internet of Things. The FCC voted 5-0 to approve opening the use of the 'white space' spectrum

2009 - The IoT was born according to Cisco's Business Solutions Group

2010 - Chinese Premier Wen Jiabao calls the IoT a key industry for China and has plans to make major investments in Internet of Things

2011 - IPv6 public launch-The new protocol allows for 340, 282, 366, 920, 938, 463, 463, 374, 607, 431,768,211, 456 (2128) addresses.

3.0 Architecture

Usage of IoT idea is fundamentally relies upon its engineering. In the underlying period of research the 3 layer architecture was presented [8], which have three layers the perception, network and application layers.
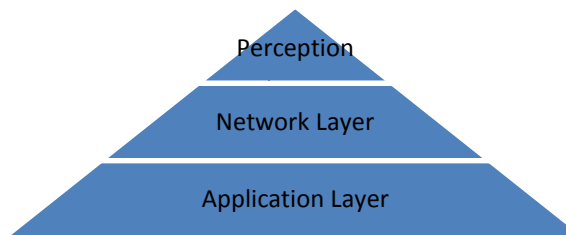
Fig.: 3 Layer Architecture

1. The Perception Layer - This layer likewise called as physical layer, assembles information/data and perceives the physical world. Right now the actuators work as indicated by the data which is gathered by the sensors of various object so as to perform explicit tasks by the relating objects[18].

2. Network Layer - Network layer is the center one, it sets up an interface connect between application layer and perceptual layer. It is liable for the underlying preparing of information, broadcasting of information and associating devices [8].

3. Application Layer - Application layer is the usage of IoT. The working of sensors and actuators is accomplished by application layer. We can comprehend it as programming which takes a shot at and for the sensors other for all intents and purposes insightful items.

This three layer design of Internet of Things isn't a adequate for the present innovation. So another engineering was intended to characterize the whole idea of it's working and advancement of IoT gadgets. The new design includes 5 layers and is known as 5 Layer design [29]. New architecture has perception, transport, processing, application and business layers:
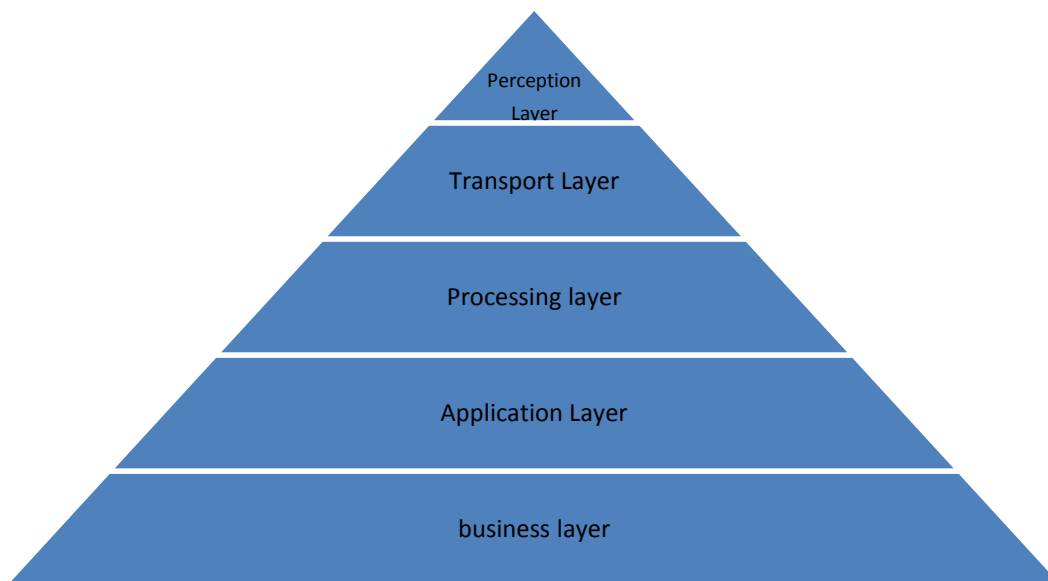
Fig. : 5 Layer Architecture

1. Perception layer works along these lines as recently portrayed in the 3 layer design. It is utilized to take data from the sensors and actualize it.

2. Transport layer takes the information from the observation layer and pass this information to the following layer which is handling layer and the other way around. This will finished with the help of systems like LAN, remote innovation, 3G, 4G, LTE, RFID etc [8].

3. Processing layer which is third layer needs to play out the significant assignment since it will process all the data assembled by the observation layer. There is an enormous sum of information which will be put away with the assistance of a few procedures like distributed computing or any DBMS. At that point it will break down how to bring information at whatever point required all together to finish the ideal task [23].

4. Application layer is next layer which actualizes the working of IoT. For this an application is required with the comparing gadget so as to finish the ideal errand.

5. Business layer is the last layer of this design which deals with the working of whole framework alongside numerous different highlights, one of them is privacy [1].

Both the models are characterizing the working of IoT arrangement of various sorts yet they all are following the same kind of working so as to accomplish its objective.

4.0 Technologies

There are different advances which are utilized to characterize IOT, yet the four primary advancements are as follows[9]:

1. Radio Frequency Identification (RFID)
2. Close to Field Communication (NFC)
3. Machine to Machine Communication (MtoM)
4. Vehicle to Vehicle Communication (VtoV)

4.1. Radio Frequency Identification (RFID)

RFID is a framework wherein there is a peruser to peruse numerous tags[4]. It utilizes the innovation of radio waves to send the data of an item as sequential number which is connected to the

tag. It utilizes the electromagnetic fields to move the information on the labels so that it can naturally distinguish and follow the items, comparing to a specific tag[1]. As we as of now notice that RFID innovation depends on peruser and labels, so in the underlying period of research RFID characterizes in three designs:-

☐ Active RFID
☐ Passive RFID
☐ Active Reader Active Tag

Active RFID - (Passive Reader Active Tag), the peruser gets the sign or data from the gadget which runs on battery and this battery is worked by a gadget called dynamic tag. This data trade will take place in constrained scope of the dynamic labels and the latent perusers which is from 1-2000 feet relying on the architecture[14].

Passive RFID - The subsequent one is Passive RFID (Active Peruser Passive Tag), most regularly utilized, such tag does not have any battery or locally available force supplies, so it expects vitality to send the information and in this way gathers the vitality from the RFID peruser.

Active Reader Active Tag - The last one both the peruser also, labels are dynamic so it is an Active Reader Active Tag. Albeit both the peruser and the labels are dynamic, yet labels
will begin sending data just when it is awoken by the peruser or when it comes in the vicinity of the reader[19]. So by this we can say that the principle segments of this innovation are tag, peruser, power supply, radio wire, get to controller, programming and server.

Application - RFID has a constrained utilize just for recognizable proof and following. As we realize that it deals with recurrence and inside a constrained range. So it can work for such applications like keen basic food item, savvy bureau, shrewd refrigerator, brilliant machines, shrewd money etc[14]. In these situations there is a tag on item and a peruser to filter the tag. In a basic food item shop we put labels on the items and at the point when the item goes through that peruser, the peruser will get it. Right now can be followed what item is moving out of the shop and what stock is left for that comparing item. Similarly if a cooler can detect what is placing in it and what is taking out from it, it should likewise be possible by RFID. Each other very helpful and normal utilization of this innovation is on air terminal where the stuff are labeled and perused at another place.

Issues - There are a few issues with RFID. It chips away at explicit scope of frequencies; if these frequencies vary at better places then it will make an issue in perusing a tag at various areas. It is additionally hard to understand more than one tag simultaneously[15]. There are techniques to beat this issue yet expensive. Labels must be executed on the item and all the labels are extraordinary what's more, novel, which incorporates some expense. The incorporation of cost isn't happy all when looking at and worried with the expense of item [4].

4.2 Near Field Communication (NFC)

Close to Field Communication is by one way or another smidgen like RFID, it consolidates a RFID peruser in a versatile telephone, which improves it, dependable and proficient for the clients. Close to Field Communication is a short-run remote innovation with the recurrence of 13.56 MHz, normally work for extremely little separation up to 4 cm[3]. Permits natural instatement of remote systems and NFC is reciprocal to Bluetooth and 802.11 with their long separation abilities a good ways off around up to 10 cm. It is first created by Philips and Sony organizations. Information trade was around 424 kbps. Force utilization during information perusing in NFC is under 15ma[2]. There are two modes in NFC innovation:
☐ Active
☐ Passive

Active Mode- In Active mode both the gadgets are dynamic furthermore, speak with one another by imparting the signs.

Passive Mode - In inactive mode one of the gadget sends the sign rather other simply getting it[28].

NFC needn't bother with blending, it can't work from a long separation and right now innovation is secure and use for versatile installments.

Application - NFC works in a short range so the gadgets must be kept close by. It has a few applications, the most significant one is Payment App. Today, we have a few (applications) by which one can pay without utilizing a card, right now gadget functions as a virtual card and the exchange will happen. One can trade their business card with the assistance of their gadgets. They just contact their gadgets and their business cards will be traded. In the event that a data is required than utilize the gadget with the shrewd banner and get all the data with a single touch [21]. It can likewise work while voyaging; an individual can book a movement ticket or a room in a lodging. While booking keys are given to the individual, when individual touch the gadget on the proper gadgets, the work is finished also, the individual will move in.

Issues - These gadgets will chip away at a little range, so this is one of the significant issues. Two gadgets of two various producers can make some similarity issue in their correspondence. Because of this explanation an imposing business model may exist in market [3].

4.3 Machine to Machine Communication (M2M)

Machine-to-Machine (M2M) alludes to the interchanges between PCs, inserted processors, keen sensors, actuators and cell phones (Color, 2008). The utilization of M2M correspondence is expanding in the situation at a quick pace. For example, specialists anticipated that, by 2014, there will be 1.5 billion remotely associated gadgets barring versatile phones[5]. Presently a days, there are approx 2 billion remotely associated gadgets which can assemble data from the sensors, break down this information and send the data to different gadgets to play out some assignment. Machine gets the data and play out the activity with the assistance of actuators, sensors, inserted processors and application software[12].

Application - In mechanical work, a machine can detect the work effectiveness of the machine and work as needs be for most extreme yield. Keen homes where items can speak with one another like when there is nobody in the home and shockingly the proprietor neglected to bolt the

home at that point shrewd home will detect that there is no movement in the home and it will bolt the home and send the open key to the owner[13]. A similar application is savvy water supply, on the off chance that there is a spillage, at that point the machine sensor will sense this and send the data to the server. It will help to stop the wastage of water[24].

Issues - The key issues in V2V are -

In V2V innovation, gadgets or gatherings can utilize unique naming procedure. Gadgets can utilize various names for their working or same name can be alloted various gadgets, items or gatherings. They can likewise utilize some transitory id, names and URIs for their correspondence. IP addresses are likewise used to make correspondence among the gadgets or associated gatherings. These addresses might be of person gadget or multicast address for gathering of associated gadgets or then again some different location plans to make availability and communication[26].

Right now can say that M2M gadgets are anonymous what's more, have less security. So it has a few security issues and dangers like hacking, unapproved get to, altering and so on. Some moving gadgets have issues of checking and connecting with their base stations, topographical change may cause a few impacts on the system and it might get detached for quite a while or for quite a while. It is a significant security issue and a assault can be experienced. These gadgets likewise require opportune updates with the goal that it will get mindful from security dangers. M2M gadgets

are moving or stationary, so there are loads of gadgets which should be work and update yet some of them are remote and some are not, so it has not been anything but difficult to get to every single gadget physically. This will lead more vulnerabilities to these devices.[5]

4.4 Vehicle to Vehicle Communication (V2V)

Right now questions are vehicles, which can speak with another vehicle or the sensors around them. The fundamental part of worry here is, there is no legitimate strategy to characterize the conventions in light of the fact that the object is moving and speaking with another moving object or with the sensors on the roadside[6]. So we are not ready to characterize any directing convention. This correspondence can work for a long separation and make an proficient correspondence among objects. This innovation was structured principally with the points of traffic control, wellbeing and mishap shirking.

Application - Smart vehicles are the utilization of M2M, a vehicle which is driverless or a vehicle which have sensors and sense the speed of the close by vehicle who is getting moderate uncertainly. So the vehicle can likewise be delayed down to stay away from accident[10].

Issues – The key issue in V2V are -

The primary worry of V2V is the loss of availability when some other article comes in the middle of the imparting gadgets. In the event that they are not in a legitimate separation and appropriate line of sight then they won't have the option to proceed in associated state[10].

Moving vehicles will likewise make a few troubles during foundation of correspondence. There might be change in topology when there is an adjustment in the system. Here and there gadget won't have the system or have nearly nothing scope of system, so the information won't be send or get appropriately and gadget won't work precisely. This will lead to incredible problem.[6]

5.0 Conclusion

Web of Things relies upon Internet, sensors innovation which makes the correspondence conceivable among gadgets by actualizing various conventions. Subsequent to doing the writing study some significant issues are watched, similar to the interfered with network among gadgets affecting the correspondence. Likewise there is similarity issue in gadgets. Security of gadgets during correspondence procedure and security of correspondence channel or connection is additionally a significant issue. Loads of work is to be accomplished for the improvement and progress of this field; still there is more work to do, more institutionalization of innovation, conventions and equipment are required to make totally solid and secure area of Internet of Thing. Some worldwide rules ought to be utilized for this reason. What's to come is absolutely relies upon Internet of Thing, so part of activity at execution level. In request to determine security issues in IoT area we propose to actualize the idea of Block Chain in IoT. We will have profound conversation on principals and execution of Square Chain in our further works.

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Data Security in Cloud Computing

Dimpy Jindal* and Barkha Bahl**

ABSTRACT

Cloud computing is one among the fastest emerging technologies in to computing. There are many advantages yet as well as few security issues in cloud computing. It is a study of knowledge in the cloud and aspects associated with it concerning security. The paper will go in to details of data protection methods and approaches used throughout the planet to ensure maximum data protection by reducing risks and threats.

The two important hardware and software parameters for cloud architecture are Data security and privacy protection techniques. The focus is to review existing security techniques and their challenges with respect to both software and hardware aspects for shielding data within the cloud and aims at enhancing the data security and privacy protection for the trustworthy cloud environment. Cloud allow its users to remotely access and store data.

Keywords: *Cloud Computing; Data Security; Cloud Services; Confidentiality; Integrity; Availability; Authentication and Access controls.*

1.0 Introduction

Cloud computing is an emerging technology which recently has drawn significant attention from both industry and academia. It provides services over the web, by using cloud computing user can utilize the online services of various software rather than purchasing or installing them on their own computers. According to the National Institute of Standard and Technology (NIST) definition, cloud computing can be defined as a paradigm for enabling useful, on-demand network access to a shared pool of configurable computing resources.[1] Cloud Computing isn't considered as application oriented but service oriented. Sharing of data is one reason of losing data security and protection. In order to avoid potential risk to the data, it is necessary to protect data repositories. One amongst the key questions while using cloud for storing data is whether or not to use a 3rd party cloud service or create a non-private organizational cloud. Sometimes, the information is just too sensitive to be stored on a public cloud, for example, national security data or highly confidential future product details.

This type of data will be extremely sensitive and therefore the consequences of exposing this data on a public cloud is serious. In such cases, it is highly recommended to store data using internal organizational cloud. This approach can help in securing data by enforcing on-premises data usage policy. However, it still does not ensure full data security and privacy, since many organizations are not qualified enough to add all layers of protection to the sensitive data. This paper discusses the potential threats to data in the cloud and their solutions adopted by various service providers to safeguard data. There are two widely used methods to retrieve the cipher text. First, there is a safety index-based approach which establishes a secure cipher text key words indexed by checking the existence of key words. Second, there is a cipher text scanning-based approach which confirms the existence of key words by matching each word in cipher text. The article discusses and analyses the data security and storage issues along with its solutions and its future development of cloud computing.

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2.0 Classification of Cloud Computing

The main attributes of cloud computing are Multi-tenancy, massive scalability, elasticity and self-provisioning of resources.[2] The services model of cloud computing is split into three categories (1) IaaS (infrastructure as a service) provides the utilization of virtual computer infrastructure environment, online storage, hardware, servers and networking components; (2) PaaS (platform as a service) provides platform for developing applications by using different programming languages; (3) SaaS (software as a service) facilitates the user to access online applications and software that are being hosted by the service providers. The deployment model of cloud computing include (1) public cloud, that owned by service provider and its resources are rented or sold to the general public (2) private cloud, that is owned or rented by a company (3) community cloud, that's just like private cloud but cloud resources is shared among number of closed community (4) hybrid cloud, exhibits the property of two or more deployment models. [3] Figure1 shows the NIST definition framework for cloud computing.
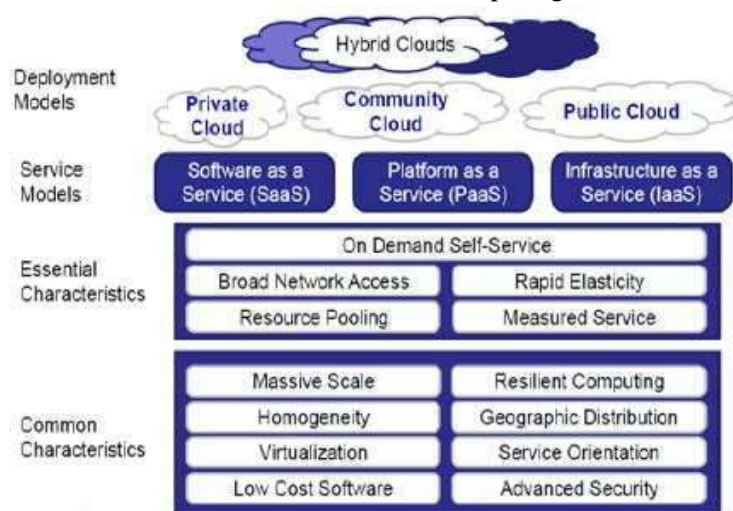
Fig1: NIST cloud definition Frame work

3.0 Data Security in Cloud Computing

Data security in cloud computing involves more encoding. Requirements for data security depends upon on the three service models SaaS, PaaS, and IaaS.

Two states of data normally have threat to its security in clouds; Data at Rest which implies the information stored within the cloud and Data in Transit which suggests data which is moving in and out of the cloud. Confidentiality, and Integrity of information is predicated upon the character of knowledge protection mechanisms, procedures, and processes. The foremost significant matter is that the exposure of knowledge in above mentioned two states.

A. Data at Rest

Data at rest refers to data in cloud, or any data that may be accessed using Internet. This includes backup data additionally as live data. As mentioned earlier, sometimes it's very difficult for organizations to safeguard data at rest if they're not maintaining a non-public cloud since they do not have physical control over the information. However, this issue will be resolved by maintaining a personal cloud with carefully controlled access.

B. Data in Transit

Data in transit normally refers to data which is moving in and out of the cloud. This data may be within the variety of a file or database stored on the cloud and may be requested to be used at another location. Whenever, data is uploaded to the cloud, the data at time of being uploaded is named data in transit. Data in transit can be very sensitive data like user names and passwords and may be encrypted sometimes. However, data in unencrypted form is also data in transit. [4] Data in transit are often sometimes more exposed to risks than the data at rest because it has to travel from one location to another. [5] There are several ways in which intermediary software can eavesdrop the data and sometimes have the ability to change the data on its way to destination. [6]

4.0 PROTECTING DATA USING ENCRYPTION

Encryption techniques for data at rest and data in transit is different. For examples, encryption keys for data in transit are often short-lived, whereas for data at rest, keys are often retained for extended periods of time. Different cryptographic techniques are used for encrypting the info nowadays days. Cryptography has increased the extent of data protection for assuring content integrity, authentication, and availability.
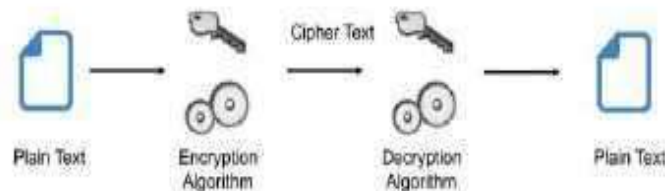
Fig2: Basic Cryptography Process

In the basic sort of cryptography, plaintext is encrypted into cipher text using an encryption key, and also the resulting cipher text is then decrypted employing a decryption key as illustrated in Fig2. Normally there are four basic uses of cryptography:

A. Block Ciphers

A block cipher is an algorithm for encrypting data (to produce cipher text) within which a cryptographic key and algorithm are applied to a block of information rather than per bit at a time. [7] During this technique, it is made sure that similar blocks of text do not get encrypted the identical way in an exceedingly message. Normally, the cipher text from the previous encrypted block is applied to the subsequent block during a series.

The plain text is split in to blocks of information, often 64 bits. These blocks of data are then encrypted using an encryption key to create a cipher text.

B. Stream Ciphers

This technique of encrypting data is additionally called state cipher since it depends upon this state of cipher. During this technique, each bit is encrypted rather than of blocks of information. An encryption key and an algorithm is applied to every and each bit, one at a time. [8] Performance of Stream ciphers is often faster than block ciphers due to their low hardware complexity. However, this system will be susceptible to serious security problems if not used properly. Stream cipher uses an encryption key to encrypt each bit rather than block of text. The resultant cipher text is a stream of encrypted bits that may be later decrypted using decryption key to supply to original plain text.

C. Hash Functions

In this technique, a mathematical relation called a hash function is employed to convert an input text in to an alphanumeric string. Normally the produced alphanumeric string is fixed in size. This method makes sure that no two strings can have same alphanumeric string as an output. Whether or not the input strings are slightly different from one another, there's a clear stage of great difference between the output string produced through them.

Identified Challenges
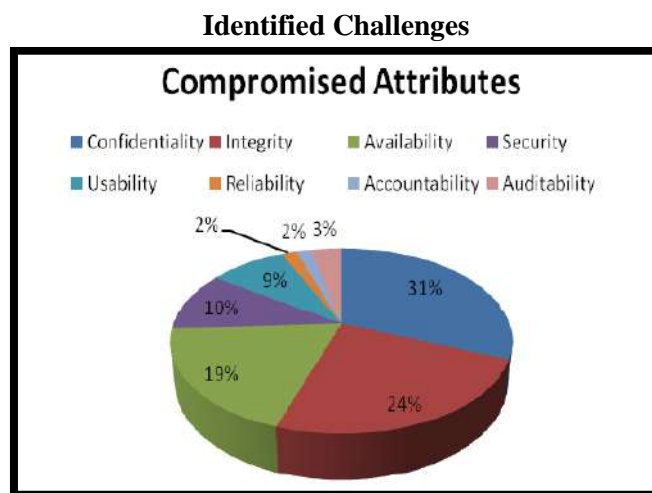
Fig3: List of Compromised attributes

In the part of the analysis, we find some of the Cloud Computing attributes which are threats to Cloud Computing. As a part of the result the compromised attributes in Cloud Computing is described above, they are Confidentiality, Integrity, Availability, Security, Accountability, Usability, Reliability and Auditability. The records of the most threaten attributes are in fig 3. Shows that Confidentiality 31% and Integrity 24% recorded most threaten, while comparing with usability, reliability, accountability and auditability which recorded less than the 10%.

5.0 Identified Mitigation Techniques

The summary include Identity based authentication, AES algorithm, RSA algorithm, Dynamic Intrusion detection system, Multi tenancy based access control model, Third party auditor, probabilistic sampling technique, MACs, Data coloring and water marking, A novel Cloud dependability model, Security assertion markup language, Proof of retrievability, Redundant array of independent Net storages, Handoop distributed file system, self cleansing intrusion tolerance, searchable symmetric encryption, Provable data possession, Privacy manager, Security Access Control Service, The Service Level Agreement, Intrusion detection system.

The above mentioned mitigation techniques have strong impact on the Performance, Security, Efficiency, QoS, Privacy and Access control of Cloud Computing. The defined mitigation techniques somehow improve the overall services in Cloud Computing environment. The result is shown in fig 4.
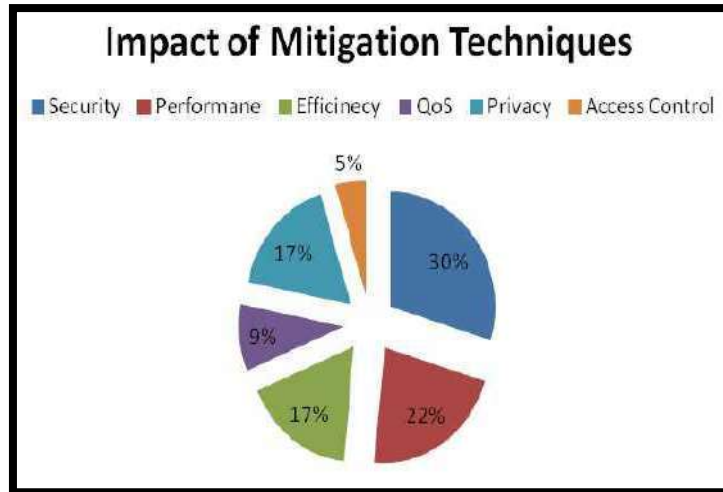
Fig4: Impact of mitigation techniques

6.0 Different Algorithm for Data Security Mechanism:

☐ **3DES**: - 3DES is precisely what it's named–it performs 3 iterations of DES encryption on each block. Because it is an enhanced version of DES so is predicated on the concept of Feistel Structure. The 3DES uses a 64 bit plain text with 48 rounds and a Key Length of 168-bits permuted into 16 sub-keys each of 48- bit length. It also contains 8 S-boxes and same algorithm is employed in reversed for decryption [9].

☐ **RSA**: - The RSA (Rivest-Shamir-Adleman) algorithm is that the most significant public-key cryptosystem. It is best known and widely used public key scheme. It uses large integers like 1,024 bits in size. It's just one round of encryption. It is asymmetric block cipher. RSA is an algorithm employed by modern computers to encrypt and decrypt messages. RSA is an asymmetric cryptographic algorithm. This is often also called public key cryptography, because one in every of them will be shared with everyone and another key must be kept private.

☐ **AES**:- In 1997, the National Institute of Standards and Technology (NIST) announced an initiative to decide on a successor to DES; in 2001, it selected the Advanced Encryption Standard as a replacement to DES and 3DES. AES (Advanced Encryption standard) is developed by Vincent Rijmen, Joan Daeman in 2001. The Advanced Encryption Standard (AES) may be a symmetric block cipher utilized by the U.S. government to guard classified information and is implemented in software and hardware throughout the globe for sensitive encryption. AES is truly, three block ciphers, AES-128, AES-192 and AES-256. Each cipher encrypts and decrypts data in blocks of 128 bits using cryptographic keys of 128 bits, 192 bits and 256 bits, respectively [10].

☐ **Blowfish**: - Blowfish was developed by Bruce schneier in 1993. It's basically a symmetric block cipher having variable length key from 32 bits to 448 bits. It operates on block size 64 Blowfish may be a variable key length algorithm and it is having 64-bit block cipher. The algorithm encompass of two sub parts, one is vital expansion part and second encryption part. Encoding is finished by completing 16 rounds fiestel network. It's a 16-round Feistel cipher [11].

☐ **DES**: - DES is symmetric key algorithm supported on the backbone concept of Feistel Structure. The DES may be a block cipher that uses a 64 bit plain text with 16 rounds and a Key Length of 56-bit, originally the key is of 64 bits (same because of block size), but in every byte 1 bit in has been selected as a 'parity' bit, and isn't used for encryption mechanism [12].

☐ **Diffie-Hellman**: - It's the primary public key encryption algorithm, using discrete logarithms during a finite field. Allows two users to exchange a secret key over an insecure medium with none prior secrets. Diffie-Hellman (DH) may be a widely used key exchange algorithm. In many

cryptographically protocols, two parties wish to start communicating. The key exchange by Diffie-Hellman protocol, by allowing the development of a typical secret key over an insecure communication channel. [13].

7.0 Comparative Analysis of Security Algorithms

The Table 1 shows the comparison of varied cryptographic algorithms for securing data over cloud based on supported various parameters made within the survey. The parameters considered are key size, block size, number of rounds, execution time, key used and memory usage. The benefits and downsides are also stated.

AES algorithm is vital for electronic sensitive data, cyber security and government computer security. AES has been created for and implemented by U.S government to guard sensitive information [14]. Blowfish algorithm has been implemented on various formats of files like image, audio, video, text, document and portable document format [15]. The result has proved to be stable.

Table i. Comparison of cryptographic algorithms in cloud

Algorithms/ Parameters	AES	RSA	Blowfish	IDEA	DES
Key size	128, 192 or 256 bits	>than 1024 bits	32-448 bits	128 bits	56 bits out of 64 bits
Block size	128, 192 or 256 bits	Variant	64 bits	64 bits	64 bits
Rounds	10, 12 or 14 depending on key size	1	16	8.5	16
Encryption Type	Symmetric	Asymmetric	Symmetric	Symmetric	Symmetric
Key used	Same key for encryption and	One key for encryption and	Same key for encryption and	Same key for encryption and	Same key for encryption and

8.0 Gaps in Literature Survey

Subsequent cryptographic algorithm contains the varied limitations.
1) Existing techniques haven't implemented mathematically to supply time complexity, security theorems and proofs.
2) Automatic classification of information isn't tired previous methods.
3) Safer cryptographic algorithms can be employed in combinations so on to provide confidentiality to user data.

9.0 Research Motivation

To exchange sensitive or counsel between a browser and an online server, Encryption is a plain tool to guard protect communication. Proper encryption of knowledge and encryption of transmission is critical. The mitigation techniques identified from the survey is as follows:

1) SSL (Secure Socket layer)

2) VPN (Virtual Private Network)
3) IPSec (Internet Protocol Security)
4) A proper use of encryption can give good protection against active attacks. So as to safeguard against Man-in-the-middle attacks, one should observe if there are any delayed response times, so as to detect if there's any "Middle-Man".
5) A proper use of encryption can give good protection against eaves dropping. Traffic analysis is harder, but on the opposite hand, not only the several need protection against this type of threat.

10.0 Proposed Work

The proposed model provides different options for security of data, so the options:

☐ High level of security, for very sensitive data. In this part of measurements we can conclude that high level of security of data from the proposed model uses the method of sending partitions in cloud (file is partitioned then encrypted) and scenario from (use of asymmetric algorithms) that are safer.

☐ Moderate level of security for less sensitive data. For data that the level of security is moderate, we still propose that partitions be sent to cloud and, also hybrid algorithms as well, as a better solution for data encryption.

☐ Lower level of security for data that are least sensitive. For data that is not required a high level of security and big data, then we suggest that partitions should be sent to the cloud, (the file is encrypted then sent to clouds) we believe that this method is faster for big and less sensitive data. Also for this case we suggest that symmetric algorithms for the encryption of the partitions, tend to be much faster. In future work, we could design a framework which will satisfy the security issues related to Multi-tenancy. Multi-tenancy occurs when varied consumers using the same cloud to share the information on a single server.

11.0 Conclusion and Future Challenges

There are many benefits of using cloud computing like cost efficiency, quick deployment, improved accessibility etc. However, there are yet many practical problems which must be solved. The information confidentiality is one in every of them. Many researchers contributed their efforts to attenuate the information security issue during this domain with different solutions that described during the work. One amongst the most important concern of this paper was data security and its threats and solutions in cloud computing. Data in several states has been discussed together with the techniques which are efficient for encrypting the information within the cloud. The study provided an outline of block cipher, stream cipher and hash function which are used for encrypting the information within the cloud whether it's at rest or in transit.

Although our review has explored the sphere, further studies are needed to verify the obtained results. Future work includes the extension of this review by including more sources (conferences, journals and workshops) and questions. A future plan is to explore the opposite security issues within the cloud computing environment and that we also are reaching to design a security model using some encryption techniques for data concealment in cloud computing.

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COVID-19 Data Analysis using Machine Learning

Upasana Singh* and Jatin Batra**

ABSTRACT

The impact of the COVID-19 pandemic has led scientists to produce a vast quantity of research aimed at understanding, monitoring, and containing the disease; however, it remains unclear whether the research that has been produced to date sufficiently addresses existing knowledge gaps. We usemachine learning techniques to analyze this massive amount of information at scale. In machine learning and its subset (Deep Learning) methods are employed in various applications to solve multiple problems that occur due to uncertainty. Most of the machine learning and deep learning algorithms are trained to address the supervised learning problem, where the algorithms know the prediction requirement.

The results demonstrate 93% overall accuracy in predicting the mortality rate. We used several machine learning algorithms including linear regression, Random Forest, Decision Tree, and K-Nearest Neighbor (KNN) to predict the number of covid cases.

Keywords: supervised learning, unsupervised learning, model selection, linear regression, Random Forest, Decision Tree, and K-Nearest Neighbor (KNN).

1.0 Introduction

In late 2019, a novel form of Coronavirus, named SARSCoV-2 (stands for Severe Acute Respiratory Syndrome Coronavirus 2), started spreading in the province of Hubei in China, and claimed numerous human lives [1]-[3].. In January 2020, the WorldHealth Organization (WHO) declared the novel coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) [4][5]. In February 2020, WHO selected an official name, COVID-19 (stands for Coronavirus Disease 2019), for the infectious disease caused by the novel coronavirus, and later in March 2020 declared a COVID-19 Pandemic [5][6].

Coronavirus is a family of viruses that usually causes respiratory tract disease and infections that can be fatal in some cases such as in SARS, MERS, and COVID-19. Some kinds of coronavirus can affect animals, and sometimes, on rare occasions, coronavirus jumps from animal species into the human population. The novel coronavirus might have jumped from an animal species into the human population, and then begun spreading [7]. A recent study has shown that once the coronavirus outbreak starts, it will take less than four weeks to overwhelm the healthcare system. Once the hospital capacity gets overwhelmed, the death rate jumps [8].. The proposed system includes a set of algorithms for preprocessing the data to extract new features, handling missing values, eliminating redundant and useless data elements, and selecting the mostinformative features[9]. After preprocessing the data, we use machine learning algorithms to develop a predictive model to classify the data, predict the medical condition, and calculate the probability of number of cases in upcoming days[10].

2.0 Methods

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2.1 Dataset

In this paper, we used a dataset of more than 117,000 laboratory-confirmed COVID-19 patients from 76 countries around the world including both male and female patients with an average age of 56.6.This dataset is a collection of the COVID-19 data maintained by Our World In Data. It and includes data on confirmed cases, gdp rate, deaths, hospitalizations, and testing, as well as other variables of potential interest. At the data cleaning stage, we removed useless and redundant data elements such as data source, admin id, and admin name. Then, Data imputation techniques were used to handle missing values. After analyzing the data, we found out that 74% of patients were recovered from COVID-19. To have an accurate and unbiased model, we made sure that our dataset is balanced. A balanced dataset with equal observations for both recovered and deceased patients was created to train and test our model. The data observations (patients) in the training dataset have been selected randomly and they are completely separate from the testing data. Figure 1 shows a machine
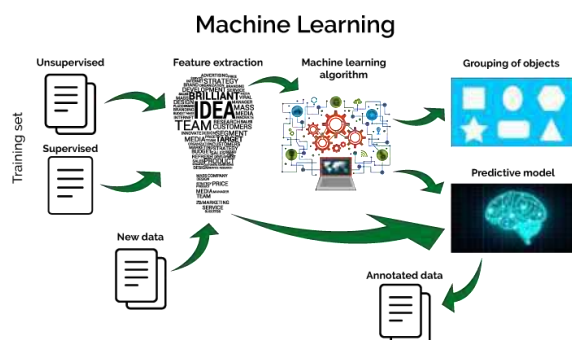
learningarchitectur

Fig1: Machine Learning Architecture

2.2 Feature Selection

The outcome label contained multiple values for the patient's health status. We considered patient that discharged from hospital or patients in stable situation with no more symptoms as recovered patients. A total of 80 features were extracted from symptoms and doctors' medical notes about the patient's health status. The next step is feature selection. The primary purpose of feature selection is to find the most informative features and eliminate redundant data to reduce the dimensionality and complexity of the model. We used univariate and multivariate filter method and wrapper method to rank the features and select the best feature subset.

Fig 2:

It Select a subset of input features from the dataset.

- Unsupervised: Do not use the target variable (e.g. remove redundant variables).
- Correlation

- Supervised: Use the target variable (e.g. remove irrelevant variables).
- Wrapper: Search for well-performing subsets of features.
- RFE
- Filter: Select subsets of features based on their relationship with the target.
- Statistical Methods
- Feature Importance Methods
- Intrinsic: Algorithms that perform automatic feature selection during training.
- Decision Trees
- Dimensionality Reduction: Project input data into a lower-dimensional feature space.
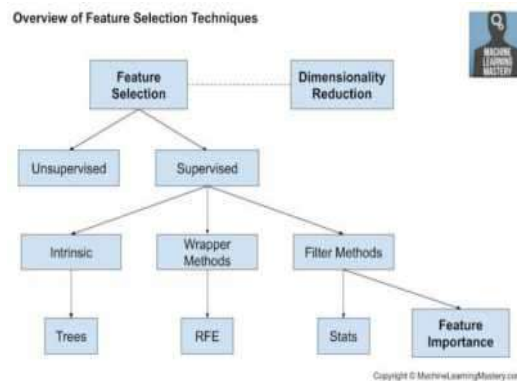
Fig3:

2.3 Predictive Algos

After selecting the best feature subset, we used various machine learning algorithms to build a predictive model. In this research, we used different algorithms including linear regression, Random Forest, Decision Tree, and K-Nearest Neighbor (KNN).

LinearRegression is supervised machinelearning algorithm where the predicted output is continuous and has a constant slope. It's used to predict values within a continuous range, (e.g. sales, price) rather than trying to classify them into categories (e.g. cat, dog).

The Random Forest algorithm is an ensemble learning method combined of multiple decision tree predictors that are trained based on random data samples and feature subsets.

A decision tree is a flowchart-like structure in which each internal node represents a test on a feature (e.g.whether a coin flip comes up heads or tails), each leaf node represents a class label (decision taken after computing all features) and branches represent conjunctions of features that lead to those class labels.

The k-nearest neighbors (KNN) algorithm is a simple, easy-to-implement supervised machine learning algorithm that can be used to solve both classification and regression problems.
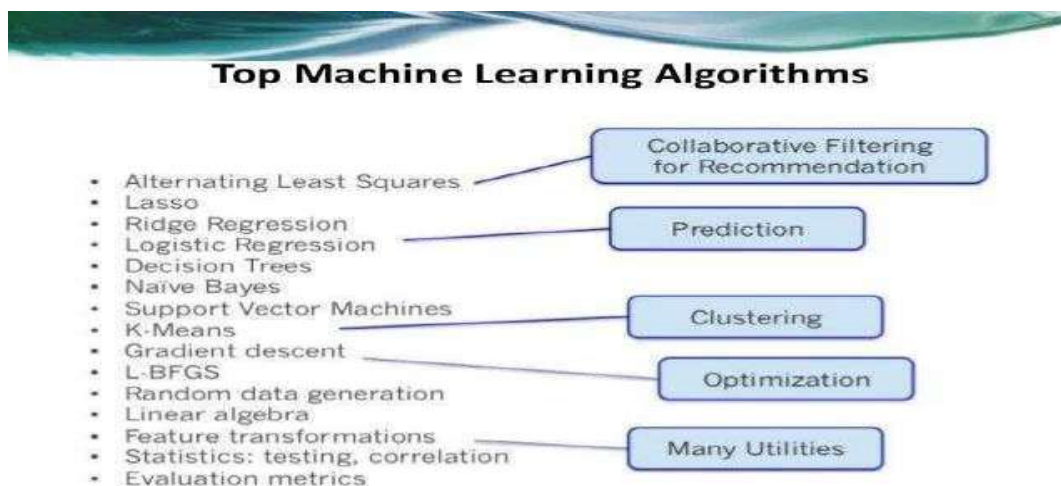
Fig 4:

3. ML Principle

Every learning process, deep or not, consists of two phases: the estimation of unknown dependencies in a system from a given data set (input) and the use of estimated dependencies to predict new outputs of the system. In this Subsection, we analyses the most common techniques used in both phases.

The input of a ML process is a set of instances. These instances are the things that can be classified, associated, or clustered. Each instance is an individual, i.e., independent example of the concept that must be learned.

Machine Learning (ML) platform provider is to use all the tools at our disposal to help our clients improve the quality and effectiveness of their marketing. At the same time, we have collated a set of principles that we will use as a code of ethics to abide by when developing our ML.

4.0 Result and Evaluation
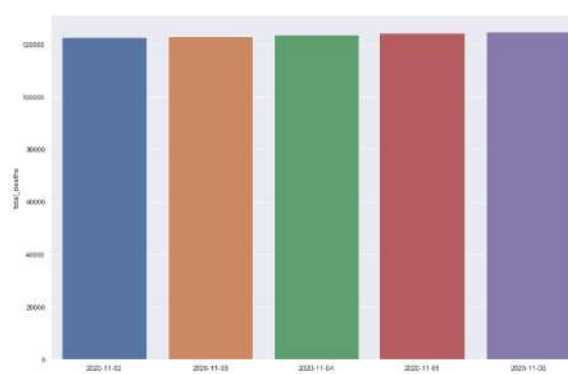
Fig 6: This graph represents total deaths w.r.t date in india.
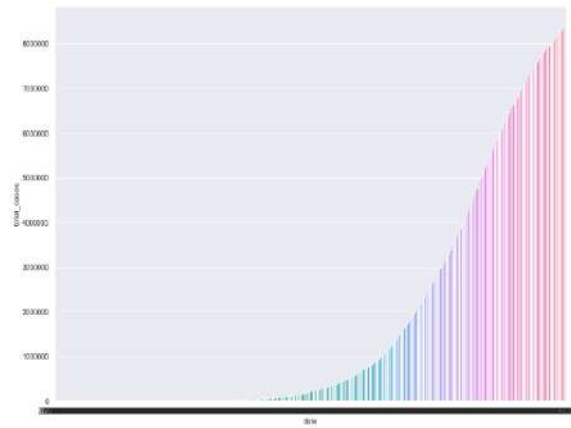
Fig 7:This graph represent total cases w.r.t date in india.
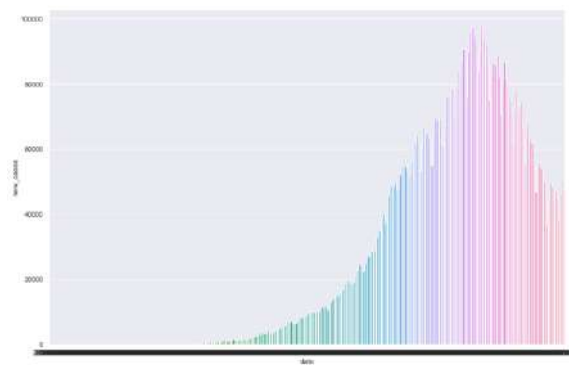
Fig 8: This graph represent new cases w.r.t date in india.
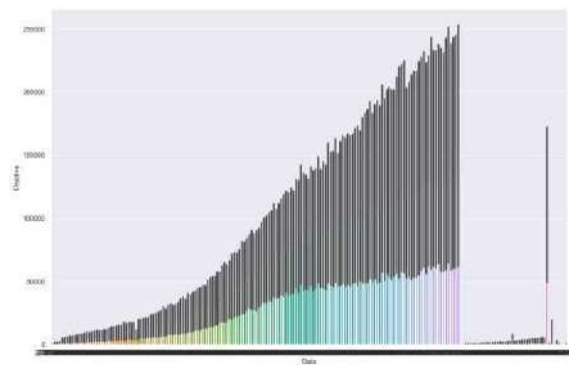
Fig 9: This graph represent total positives cases w.r.t date in india
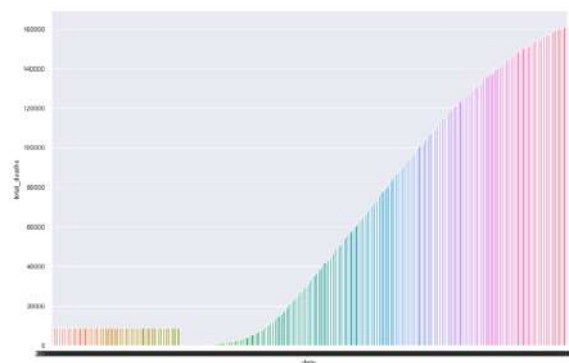
Fig 10: This graph represent total total deaths in brazil wrt date.
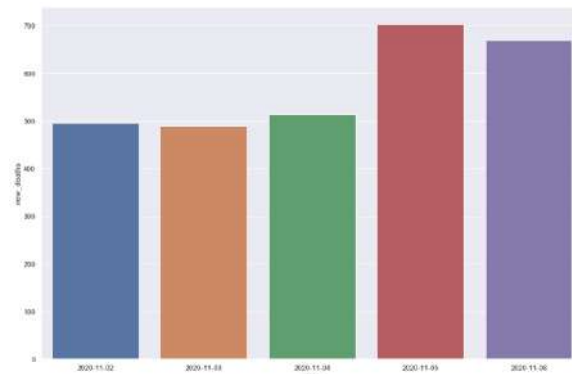
Fig 11: This graph represent new deaths in india w.r.t date.
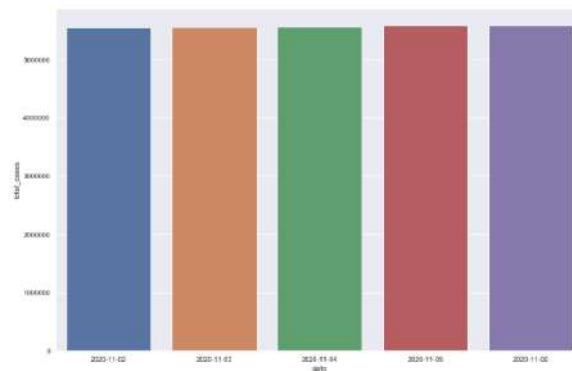
Fig 12: This graph represent total cases in brazil w.r.t date.
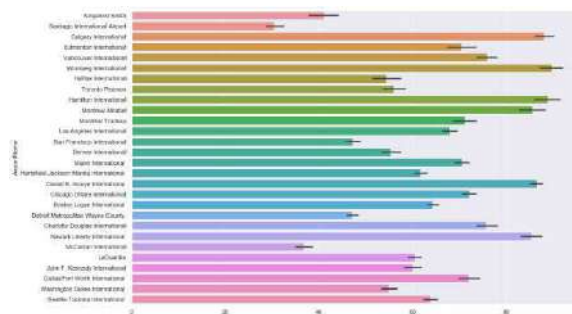
Fig 13: This graph shows the percent of world's airport baseline effected by covid.
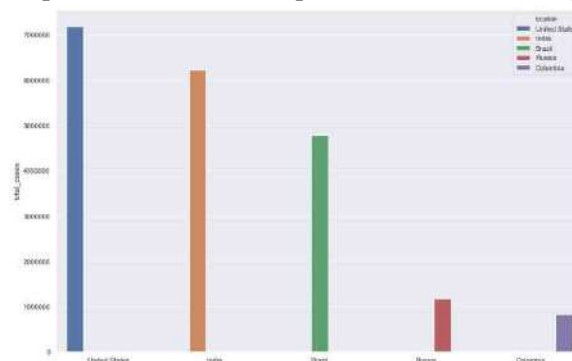
Fig 14: This graph represent total cases in top 5 countries .
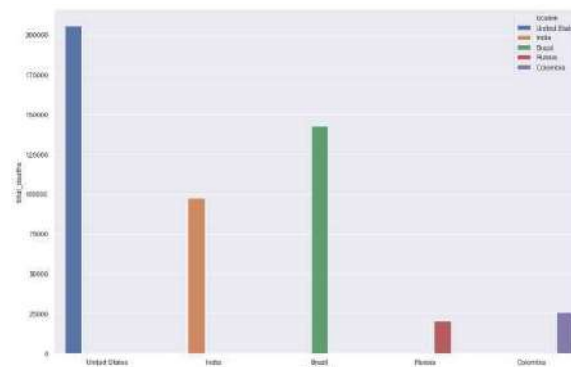
Fig 15: This shows total deaths in top 5 countries.
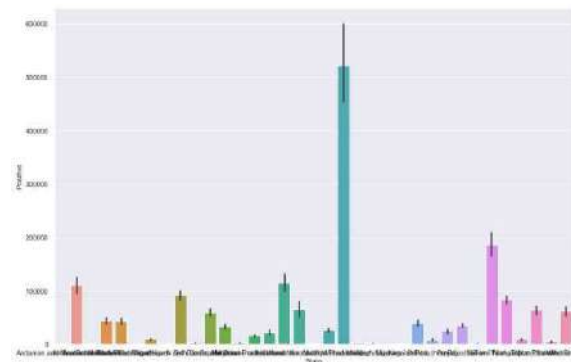
Fig 16: This represents statewise total positive cases.

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Contribution of The Marathas Towards Sri Jagannath Temple of Puri

Sujata Routray*

ABSTRACT

In 1751, the Marathas became the ruler of Odisha. Being Hindus, they had great care and devotion for the Lord Jagannath and they took special interest in the welfare of the temple administration. The Marathas provided necessary facilities for pilgrims in which several pilgrims visited Puri to give tribute to the Lord in large numbers. All rituals, customs, traditions, practices and faiths relating to Jagannath culture was sincerely managed by them.

Keywords: *Mughals, Marathas, pilgrims, Parichhas, Annachhatra, Koth kanjha, Satais Hazari Mahal.*

1.0 Introduction

Sri Jagannath, the Lord of the whole universe, is not only a symbol of odia identity, integrity and solidarity but his gracious presence in the district of Puri of Odisha, in the eastern part of India, also unites the whole of India including a foreign country like Nepal with a coherent bond spreading the message of socialism. His temple at Puri is great holy Hindu shrine and one of the four dhamas. Representing sunya ideology of Vaishnavite concept, Sri Jagannath trio is believed to be the one of the form of Sri Mahavishnu. With spiritual concept at the background and gradually incorporating Jain and Buddhist ideologies, Jagannath culture was perhaps Hinduised during the reign of the Kesaris and then the imperial Ganga rulers. Credit goes to Anantavarman Chodaganga Deva for the construction of the present massive temple of Sri Jagannath at puri. Since then, the temple as holy shrine and a pilgrimage centre is playing a vital role in the socio-economic - political and cultural life of Odisha. The temple witnessed for several plunderers, ravages and devastation from time to time due to frequent raids of the Afghans and the Mughals. With the ascendency of the Maratha power in coastal Odisha from 1751 to 1803, the temple received a lot of welfare measures for the proper maintenance.

The Jagannath temple was always patronized and achieved considerable significance as it is considered as one of the four religious centers or Mathas in India (Badrinath in the north, Dwaraka in the west, Puri in the east, and Singeri in the south). The temple began to draw the attention and it was one of the targets of many invaders. Mukunda deva was the last independent king of Odisha and he was killed in 1568 and Odisha was passed to the Afghans. At the order of the Afghan sultan Sulamain Karrani of Bengal, his general Kalapahada (Kalachand) plundered Odisha as the immense wealth of the Jagannath temple attracted him.1 Odisha came under the Mughals in 1592 when the Raja Mansingh, the commanders of the Mughal emperor Akbar conquered it.2 During the Muslim rule in Odisha which continued from 1568-1751, the worship of Lord Jagannath was very often disturbed excepting the reign of Akbar and Murshid Quli II due to their liberal outlook. But in the reign of Aurangzeb, a firman was passed in 1692 calling for the demolition of the temple. But fortunately that firman was thwarted because the local Mughal officers were somehow bribed out. The credit should be given to the Marathas for saving the Jagannath Temple for demolition to be done by Aurengzeb by diverting his attention towards the Deccan, helped Odisha as if the war ended up favourably for Aurangzeb, little doubt, that Puri would have been leveled.

After the end of the Mughal period Odisha came under the Maratha rule. Being Hindus, they had a great respect for the Lord Jagannath. They took a special interest and care in the temple administration.

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In the time of Maratha rule, there was no need to shift the idols of Jagannath from the temple of Puri to a secret Place, but previously, several times the idols were shifted to the Chilika Lake to avoid plunder. The Maratha Government had taken all necessary steps for the better management which attracted the pilgrims to visit Puri in large number.

The Marathas were not in favour in changing any old traditional customs regarding the worship and rituals of Lord Jagannath. Therefore, they gave respect to all the practices, rituals, customs relating to Jagannath culture. A conflict arose inside the temple when the Vaishnavs removed the images of Shankara and Padmapada from the throne of Jagannath (Ratna Singhasana). The followers of Shankara strongly opposed the anti-social and inhuman activities of Vaishnavas. Due to this incident, the daily worship (Devniti) was stopped. Immediately interferring to this matter, the Maratha Government warned the Vaishnava Chief Laksmana Nath Krishna Goswami not to introduce any new steps regarding the traditional practices of the temple and took necessary action to reinstall the images of Sankara and Padmapada. The Marathas always encouraged the pilgrims to visit Puri Jagannath temple in large numbers. Specially Sambhuji Ganesha took great care in this regard. For the development of the temple, the Maratha Government Rajaram Pandit (1778-1793) took special interest and contributed a lot. During Maratha administration, for the observation of different religious activities of the temple, regular funds were provided. The Bhonsoles gave a sum of Rs. 6000 or 24000 cowries annually to the temple. This was divided into donations given to Brahmins, priests, widows, foods for pilgrims. In 1784, Mudoji Bhonsole made land grants to Gossains. This charity was known as 'Anna Chhatra' (free food distribution camp) .[4] Many rich persons endowed with lands for the maintenance of the temple. This encouraged others to make large contributions. For example, in 1773, Raja Raj Narain, a zamindar of Midnapore, set aside 960 Bighas of land for Puri.[5] Earnings from these 960 bighas would go towards financing 'bhog' for satais Mahal (Mahal meant an area, usually a village). This revenue would go to the 'bhog' of the temple (nearly 1,48,373 or about -50,000 rupees. Sometimes it would be in kind Daspalla supplied the timbers required for making of the rathas or chariots.[6]

The Marathas paid special attention to the celebration of two annual festivals, the Rath yatra (car festival) and the second (possibly) the Jhulana festival. Probably, this Jhulana festival began during the Maratha Period. The money spent on these two festivals was released from the government treasury amounted to about Rs. 40,000 annually.[7] Money earned via pilgrims tax etc., was pumped back into making of the temple and temple festivals grandeour and richer. Raghuji Bhonsole granted the essate of Kodhar to the Uttara Purusha Matha. His mother Chimabai introduced '*Mohanbhog*' offering to Jagannath. The revenue from Kodhar estate was attached to this bhog. The Marathas brought the *Aruna Stambha* from Konark to Puri.

The Maratha Government were highly religious, but not narrow minded. As they were liberal in their outlook they issued passport to the Muslims to visit Lord Jagannath. The Naib Nazim of Deccan Jasrat Khan requested the Maratha Government for a darshan of Jagannath.[8]

For better administration of the temple the Maratha Government appointed four Parichhas with specific duties. First and the third parichha were the Marathas and the second one was a local person. He was called as Jagannath Rajguru along with the Deula Parichha. The main source of income of the temple during the Maratha rule were (1) Revenue from Satais Hazari Mahal (2) Sayar or two duties (3) Tax on professions (4) sale of mahaprasad (5) Kot khanjah or assignment of land revenue.[9] A tax of pratiharies was also levied, who were allowed to collect fees from the pilgrims. Certain categories of pilgrims such as sanyasis (medicants), the desees (who lived in the holy land between the rivers Baitarani and Rishikulya) and the kangalas (paupers) were exempted from paying taxes.[10]

During the Maratha rule, there was provision for pilgrims for paying taxes classified into different categories such as *Lal yatri*, *Bhuranga* and *Kangal*. This classification was made on the basis

of wealth, social distinction and pedigree. The first higher category constituted the *Lal Yatries*, the middle constituted the *Bhuranga* and the third poorest category of pilgrims known as *Kangala* who were exempted for paying taxes. The tax collected from a place called khunta on the border of Mayurbhanj and continued upto the entrance of Puri. (who came from the north). They were granted passes specifying their number, the date and the amount of tax paid by them individually. Then they were handed over to the pandas of agents. This process was necessary in order to avoid the low cast entry and unnecessary delay of entrance place. The pilgrims from south were to enter Puri thourgh the Lokanath Ghata and the pilgrims from northern side were to enter through the Atharnala. The northen side pilgrims gave Rs. 10 and the southern side gave Rs. 6 only.

Besides this tax , there were another fee *panas* and twelve and a half *gandas* .(cowries) for higher category pilgrim and the middle category pilgrim had to pay seven and half *gandas* (cowries) for paying for taking them round the Singhasana or the throne of Jagannath. Medicants, monks, merchants with articles of trade and the inhabitants of holy land were exempted from payment of taxes.[11] The *kangalas* (the poorest people) were also allowed to visit the temple without any payment.

In the field of religion the Marathas brought many new and novel experiments. The worship of Lord Jagannath and the maintenance of the grand temple was their primary objective. It is important to note that without political control being exercised by the Nagpur Bhonsoles in Odisha, perhaps none of this would have been possible. Authors Dr. Manas Kumar Das and Dr. B.C. Ray agree that the Maratha rule led to religious rejuvenation in Odisha.

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Cyber Bullying: A Socio-Psychological Approach

Monojit Goswami*

ABSTRACT

Cyber bullying is being one of the most demonic practices, prevailing since centuries is undoubtedly worthy of being subjected to an extensive and critical study as well as analysis. The research primarily aimed at the nature, effects and consequences of cyber bullying on social sites with a keener eye on the roles of students, adults and respective authorities involved. Besides, the research also aimed at highlighting the bleak demarcation between the essential interaction and undesirable cyber bullying, keeping in mind the permanent changes that are experienced by the psyche of the victim. The research aimed to analyze the different kinds of effects that are subjected to post cyber bullying. The research tried to mark the major reasons behind the continuance of cyber bullying on Social sites. The research also elucidated upon the roles of anti-ragging authorities on social sites and their effectiveness. The research further attempted to enlighten the modern aspects of cyber bullying and coherent ragging, such as bullying occurs unidentifiably. Besides, the research also garnered the various effects in permanence which amalgamates with an individual's upbringing. The research also aimed at proposing suggestive measures through the analysation of the collected input in curbing the menace of cyber bullying. The research will be in the form of empirical study which included students, adults and all the probable affected elements in the society. The tool used for data collected was a set of questions clustered in a questionnaire form which was applicable on students as well as respective authorities regarding the same.

Keywords: *Cyber bullying, cyber stalking.*

1.0 Introduction

According to Belsey "cyberbullying involves the use of information repeated, and hostile behaviour by an individual or group that is intended to harm others". In 2006, Harris Interactive Inc. created a study on cyberbullying. The study found that 43% of the 824 high school-aged students surveyed had been cyberbullied in the past year.

The American Life Project on cyberbullying conducted a similar study in 2006. It found that one out of three teens have experienced online harassment. It also found that the most prevalent form of cyberbullying was making private information public; which included text messages and pictures. The findings also indicated that girls are more likely to be part of cyberbullying than boys. Young girls, between the age of 15 and 17,they are the most likely to be involved in some form of cyberbullying..

Cyberbullying is different from traditional bullying due to the anonymity that the New Media can provide. Cyberbullies do not have to own actions due to the anonymity.According to Willard (2006) here are different forms of cyberbullying. These forms include flaming, harassment,denigration, cyberstalking, and cyber threats.

It is more likely than other forms of bullying which go unreported toparents and administrators.

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This is due to the feeling of the victim that they needed to learn to deal with these things themselves and also being afraid that if they tell their parents, their internet privileges will be taken away. It has been found that 90% of victims don't tell adults about cyberbullying incidents due to reasons. Victims of cyberbullying may experience stress, low self-esteem, and depression. It has been found that cyberbullying can also have extreme repercussions such as suicide and violence.

Statement of problem
"We have got to dispel this myth that bullying is just a normal rite of passage."
- 		Barak Obama
						(Bullying and Cyber Bullying Prevention Conference, March 10, 2011)

Interaction is one of the most mandatory keystones in the modern day world. Today, interaction within peers, seniors, or peoples is something that cannot be ignored. But, as they say every rose is undesirably followed with the existence of thorns. Similarly over the passing years, interaction has taken several improvised and different forms including one that involves the portrayal of domination by the privileged or not so vulnerable section of peoples within the society or institution over the Social Media. This practice has been termed as cyber bullying.

Cyber Bullying, in the modern day world has wide-reaching implications and is just limited to social sites. It is highly to be a discussed topic in various institutions such as universities and other workplaces with more than just a handful of demonic effects. Hence, it would be extremely negligent on our part to under rate its' presence in various corners of the surroundings. From its origin, an effort to disrupt the shackles between different subjects in the world, it has taken an evident turn in the course of events, more often causing traumatizing effects on the victims. The aspect of the perpetrator is something which is more often ignored by people is also a critical one as it poses a permanent effect on them as well with threads of long-lasting aggression in various circumstances. The present research aims at finding all such effects on the victim.

Apart from the apparent positive aspects of interaction what needs to be kept in mind is the critical point from where it turns into cyber bullying. Often we categorise involvement in cyber bullying as a stressful experience for both individuals who bully and those victimized, serving as a lubricant for a diathesis–stress link between cyber bullying psychosocial difficulties. Against this backdrop, it is important to chalk out the all the possible substantive changes which can be observed in the associated parties of cyber bullying which the research shall elucidate upon. Besides, the authorities involved in curbing such practice i.e, anti-cyber bullying or anti-bullying authorities should be extremely vigilant and clear in their minds regarding their roles in such scenes. Earlier reports and surveys have often suggested that these authorities are complacent in their actions and take cyber bullying and their subsequent actions too lightly. The present research shall also take into account the opinions of the subjects regarding these authorities and efficacy in their roles.

The present research shall also elucidate upon the most eminent obstacles in the way of cyber bullying cases being reported by the victims. Often, it has been observed that the individuals going through the practice are hesitant in reporting or even talking about these instances. The reason behind such reluctance or hesitance can arise from various stems and to identify such pertinent sources shall remain an object of study in this research.

Moreover, identical to the emergence of cyber bullying from general interaction there has been another substantive germination from cyber bullying i.e, bullying. Bullying can in no way posed inferior on the grounds of its existence in the virtual world. In the modern world, the scope of cyber interaction is limitless hence bullying in such platforms is highly probable. Cyber bullying is a tailor made example of the ever-increasing avenue of cyber crimes, worldwide. The research shall aim at illumination this less talked about issue and try enhancing the awareness regarding the same. Besides,

the research shall also reserve a substantial scope for the suggestive measures from its subjects on how to curb the devastating practice of cyber bullying through the mode of questionnaire. The suggestions shall be composed of proposals from all the possible prospects involved in the practice i.e, not merely victims but the perpetrators and even the authorities regarding the same.

2.0 Literature Review

According to an article in the NASP (2007), a poll was conducted by the Fight Crime they found that more than 13 million children aged 6 to 17 were victims of cyberbullying. The poll also found that one-third of teens were reported being cyberbullied. Forms of cyberbullying go beyond name calling and enter the world of cyber threats.

According to Willard (2006), there are six main formsof cyberbullying: flaming, harassment, denigration, cyberstalking and cyber treat. Flaming is online fights using electronic messages with vulgar languages. Harassment includes repeatedly sending insulting messages through the Internet. Denigration is "dissing" someone online which can include posting rumours about a person that could damage their reputation. Cyberstalking is repeated, intense harassment that includes threats which creates a significant amount of fear in the victim. Lastly, cyber threats are defined as distressing material that makes it sound like harming someone.

In confronting cyber-bullying (2009), Sheriff shares additional concerns related to cyberbullying. These are an infinite audience, homophobic harassment and permanence of expression.

3.0 Research Objectives

The following research shall elucidate upon some major keystones with primary objectives taken into consideration:-
•To figure out the significant effects cyber bullying poses on the victims.
•To find the most significant reason behind the continuance of such a practice.
•To figure out whether the anti- cyber bullying authorities are efficient in curbing the practice.
•To find the most eminent obstacle for cases being reported by victims of cyber bullying.
•To analyse the awareness regarding cyber bullying in present times.

4.0 METHODOLOGY

It is Quantitative research on cyber bullying as there is no strict act against it and how much of this is being faced by the teenage universe. The research is empirical in nature and the target population is of 50 individuals. The sample comprises of students of Trinity Institute of Professional Studies, Delhi. Besides, the sample also consists of employees in various government and private workplaces. The mode of data collection is a set of questions compiled in a questionnaire. Hence, the sampling used can be categorized as convenience sampling.

4.1 Participants

The research constituted mainly of participants below the age of 30 years who generally are students. There were however a few participants above the age of 30 years who were not necessarily students rather employees.

4.2 Measuring tools

The questionnaire consists of sixteen questions in totality with six of them being a YES/NO. The other questions are also multiple choice questions with provided options inclusive of basic and

intricate questions regarding the issue of cyber bullying. The questionnaire is attached with the research.

4.3 Research Design

The design of the research was primarily in the form of questionnaire and descriptive in nature which comprised of questions attempting to cover all the possible and critical cornerstones regarding the issue of cyber bullying. The questions were framed to analyze the possible forms, outcomes, and suggestive measures associated with the issue of cyber bullying. Subsequently, after the collection of data the analyzation of input via questionnaire takes place with appropriate conclusions drawn from the choices and opinions of the subjects.

4.4 Procedure

The questionnaire has been prepared by researcher alone. An attempt has been made to cover all the aspects and dilemmas regarding the issue of cyber bullying in the preparation of the questionnaire and the subsequent data collection by framing questions from almost all the possible cornerstones. The researcher focused on creating a healthy rapport with the individuals involved in the sample for non-coercive collection of data. The subjects were given clear instructions to fill the questionnaire without any hesitance and in a completely honest manner with the freedom to pursue their choices regarding their options.

5.0 Data Interpretation

The questionnaire constituted of sixteen questions regarding the issue of cyber bullying. The questions primarily consisted of issues such as the nature of cyber bullying, effects, reason behind the continuance of the practice, the effective role of anti-cyber bullying authorities, impediments in the reporting of such cases and the awareness regarding bullying.

Question 1 - What is your present age?
➢ In this question the researcher tried to analyze the age of the individuals in the sample size to figure out the extent of people getting affected by cyber bullying.
➢ The options given in questionnaire are as follows:-
   A. Below 20 years
   B. Age 20-30 years.
   C. Above 30 years.
➢ The researcher inferred that among the 50 subjects:-
   A. 7 of them being below 20.
   B. 33 of them being in the age-group of 20- 30.
   C. 10 of them being above the age of 30.

Question 2 – According to you what is cyber bullying?
➢ In this question the researcher attempted to figure out the opinion of its subjects about bullying and the desirable course of action against it.
➢ The options provided in the questionnaire are as follows :
   A. It is one of the ancient practices which are inevitable to an interactive society.
   B. It is a suppressive practice which needs to be curbed.
   **C.** It is a trivial issue which does not require substantive attention.

Figure -1 depicting the meaning of Cyber Bullying
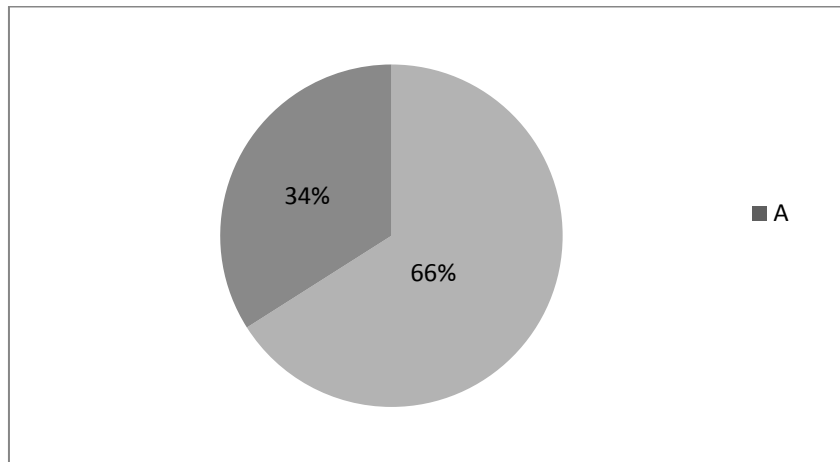
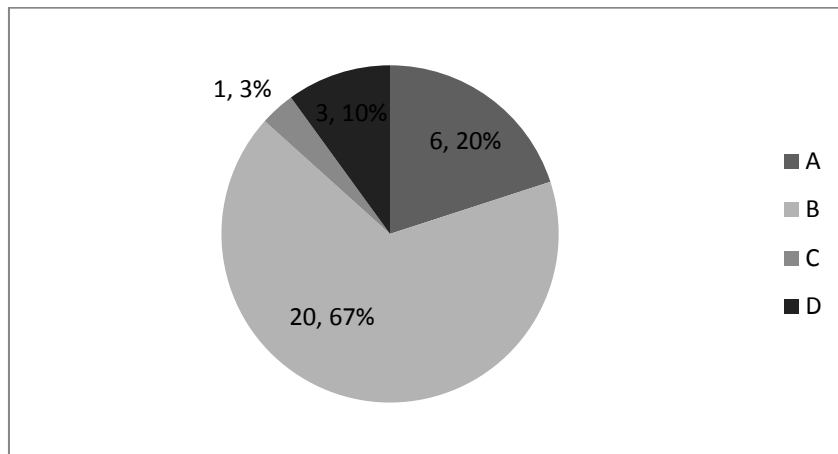**Question 3 – Have you ever been bullied?**
- ➢ In this question, the researcher tried to analyze the ratio or number of its subjects been bullied over time.
- ➢ The options provided to the subjects were:-
  - **A.** Yes.
  - **B.** No.
  - **C.** Maybe.

Figure – 2 depicting no. Of people were bullied
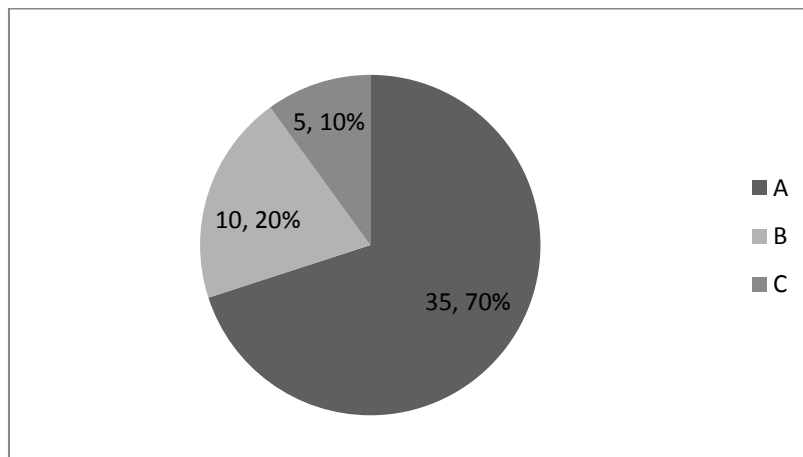
Question 4 – If ye, on which platform did you get bullied?
- ➢ In this question, the researcher tried to figure out that on which platform exactly did his subjects' got bullied? (social networking platform)
- ➢ The options provided in the questionnaire were (Sample size – 30 because of the fact that 10 of them in the previous question had opined that they had not got bullied):-
  - **A.** Twitter
  - **B.** Facebook
  - **C.** Instagram
  - **D.** Other.

Figure -3 depicting Social Network Platforms likely to get bullied

Question 5 – Do you know about RituKohli's case?
- ➢ In this question the researcher tried to analyze the number of its subjects know about a cyber bullying case that took place in the past.
- ➢ The options provided to the subjects were :-
  - **A.** Yes.
  - **B.** Maybe.
  - **C.** No Idea.

Figure – 4 depicting RituKohli's case awareness
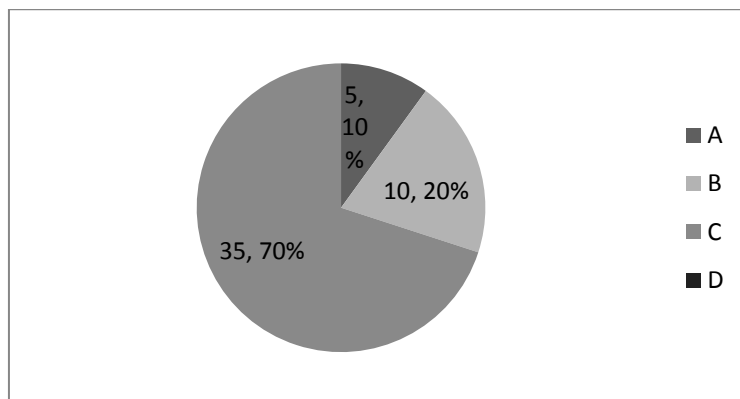
Question 6 - According to you what effects does cyber bullying have on the victim?
- ➢ In this question the researcher has tried to analyse the primary effects that are posed on the victim in the practice of cyber bullying.
- ➢ The researcher had provided the subjects with five options for the question :-
  - **A.** Traumatizing.
  - **B.** Breaking the social shackles of interaction.
  - **C.** May have both the effects.
  - **D.** Not worth mentioning.

Figure -5 depicting the effects of cyber bullying on the victim
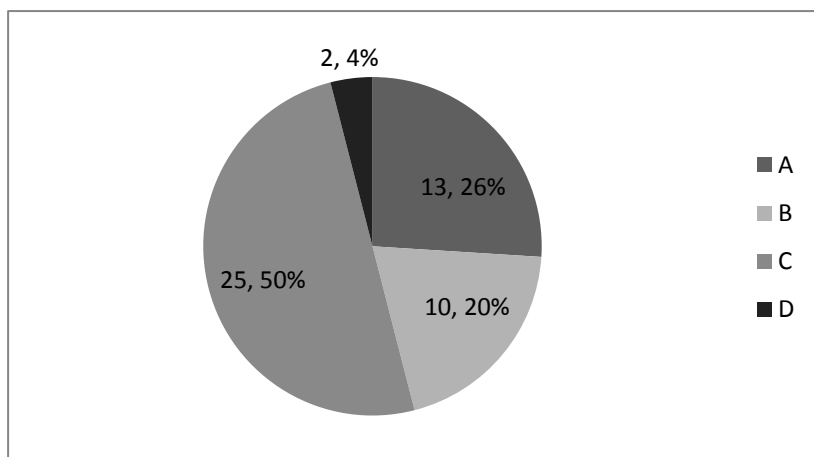
Question 7- According to you what is the most probable and significant reason for the continuance of such a practice?

➢ In the present question the researcher tries to figure out the prime reasons for the continuance of cyber bullying.

➢ The researcher provides three major options to its subjects-

    A. Portrayal of domination.

    B. Taking advantage of the vulnerability of the victim.

    C. Conveyance of the implied rules and regulations of the respective institution or society.

    D. Just because they had been bullied too by their seniors.

Figure -1 depicting the continuance of cyber bullying.
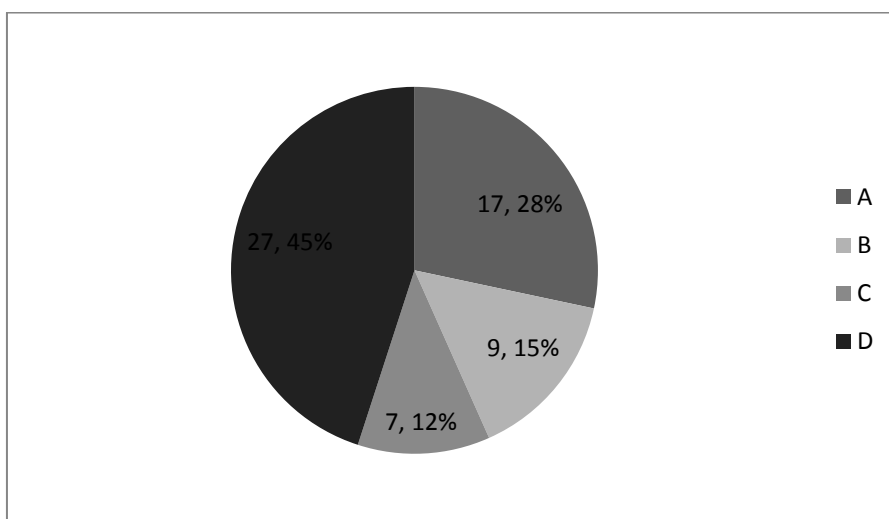
Question 8- Keeping the positive and negative aspects of interaction, do you think cyber bullying or for that matter bullying should continue?

➢ In this question the researcher attempts to analyze the opinion of his subjects regarding the continuance of cyber bullying.

➢ The researcher provided three options in the following case:

    A. Yes because it helps in the enhancement of interactive skills of the fresher

      B. No, because it has severe effects on the psyche of the victim as well as the attitude of the oppressor

      C. It is very difficult to eradicate such practices from the society due to its roots and multiple forms

Figure – 7 depicting cyber bullying and bullying should continue or not
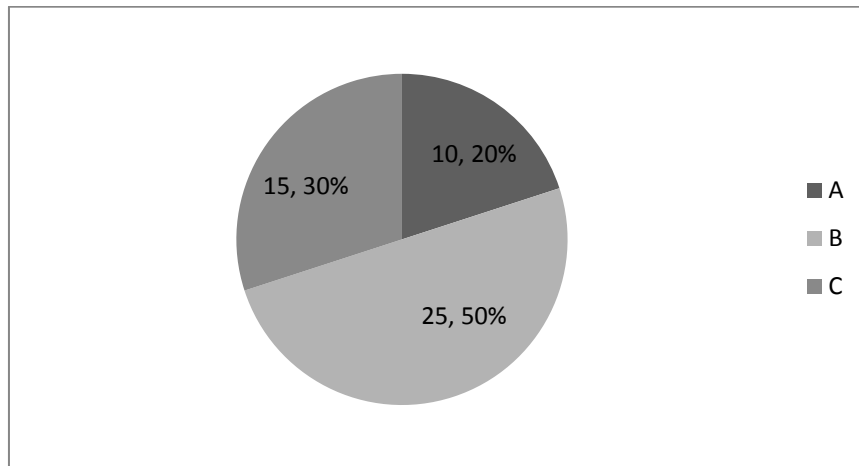
Question 9- What are the substantive changes according to you which can be observed in the victims of cyber bullying?

- ➢ In this question the researcher aims at the prime observances in the victims psyche post cyber bullying.
- ➢ The researcher provided three major options in this scenario i.e.,
  - **A.** Withdrawal symptoms or depressive characteristics.
  - **B.** Evolution of delinquent activities.
  - **C.** General tendencies of rebellion, deviance or frustration.
  - **D.** All of the above.

Figure -8 depicting the changes on the victim of cyber bullying.
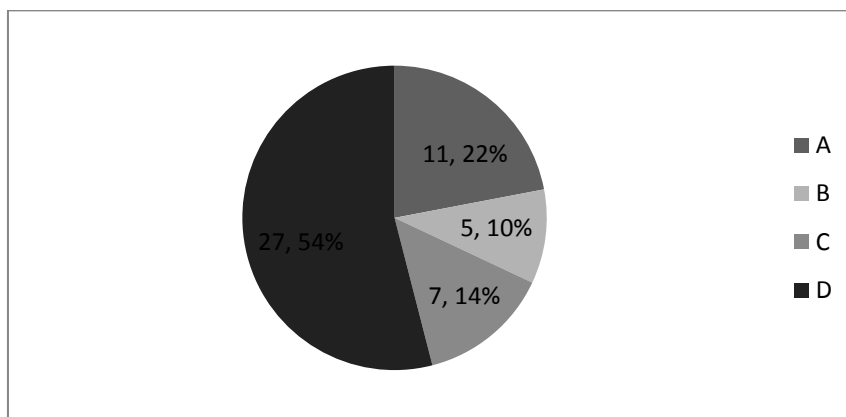
Question 10- Have you heard about Boy's Locker Room case?

- ➢ In this question the researcher tried to analyze the number of its subjects knows about a cyber bullying case that took place recently.
- ➢ The options provided to the subjects were :-

A. Yes.
B. Maybe.
C. No Idea.

Figure – 9 depicting the awareness of Boy's Locker Room case
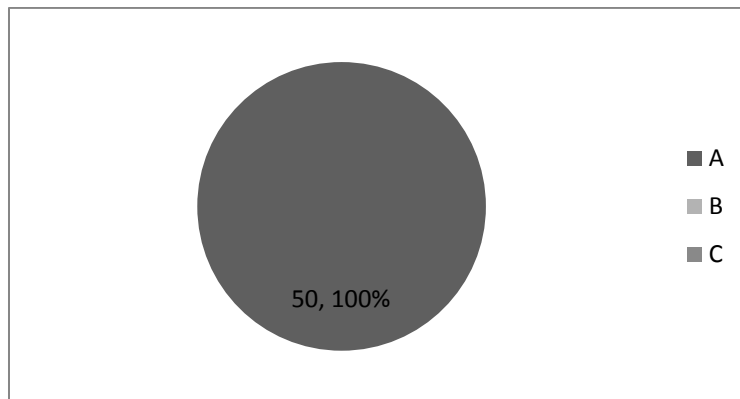
Question 11- Were/ Are the anti-ragging authorities in your institutions efficient in curbing the practice (cyber bullying)?

➤ In this question the researcher tries to elucidate upon the implementation of the anti-bullying authorities in their roles.
➤ The question provides three options i.e,
   A. Yes.
   B. No.
   C. Can't tell

Figure – 10 depicting the efficiency of authorities of cyber bullying
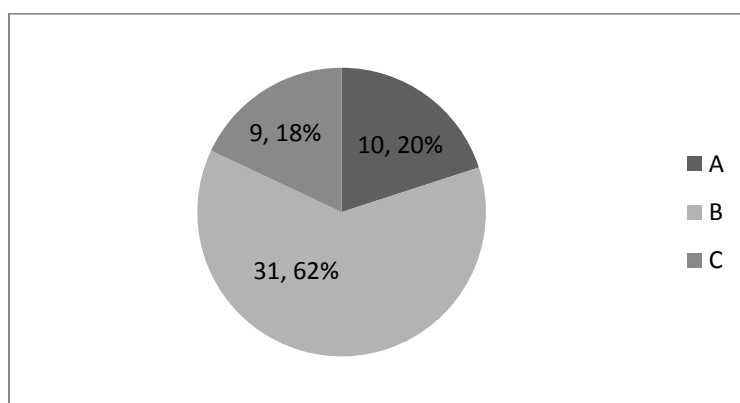
Question 12- According to you, what is most eminent obstacle for cases being reported by victims of cyber bullying?

➤ In this question the researcher attempts to figure out the most critical keystone in the way of reporting of cyber bullying cases.
➤ The researcher supplied the subjects with three major categories:-
   A. Hesitance
   B. Fear of repercussions
   C. Degradation of manhood.

D. All of the above.

Figure - 11 depicting the obstacle for reporting cyber bullying by the victim
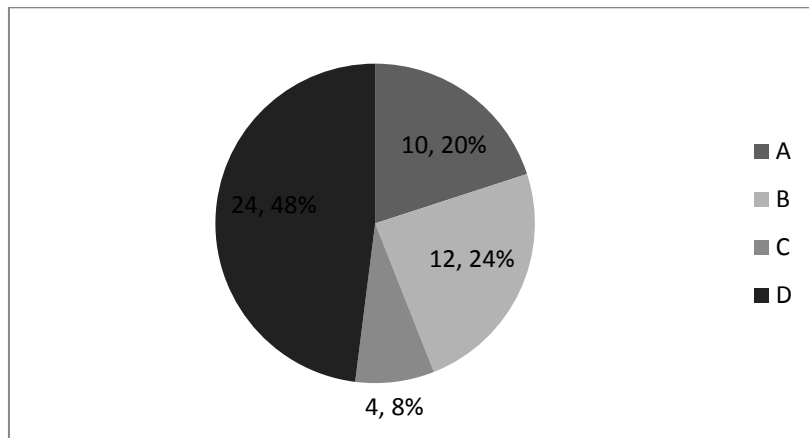
Question 13- According to you is cyber bullying as grave as bullying?
 ➢ In this question the researcher tries to mark the intensity of the issue of bullying.
 ➢ There were three options provided to the subjects i.e.,
   A. Yes.
   **B.** No.
   C. No idea.

Figure – 12 depicting is cyber bulling graved as bullying?
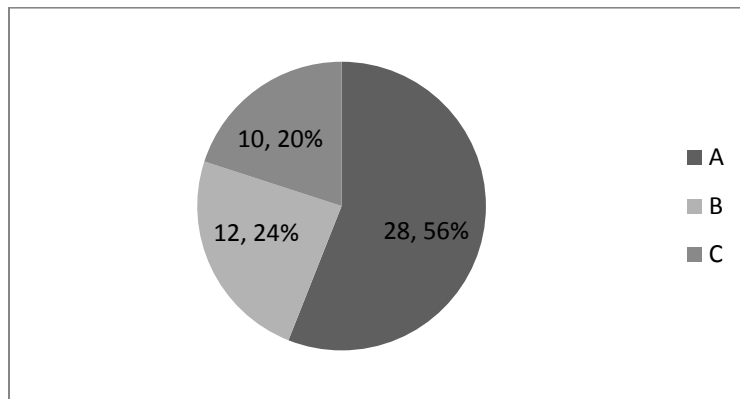
Question 14- Is there proper and sufficient awareness among the youth regarding the issue of cyber bullying?
 ➢ In this question the researcher attempts to illuminate the awareness of cyber bullying among the youth.
 ➢ There were primarily three options provided i.e.,
   A. Yes.
   **B.** No.
   C. Other.

Figure – 13 depicting the awareness of cyber bullying in youth.
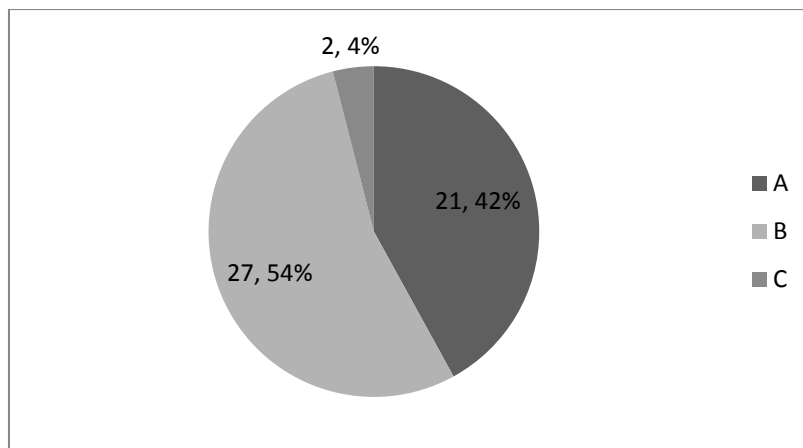
Question 15- Would you like to propose some suggestive measures from the point of victim/bully/authorities to curb the practice of cyber bullying completely?

➢ In this question the researcher tries to gather suggestive measures from the subjects concerned regarding the curbing of cyber bullying.

➢ Henceforth, the options provided to the subjects were as follows:-

    A. The victim should observe zero percent tolerance towards bullying and report to the relevant authorities instantly.

    B. The bully should be counselled first and on repeating should be punished.

    C. The respective anti-bullying authorities need to be more vigilant and effective.

    D. All of the above.

Figure – 14 depicting suggestive measures of cyber bullying
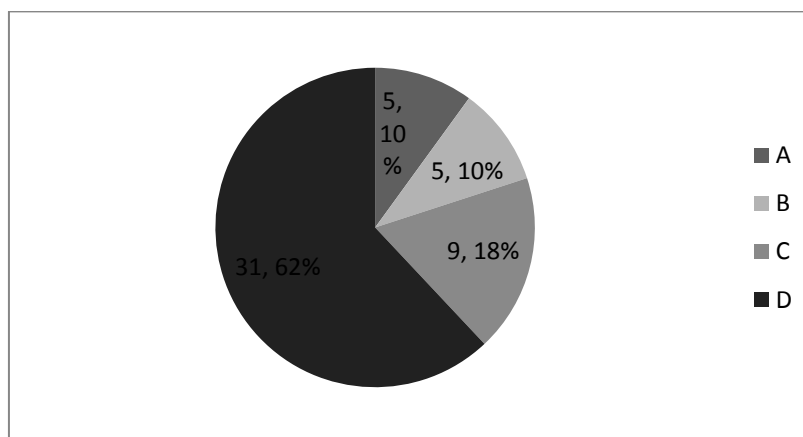
Question 16– Do you think media works well in covering the cyber bullying issues?

➢ In this question the researcher tried to analyze the number of its subjects knows about cyber bullying shown by media.

➢ The options provided to the subjects were :-

    A. Yes.

    B. No.

    C. Maybe.

Figure – 15 depicting that media covers the cyber bullying issue or not
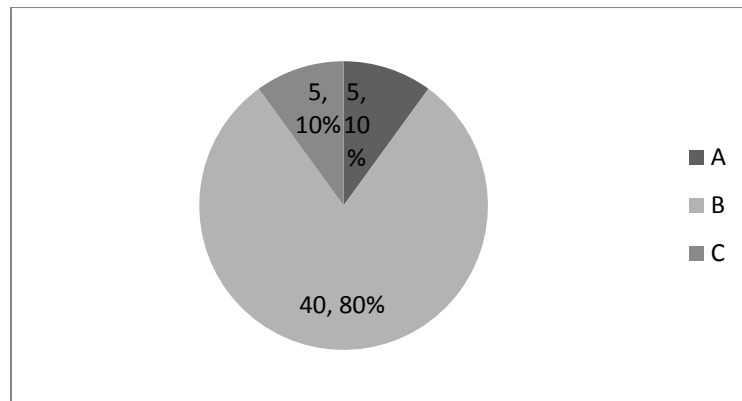
6.0 Discussion

In furtherance to the input collected in the form of data which can be observed from the above-mentioned results, the researcher had opined to discuss the output obtained through the questionnaire. Firstly, the author observed that among the three **age groups** as mentioned, individuals had been bullied or were subjected to cyber bullying in their short or long continuing term of life. **Majority of the subjects had been bullied** i.e. (**Q.3-25/50**) whereas a few of them were not sure about the incident and whether it amounted to cyber bullying or not. The dominant half of the subjects were in the age group of 20 to 30 years, which symbolized the allegiance of today's youth with the practice of cyber bullying in some or the other way.(**Q.1**) The fact that individuals below the age of 20years had also been subjected to cyber bullying clearly portrays that even before individuals enter into any college/university for their graduation, they are within the magnetic arena of cyber bullying and also bullying, it was observed that **majority of the individuals got bullied on Facebook**. (**Q.4-20/30**) The second-most being Twitter, where cyber bullying had taken place. Another comparatively new finding was the issuing of bullying over the non-social networking sites. Surprisingly, some of them had been bullied without any social networking sites which is comparatively a contemporary form of cyber bulling yet has unfortunately started showing its colours in the initial years of its discovery.

According to the researcher's observation, almost all the subjects were not aware of RituKohli's case of cyber bullying. (**Q.5-25/50**) and also according to the researcher's observation a dominant number of them believed that this suppressive practice needs to be curbed with immediate effect. (**Q.2-33/50**) This is truly a positive observation and a tailor made approach which may lead to the abolishing of the practice from its roots. However another prime response was the opinion that **the issue is of trivial nature** and does not require substantive attention. (**17/50**) This is evidently a fabric of suspicion as this is one of the most prevalent views regarding cyber bullying which needs eradication for it being one of the impetuses behind the continual of such a practice. **Baldry, A. C. (2003)** reiterated that the people over the world need to put into their head, that such **practices cannot be overlooked** at any cost irrespective of the place or age at which they take place in a person's life.

On the touchstone of the effects that bullying poses, majority of the subjects agreed that it may have **traumatizing as well as breaking the social shackles of interaction of the individual**. (**Q.6- 25/50**) However, it can be inferred that the trauma has more weight than the non-traumatizing part. In many cases, across the nations it has been observed that the scars of cyber bullying are pretty permanent and evident in nature owing to the tender or growing age of the individual when they are subjected to cyber bullying. It should be always kept in mind that such **an interaction should be healthy in nature and without any portrayal of dominance on the vulnerable**. This can be categorized as a healthy interaction without the ingredients of bullying and continued.

Another keystone of cyber bullying is the **reason for its continuance** in the modern day world in spite of the fact that people are aware of the unhealthy consequences of such a practice. In this scenario, majority of the people opted for the reason that just because they had been bullied by their seniors. (**Q.7- 27/50**)This in turn is an issue of concern as it signifies that people are not considering cyber bullying as one of the undesirable and insensitive practice in the institutions. Secondly, subjects also believed that the impetus is constituted by the **portrayal of domination and taking advantage of the vulnerability of the victim**. Consequently, this can be termed as highly insensitive as it abashes one's self esteem and is a grave threat to the morality of a society or institution apart from the evident health issues regarding the same. Besides, another point of view as per the subjects regarding the continuance of the practice is the conveyance of the implied rules and regulations of the respective institution or society.

Subsequently, it is highly pertinent that the changes brought about in the victims of cyber bullying are **multidimensional**. As per the provided questionnaire some of the stalwart transformations (may be temporary) can be the observance of **withdrawal symptoms or depressive characteristics, evolution of delinquency, general tendencies of rebellion,** deviance or for that matter all of them. (**Q.9**) It was inferred from **Hymel, S., &Bonanno, R. (2014)** that withdrawal symptoms or lessening of the social interaction are some of the major observations in the victims of cyber bullying as it degrades the self-esteem and self-respect to an irretrievable extent in many instances whereas the evolution of deviant or delinquent traits are also sometimes the end products of cyber bullying both from the aspect of victim, perpetrator or the bystander for that matter. Besides, due to excessive suppression the victim may also develop the tendency of uncontrollable outbursts in short period of time, which in long term may germinate into frequent and irrational rebellion on his/her part. Hence, the subjects as per the graphical representation in question 9, choosing all of the above as possible outcomes are pretty righteous on the point of occurrence of probabilities regarding cyber bullying. (**Q.9- D, 27/50**)

According to the researcher's observation, almost all the subjects were aware of Boy's Locker Room case of cyber bullying. (**Q.10 A, 50/50**).Besides, **the role of the anti-bullying or ragging authorities** plays an instrumental hand in the practice of cyber bullying. Many a times as observed, these practices continue because of the non-functional or ineffective anti-bullying and cyber bullying authorities. From the graphical representation of question 11, it is clear that most of the subjects aren't sure about the functioning of such authorities or aren't satisfied with their performance.(**Q.11- B, 31/50**) This inefficiency in turn not only fuels such practices but also encourages them with the viability of fearlessness on the point of the perpetrator. Moreover, it may also result in the **non-reporting of such cases to the respective authorities due to the lack of trust and competency in them**. Hence, proper functioning of these authorities is of utmost importance because of the essential supervision and vigilance required in the long-term goal of curbing cyber bullying and bullying. In furtherance, from the above discussion it is relevant to carry on with the significant obstacle that victims face in the reporting of such cases. The obstacle generally comprises **of a fusion of hesitance, fear of repercussions and apparent degradation of manhood.** As per the graphical representation in question 12, it is evident that most of the subjects chose all of the above as their choice. (**Q.12- D, 24/50**) The major choice is apparently only little doubtful primarily because it has been observed that individuals do fear the repercussions following such complain as it not only spoils their reputation in their respective institutions but they are also subjected to brutal and insensitive remarks regarding their mental strength to face such situations by their peers or colleagues.

One of the contemporary forms of cyber bullying which has emerged as pretty injurious yet not evident is the issue of **bullying**. With the arrival of social networking and digitalisation, and content shared by individuals cyber bullying is demonic and disruptive. The records available on these platforms are often long-lasting and can be equated to an individual's reputation. It is undoubtedly a

double headed weapon as it not only **harms the reputation of the victim but also the perpetrator**. Hence, that it is hard to notice because of the major reason that it is subjected to minimal vigilance, these instances are extremely hard to notice and are generally persistent in nature. In the question 13 of the questionnaire the researcher aimed at finding whether its subjects regarded such a form of bullying as **equally grave as the primary form of cyber bullying.**

Amongst the subjects who had the idea of cyber bullying categorized it as an equally threatening demon as bullying itself.(**Q.13, A- 28/50**) However, a substantive segment of the subjects either didn't have the idea of bullying or didn't consider it to be a grave enough issue which is a pretty disturbing finding. (**Q.13, B&C- 22/50**) The subsequent question deals with the awareness among the youth regarding the issue of cyber bullying. As per the inputs received and the graphical representation in question 14 of the questionnaire, majority of the subjects responded with **a not satisfactory awareness** choice which is indeed a critical issue as awareness related to such a growing problem is of utmost importance especially keeping in mind its exponential growth and evident repercussions.(**Q.14, B – 27/50**).It is advisory from the observations that concrete measures should be taken in the course of awareness among individuals regarding the issue of cyber bullying.The author concludes his cluster of questions and discussions for the same by asking for suggestive measures from his subjects with a view of curbing the practice of cyber bullying. There were several choices provided to the subjects regarding the same i.e., the victim should observe **zero percent tolerance** towards cyber bullying and report to the relevant authorities instantly, **counselling and punishment of the perpetrator**, **more vigilance** on the part of the anti-bullying and cyber bullying authorities and all of the above. Most of the subjects chose all of the above-mentioned choices which is indeed an apparently righteous option keeping in mind the graveness of the issue of bullying and it traumatic impact. (**Q.15, D – 31/50**) The issue of cyber bullying needs to be taken care of not only from the prospect of the victim but also from all the possible dimensions i.e., perpetrator, by-stander etc. According to the researcher's observation, almost majority people think that media is not up to the mark in turning up with cyber bullying cases. (**Q.16, B-40/50**)From the inputs received the through the questionnaire it is highly recommended that the issue of cyber bullying needs to be brought at an end owing to the terrible consequences associated with it and the insensitiveness in the act itself for the betterment of the society, and ultimately prevent this form of distortion in the psychological framework of an individual.

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