National Conference

on

Management & IT Contribution towards Sustainable Development : G 20

On

23rd JUNE 2023

AIMA
ALL INDIA MANAGEMENT ASSOCIATION

ICT ACADEMY
Innovate.... Collaborate.... Educate....

A DECADE OF AUGMENTING BUILDING 10 YEARS

VENUE :

GURU NANAK INSTITUTE OF MANAGEMENT

Approved by AICTE , Ministry of Education, Government of India

Affiliated to GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

Road No. 75 , West Punjabi Bagh , New Delhi – 110026

Website : www.gnim.ac.in

Email Id : gnimiqac2023@gmail.com

ABOUT THE INSTITUTE

Guru Nanak Institute of Management, a premier 'A' grade academic institute of Delhi, is established in 1996 by Delhi Sikh Gurdwara Management Committee which besides managing religion and social activities also responsibly runs various Educational Institutions, Schools etc. GNIM is a self-financed educational institution that imparts quality education in the field of management, computer science and commerce.

All the courses are approved by AICTE and GGSIPU. It is ranked 19th All India by CSR- GHRDC Survey and ranked 6th in Delhi. GNIM aims at providing professional and quality education in the field of management and information technology that surpasses the paradigm of excellence. The pedagogy of the institute focuses on learning through both in class discussions, cases and simulation as well as beyond the class learning through live projects. The Institute has experienced esteemed faculty members and expertise with world class facilities.

WELCOME TO GNIM NATIONAL CONFERENCE

The world wide witnessing economy an unprecedented transformation and organizations nationwide are facing challenges in matching the operational efficiency with the sustainable economic development. G20 aims to strengthen food system and food security by the use of Artificial Intelligence (AI) technology. Data that can help in achieving the SDGs and make the world a better place to be in. The various SDGs are no poverty, zero hunger, good health, quality education and overall well-being.

The paradigm shift to sustainable development and to the resulting concept of a Global Partnership for Sustainable Development has yet to fully filter through to policy-makers, business and society in all places. So far attention is quite high only on domestic implementation and by low- income countries and to the respective international cooperation by high-income countries. The are reasons for the uneven pattern of attention to the concept of sustainable development. Given their commitments and their track record the question for the G20 is not whether but how to contribute to the implementation of the SDGs. G20 Leaders should emphatically come together behind the new agenda and own countries, in their global policies, and in their cooperation with others.

Sustainable economic development is a national initiative build at local economies and unique assets to address their individual challenges and provide quantifiable real world benefits. It is practical, implementable toolkit that tailors strategies to work for local people businesses and institutions.

Management and IT is an indispensable tool for increased productivity and economic growth. It can lead to the structural transformation of economies at different stages of economic development. The potential of our country is to benefit from technological development through innovation when there is an effective access to technology globally. Countries can improve their innovative capacity by leveraging their strengths, addressing weaknesses in innovation and learning from best practices of the leaders.

Management and IT are essential elements for creating and enabling the environment for inclusive and sustainable economic development.

"NATIONAL CONFERENCE ON MANAGEMENT &IT CONTRIBUTION TOWARDS SUSTAINABLE DEVELOPMENT : G20"

Chief Patrons

S. HARMEET SINGH KALKA

PRESIDENT, D.S.G.M.C

S. JAGDIP SINGH KAHLON

GENERAL SECRETARY,

D.S.G.M.C

Patrons

S. SUKHBIR SINGH KALRA

CHAIRMAN, GNIM

S. IQBAL PAL SINGH

VICE CHAIRMAN

S. GURMEET SINGH GUMBER

VICE CHAIRMAN

S. PARAMJIT SINGH

CO - CHAIRMAN, GNIM

S. AMRINDER SINGH KUKREJA

MANAGER, GNIM

Convenor

PROF. (DR.) MANINDER KAUR

DIRECTOR, GNIM

Student Coordinator

MD. AMAAN

Conference Coordinator

DR. SEEMA GIRDHAR

Student's Coordinator

DR. EKTA GUPTA

DR. MAMTA SHAH

MR. NILESH DOKANIA

DR. SHUBHRA SAGGAR

DR. ARCHANA DESHPANDE

DR. SHIPRA JAIN

MS. RAVLEEN KAUR

GURU NANAK INSTITUTE OF MANAGEMENT

Approved by AICTE, Ministry of HRD, Govt. Of India

Affiliated to "GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY"

Road No- 75 , West Punjabi Bagh, New Delhi – 110026

Website :www.gnim.ac.in

INDEX

Work from Home: Scenarios Exhausting or Draining during On-Line Teaching

Y. D. Haritha1, Dr. ChaitanyaKumari 2, Dr.Bilquis 3

Department of Human Development And Family Studies, College of Community science, Acharya N. G. Ranga Agricultural University, Lam, Guntur, Andhra Pradesh

Abstract:

Work from home describes work being done remotely, instead of at an office. The acronym "WFH" is used as a nickname for the concept. Many organizations/institutions transitioned their employees from the office to a work from home model during the Corona virus global pandemic. Synonyms for Work from Home is Working from home, Telecommuting, Working remotely, Virtual work.Work from home (WFH) is a concept where the employee can do his or her job from home. Work from home gives flexible working hours to the employee as well as the job for the employer is done with ease. Work from home is helpful to delivering work life balance to the employee, and also parallelly helps the company to get the work done. Nowadays, most of the employers are offering this option to their employees. Work from home (or working from home) is a modern work approach enabled through internet and mobility where in irrespective of the physical location of an individual work can be done. Work from Home is also known as working remotely or telecommuting which implies that the employee is working from a remote location usually home. Work from home as a concept is very important in current times. It helps to keep productivity of the employee same or even better and at the same time supports the employee for being with family or handling some personal work. Also in the case the employee is facing some health issue of self or family, Work from Home (WFH) can be a great tool for helping employee stay at home and work at the same time. Public teachers scored 90 percent on adjusting to new pedagogical practices whereas private teachers scored 97 percent in this area.

Keywords: Teachers, On-line teaching

Introduction:

The world has witnessed, and continue to do so, a once in a century crisis in the form of Covid19 pandemic. It has not only resulted in unprecedented fatalities and infections among people of almost all nationalities but also wreaked havoc in every sphere of life, including business. In the absence of a vaccine and highly infectious nature of the pathogen of Covid-19 coupled with the strict guidelines issued by World Health Organisation had forced the governments to take some of the sternest measures in the form of nationwide lockdowns to arrest, as far as possible, the spread of the virus so to save maximum lives.

Restriction on movement and the necessity of maintaining proper physical distance among people to prevent the spread of the virus has ensured that businesses during the lockdown period were and post unlocking phase will not be as usual. Nearly every organisation is caught unprepared to respond to this extraordinary challenge. Many employers, if not all, are trying to explore the Work From Home (WFH) as a potential substitute to prevailing work arrangements in foreseeable future. Hence, Employers' Federation of India (EFI), which is serving the cause of Employers' since 1933, decided to come up with a document on WFH to facilitate its members, clients and partners regarding WFH to respond to the prevailing crisis or for those who see the same as an opportunity to replace the current jobs or co-opt WFH along with the current working pattern as a hybrid model.

WFH means **an employee is working from their house, apartment, or place of residence, rather than working from the office**. Many companies have a WFH policy, or remote work policy, that allows their employees to work from home either full-time or when it's most convenient for them.

The unprecedented crisis of Covid-19 has ensured that be it, employers or employees, everyone has some sort of idea about WFH, however, it largely varies based on different perceptions. In academics also there is no consensus over one definition of WFH. WFH is often interchangeably used as Telework, however, there lie some inherent differences between the two. WFH can be construed as a subset of Telework, as telework not only includes the work performed from home but also the work which can be performed while travelling.

WFH is an alternate way of organising task that may be defined as the work which can be performed from home (away from the traditional workplace such as factories or offices) and enables employees to access their labour activities through the use of information technology. (Nilles, 1997; Perez et al., 2003). It may be for a temporary period or for the long-term durations as an alternate to the traditional way of doing work.

Work from home as a concept is very important in current times. It helps to keep productivity of the employee same or even better and at the same time supports the employee for being with family or handling some personal work. Also in the case the employee is facing some health issue of self or family, Work from Home (WFH) can be a great tool for helping employee stay at home and work at the same time. In 2020, during Coronavirus (COVID-19) Pandemic, Work from Home enabled many companies to remain productive and keep themselves relevant. Roles like IT, Management, Designing, Media etc. continued to work with the WFH option.

For many individuals coronavirus (COVID-19) put work on hold. Employees and business owners of many industries/organisations could not transition to a work from home model. For many service providers, however, Coronavirus has pushed them to utilize technology further, and address how they can efficiently and effectively continue to work and function, through digital means. Digital adoption is a key factor in determining how quickly and efficiently a company can function virtually.

Before COVID-19 hit, the option of working from home was available to only 7 percent of the U.S. workforce, mostly highly paid white collar workers. That percentage has increased more than nine-fold to 66 percent of employees in the weeks since the pandemic barred everyone not designated an essential worker from going to their jobs. This abrupt change means that a lot of people accustomed to working in their offices are finding new ways of doing their jobs.

Working from home isn't easy, even for those who have been doing it for years. There are distractions, from chores to pets that you used to leave behind when person "went to work." It's also difficult to develop, and stick to, a new routine.

Pablo A. Lizano (2021) conducted a study on "Teacher teleworking during the Covid-19 pandemic: Association between work hours, work–family balance and quality of life". Teachers from across Chile were contacted via email and social media to answer an online survey. QoL was evaluated via the SF-36 questionnaire, work hours and work–family balance in the pandemic. A total of 336 teachers from across Chile participated in this study. Teachers had a low QoL score, associated with age ($p < 0.05$). Teachers who were ≤44 showed lower deterioration risks in the Physical Component Summary (OR: 0.54) than the ≥45-year-old age group; simultaneously, the younger group (≤44 years) had a greater risk (OR: 2.46) of

deterioration in the Mental Component Summary than teachers over 45 years. A total of 78.7% of teachers reported having increased their work hours during the COVID-19 pandemic due to teleworking and 86% indicated negative effects on their work–family balance. Pandemic work hours and negative work–family balance increase the risk of reducing the Mental Component Summary (OR: 1.902; OR: 3.996, respectively). Teachers presented low median QoL scores, especially in the Mental Component Summary, suggesting that it would be beneficial to promote a better workload distribution for teachers in emergency contexts, considering the adverse effects of teleworking.

Umesh et al. (2021) studied on work from home during Covid-19 pandemic: Employees perception and experiences with a sample size 454 respondents and structured questionnaires and google forms were used to collect data. The study revealed the employees stress factors like lack of resources, long hours of work, overload, poor management support, domestic pressure etc and employees equally concentrate on both office and home work.

Barrero et al. (2021)COVID-19 drove a mass social experiment in working from home (WFH). It survey more than 30,000 Americans over multiple waves to investigate whether WFH will stick, and why. It provided evidence from waves of a large panel of US employees working from home. Respondents report benefits from lower commute time, more flexible work hours, and increased productivity. Employers have made investments in technology, revised practices, and moved up the learning curve with respect to WFH. They suggest that use of WFH will remain four times more prevalent than before the pandemic.

Islam et al. (2020) The outbreak of COVID-19 has taught us that change is inevitable. The first preventative step suggested by WHO was social distancing. Every country closed schools, colleges, and universities. Moreover, the government cancelled entrance tests, examinations, classes, and internships. It took students as well as the faculty by storm as adapting to the digitized education system was not easy. Change requires time; however, the pandemic caused the education sector in India to grow. Online education has proved to be a salvation for the students and teachers. They assigned work to students *via* the internet and delivered lectures through live video conferencing using applications like Zoom, Google meets Facebook, YouTube, and Skype. There are WhatsApp groups that help keep students, teachers, and even guardians connected and aware of the class schedules. Online learning is the best solution and is surely better than not getting to learn anything.

Sethi and Saini (2020) examined the opinions and challenges of school teachers on work from home with a sample size 50 school teachers by using web-base survey from pre-school to high school Socio-demographic profile and self-structured questionnaire were used to collect data. The study revealed at teachers had the positive opinion on work from home, although they consider WFH a moderately challenging job.

Alexis L. Jones (2020) conducted a study on "Teachers' emotion and identity work during a pandemic". It is a conceptual analysis of the care involved on the part of teachers during the Covid-19 era and the relationship it has to teachers' identities. Using the authors' stories, it addressed how fatiguing care is on a normal day, not to mention what is involved during the Covid era. This care and the emotions involved, is closely tied to teachers' identities, calling into question how teachers conceptualize their teacher hood during a pandemic. The hope is that others will consider where they may have misunderstood teachers' work. It aim to raise awareness of the complexity of teaching and suggest how teacher education can address and support teachers' needs.

KimkongHeng (2020) conducted a study on "Online learning during covid-19: Key challenges and suggestions to enhance effectiveness". The COVID-19 pandemic has wreaked havoc on every aspect of society. It has caused profound disruption to the education system as governments around the world have temporarily closed educational institutions to contain the spread of the coronavirus. Face-to-face classes have been canceled and moved online, bringing about the rise of online learning that has allowed learners to continue their education. The sudden transition from face-to-face to online learning has, however, posed numerous challenges for students, teachers, administrators, and education leaders. Drawing on previously published sources, this article first attempts to explain different terms used to describe online learning. It then discusses key challenges posed by the widespread adoption of online learning during the pandemic, followed by a discussion of suggestions made by different researchers to enhance the effectiveness of online learning. It concludes with a summary of key challenges and suggestions and brief recommendations for the broader adoption of online and blended learning in the post-COVID-19 world.

Working From Home Today: The widespread high-speed internet access, video conferencing, and collaboration apps, a laptop is all an employee needs to do their job and stay in touch with colleagues.

Working from home today typically begins when employees set up a workspace in their homes where they can do their jobs — including everything from preparing presentations and reports to conducting phone interviews and developing software.

Many jobs lend themselves well to a work-from-home arrangement. Virtual assistants, for instance, communicate with their employers via communication apps to complete many of the duties an onsite administrative assistant would.

Well-trained customer service representatives were some of the original work-from-home employees. Now many companies/organisations/institutions use a browser-based interface that enables home-based customer service representatives to answer calls and troubleshoot problems via live chat.

Technology is rapidly expanding the jobs that can now be done from home. Lawyers and paralegals have access to online databases like Westlaw to look up cases, as well as electronic case management systems, for example.

Home offices vary. Employees who primarily work from home typically have a dedicated home office space in a spare room. Those who work from home occasionally often improvise, using whatever desk or table is available. They might also set up on their couch and use a coffee table, or create a standing desk.

Di Pietro (2020) conducted a study on "The likely impact on covid-19 on education: Reflections based on the existing literature and recent international datasets". In order to reduce the spread of COVID-19, most countries around the world have decided to temporarily close educational institutions. However, learning has not stopped but is now fully taking place online as schools and universities provide remote schooling. Using existing literature and evidence from recent international data (Eurostat, PISA, ICILS, PIRLS, TALIS), this report attempts to gain a better understanding of how the COVID-19 crisis may affect students' learning. It looks at the different direct and indirect ways through which the virus, and the measures adopted to contain it, may impact children's achievement. 'Conservative' estimates for a few selected EU

countries consistently indicate that, on average, students will suffer a learning loss. It is also suggested that COVID-19 will not affect students equally, will influence negatively both cognitive and non-cognitive skills acquisition, and may have important long-term consequences in addition to the short-term ones.

GurleenKaurSethi (2020) "COVID-19: Opinions and Challenges of School Teachers on work from Home". Mean opinion score was 53.86 ± 6.97 which falls in the category of positive opinion. It means, overall, the subjects had a positive opinion regarding work from home. Mean score of challenges was 5.30 ± 1.741, which falls in the category of moderate challenges. It depicts that overall subjects considered work from home during COVID-19 a moderately challenging job. It concluded that, teachers had positive opinion on work from home although, they consider work from home a moderately challenging job. Thus, with the assistance of school authorities work from home can become a highly satisfying job for the teachers.

Research Method:

The main focus of the study was to study on "work from home: scenarios exhausting or draining during on-line teaching"

Research Findings and Discussion:

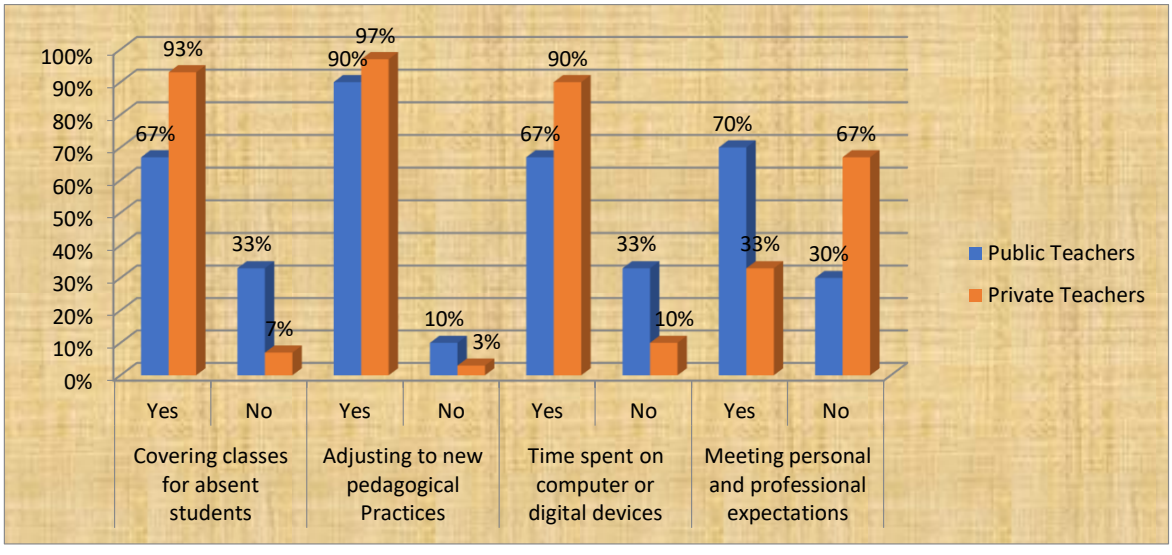
Areas includes are: Covering classes for absent students, Adjusting to new pedagogical Practices, Time spent on computer or digital devices, Meeting personal and professional expectations

Scenarios exhausting or draining during on-line teaching

S.no	Area	Category	Public Teachers (n=30)		Private Teachers (n=30)		Total (n=60)	
			F	%	F	%	F	%
1.	Covering classes for absent students	Yes	20	67	28	93	48	80
		No	10	33	2	7	12	20

2.	Adjusting to new pedagogical Practices	Yes	27	90	29	97	56	93
		No	3	10	1	3	4	7
3.	Time spent on computer or digital devices	Yes	20	67	27	90	47	78
		No	10	33	3	10	13	22
4.	Meeting personal and professional expectations	Yes	21	70	10	33	31	52
		No	9	30	20	67	29	48

The above table represents the scenarios exhausting or draining during on-line teaching. Private teachers scored 93 percent on covering classes for absent students whereas public teachers scored 67 percent in this area. Public teachers scored 90 percent on adjusting to new pedagogical practices whereas private teachers scored 97 percent in this area. Private teachers scored 90 percent on time spending on computer or digital devices whereas public teachers scored 67 percent in this area. Public teachers scored 70 percent on meeting personal and professional expectations whereas private teachers scored 33 percent in this area.



Conclusion:

The data collected with respect to understand the study on "work from home: scenarios exhausting or draining during on-line teaching". Working from home is **a lot more comfortable for lots of people**. Employees can save a great deal of time and money since they do not have to travel so often, which means people will have more time for work and for themselves, too. Less travelling will also help reduce traffice jam and pollutants to the environment.Private teachers scored 93 percent on covering classes for absent students whereas public teachers scored 67 percent in this area. Public teachers scored 90 percent on adjusting to new pedagogical practices whereas private teachers scored 97 percent in this area. Private teachers scored 90 percent on time spending on computer or digital devices whereas public teachers scored 67 percent in this area. Public teachers scored 70 percent on meeting personal and professional expectations whereas private teachers scored 33 percent in this area.

Working from home has become more common in recent years as technology has improved and more employers recognize the moral value of trusting employees. Employees treasure the flexibility and work-life balance.

A Future of Work survey of managers found that 78 percent ranked telecommuting and flexible schedules as two of the most valuable benefits for retaining employees. More than half of the employers provide their employees with the necessary devices for working remotely, while 36 percent facilitate working from home by using cloud-based file management tools.

References:

Ammons, Samantha K., and William T. Markham. 2004. Working at Home: Experiences of Skilled White Collar Workers. Sociological Spectrum 24: 191–238.

Anderson, Amanda J., Seth A. Kaplan, and Ronald P. Vega. 2015. The Impact of Telework on Emotional Experience: When, and for Whom, Does Telework Improve Daily Affective Well-Being? European Journal of Work and Organizational Psychology 24: 882–97.

Azarbouyeh,Amir, andSeyedGholamrezaJalaliNaini. 2014. AStudyontheEffectofTeleworkingonQualityofWorkLife. Management Science Letters 4: 1063–68.

Baruch, Yehuda. 2000. Baruch-2000-New Technology, Work and Employment Qualis A1 MuitoImportante. NewTechnology,Work and Employment (Print) 15: 34–49.

Baruch, Yehuda. 2001. The Status of Research on Teleworking and an Agenda for Future Research. International Journal of Management Reviews 3: 113–29.

Belzunegui-Eraso, Angel, and AmayaErro-Garcés. 2020. Teleworking in the Context of the Covid-19 Crisis. Sustainability 12: 3662.

Bentley,TimAndrew,StephenT.T.Teo,LaurieMcLeod,FelixTan,RachelleBosua,andMarianneGloet. 2016. TheRoleofOrganisational Support in Teleworker Wellbeing: A Socio-Technical Systems Approach. Applied Ergonomics 52: 207–15.

Chao, Ming Che, Rong Chang Jou, Cing Chu Liao, and Chung Wei Kuo. 2015. Workplace Stress, Job Satisfaction, Job Performance, and Turnover Intention of Health Care Workers in Rural Taiwan. Asia-Pacific Journal of Public Health 27: NP1827–NP1836.

Chung, Heejung. 2018. Future of Work and Flexible Working in Estonia: The Case of Employee-Friendly Flexibility. Tallin: ArenguseireKeskus, p. 42. Chung, Heejung, and Tanja van derLippe. 2020. Flexible Working, Work–Life Balance, and Gender Equality: Introduction. Social Indicators Research 151: 365–81.

Clark, Andrew E. 1996. Job Satisfaction in Britain. British Journal of Industrial Relations 34: 189–217.

Coenen, Marja, and Robert A. W. Kok. 2014. Workplace Flexibility and New Product Development Performance: The Role of Telework and Flexible Work Schedules. European Management Journal 32: 564–76.

Cohen, Aaron, and EfratLiani. 2009. Work-Family Conflict among Female Employees in Israeli Hospitals. Personnel Review 38: 124–41.

Contreras, Francoise, Elif Baykal, and GhulamAbid. 2020. E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go. Frontiers in Psychology 11: 3484.

Di Martino, Vittorio, and Linda Wirth. 1990. Telework: A New Way of Working and Living. International Labour Review 129: 529–54. Ellis, Selwyn T., and Robert L. Webster. 1998. IS Managers' Innovation toward Telecommuting: A Structural Equation Model. Proceedings of the Hawaii International Conference on System Sciences 4: 161–68.

Fedáková, Denisa, and Lucia Ištonˇová. 2017. Slovak IT-Employees and New Ways of Working: Impact on Work-Family Borders and Work-Family Balance.

ˇCeskoslovenskáPsychologie (Czechoslovak Psychology) LXI: 68–83. Fisher, Gwenith G., Carrie A. Bulger, and Carlla S. Smith. 2009. Beyond Work and Family: A Measure of Work/Nonwork Interference and Enhancement. Journal of Occupational Health Psychology 14: 441–56.

Fonner, Kathryn L., and Michael E. Roloff. 2010. Why Teleworkers Are More Satisfied with Their Jobs than Are Office-Based Workers: When Less Contact Is Beneficial. Journal of Applied Communication Research 38: 336–61.

Gajendran, Ravi S., and David A. Harrison. 2007. The Good, the Bad, and the Unknown About Telecommuting: Meta-Analysis of Psychological Mediators and Individual Consequences. Journal of Applied Psychology 92: 1524–41.

Gálvez, Ana, Francisco Tirado, and Jose M. Alcaraz. 2020. 'Oh! Teleworking!'Regimes of Engagement and the Lived Experience of Female Spanish Teleworkers. Business Ethics 29: 180–92.

Golden, Timothy D., and Kimberly A. Eddleston. 2020. Is There a Price Telecommuters Pay? Examining the Relationship between Telecommuting and Objective Career Success. Journal of Vocational Behavior 116: 103348.

Hilbrecht, Margo, Susan M. Shaw, Laura C. Johnson, and Jean Andrey. 2008. 'I'm Home for the Kids': Contradictory Implications for Work-Life Balance of Teleworking Mothers. Gender Work and Organization 15: 454–76.

Hilbrecht, Margo, Susan M. Shaw, Laura C. Johnson, and Jean Andrey. 2013. Remixing Work, Family and Leisure: Teleworkers' Experiences of Everyday Life. New Technology, Work and Employment 28: 130–44.

Hsu, Ya Yuan, Chyi Huey Bai, Chien Ming Yang, YaChuan Huang, Tzu Ting Lin, and Chih Hung Lin. 2019. Long Hours' Effects on Work-Life Balance and Satisfaction.BioMed Research International.

Jackson,LeonT.B.,andEdwinaI.Fransman. 2018. FlexiWork,FinancialWell-Being,Work–LifeBalanceandTheirEffectsonSubjective Experiences of Productivity and Job Satisfaction of Females in an Institution of Higher Learning. South African Journal of Economic and Management Sciences 21: 1–13.

Johnson, Laura C., Jean Andrey, and Susan M. Shaw. 2007. Mr. Dithers Comes to Dinner: Telework and the Merging of Women's Work and Home Domains in Canada. Gender, Place and Culture 14: 141–61.

Jyothi, Sree V., and P. Jyothi. 2012. Assessing Work-Life Balance: From Emotional Intelligence and Role Efficacy of Career Women. Advances in Management 5: 332. Kazekami, Sachiko. 2020. Mechanisms to Improve Labor Productivity by Performing Telework. TelecommunicationsPolicy 44: 101868.

Kim, Jaeseung, Julia R. Henly, Lonnie M. Golden, and Susan J. Lambert. 2019. Workplace Flexibility and Worker Well-Being by Gender. Journal of Marriage and Family.

Konrad, Alison M., and Robert Mangel. 2000. The Impact of Work-Life Programs on Firm Productivity. StrategicManagementJournal21: 123.

Kossek, Ellen Ernst, Brenda A. Lautsch, and Susan C. Eaton. 2006. Telecommuting, Control, and Boundary Management: Correlates of Policy Use and Practice, Job Control, and Work-Family Effectiveness. Journal of Vocational Behavior 68: 347–67.

Kramer, Amit, and Karen Z. Kramer. 2020. The Potential Impact of the Covid-19 Pandemic on Occupational Status, Work from Home, and Occupational Mobility. Journal of Vocational Behavior, 103442.

Lait,Jana,andJeanE.Wallace. 2002. StressatWork: AStudyofOrganizational-ProfessionalConflictandUnmetExpectations. Relations Industrielles 57: 463–90.

Lee, D. J., and M. J. Sirgy. 2019. Work-Life Balance in the Digital Workplace: The Impact of Schedule Flexibility and Telecommuting on Work-Life Balance and Overall Life Satisfaction. In Thriving in Digital Workspaces. Cham: Springer. Liu, Huei Ling, and Venhwei Lo. 2018. An Integrated Model of Workload, Autonomy, Burnout, Job Satisfaction, and Turnover Intention among Taiwanese Reporters. Asian Journal of Communication 28: 153–69.

Locke, Edwin A. 1970. Job Satisfaction and Job Performance: A Theoretical Analysis. OrganizationalBehavior&HumanPerformance 5: 484–500. López-Igual, Purificación, and Paula Rodríguez-Modroño. 2020. Who Is Teleworking and Where from? Exploring the Main Determinants of Telework in Europe. Sustainability 12: 8797.

Lund, Daulatram B. 2003. Organizational Culture and Job Satisfaction. Journal of Business & Industrial Marketing 18: 219–36. Martin, Brittany Harker, and Rhiannon MacDonnell. 2012.

Is Telework Effective for Organizations?: A Meta-Analysis of Empirical Research on Perceptions of Telework and Organizational Outcomes. Management Research Review 35: 602–16.

Marx, Charlotte K., MareikeReimann, and Martin Diewald. 2021. Do Work–Life Measures Really Matter? The Impact of Flexible Working Hours and Home-Based Teleworking in Preventing Voluntary Employee Exits. Social Sciences 10: 9.

Nakrošien˙e, Audron˙e, IlonaBuc˘i¯unien˙e, and BernadetaGoštautait˙e. 2019.Working from Home: Characteristics and Outcomes of Telework. International Journal of Manpower 40: 87–101.

Neirotti, Paolo, Emilio Paolucci, and ElisabettaRaguseo. 2013. Mapping the Antecedents of Telework Diffusion: Firm-Level Evidence from Italy. New Technology, Work and Employment 28: 16–36.

Neufeld, Derrick J., and Yulin Fang. 2005. Individual, Social and Situational Determinants of Telecommuter Productivity. Information and Management 42: 1037–49.

Nilles, Jack M. 1997. Telework: Enabling Distributed Organizations: Implications for It Managers. InformationSystems Management 14: 7–14.

Novianti, KhusnulRofida, and Kenny Roz. 2020. Teleworking and Workload Balance on Job Satisfaction: Indonesian Public Sector Workers During Covid-19 Pandemic. APMBA (Asia Pacific Management and Business Application) 1: 8997.

Oh, Minjeong, and SungyongChoi. 2020. The Competence of Project Team Members and Success Factors with Open Innovation. Journal of Open Innovation: Technology, Market, and Complexity 6: 51.

Raišiene, AgotaGiedre, VioletaRapuano, Kristina Varkulevic˘iute, and KatarínaStachová. 2020. Working from Home-Who Is Happy? A Survey of Lithuania's Employees during the COVID-19 Quarantine Period. Sustainability 12: 5332.

Roz, Kenny. 2019. JobSatisfactionasaMediationofTransformationalLeadershipStyleonEmployeePerformanceintheFoodIndustry in Malang City. International Journal of Economics, Business and Accounting Research (IJEBAR) 3: 47–58.

Schieman, Scott andPaulGlavin. 2017. IronicFlexibility: WhenNormativeRoleBlurringUnderminestheBenefitsofScheduleControl. Sociological Quarterly 58: 51–71.

Schriesheim, Chester, and Anne S. Tsui. 1980. Development and Validation of a Short Satisfaction Instrument for Use in Survey Feedback Interventions. Western Academy of Management Meeting 1980: 115–17. Song, Younghwan, and JiaGao. 2019. Does Telework Stress Employees Out? A Study on Working at Home and Subjective Well-Being for Wage/Salary Workers.Journal of Happiness Studies.

Stewart, Wendy, and Julian Barling. 1996. Daily Work Stress, Mood and Interpersonal Job Performance: A Mediational Model. Work and Stress 10: 336–51.

Valcour, P. Monique, and Larry W. Hunter. 2017. Technology, Organizations, and Work-Life Integration. In Work andLife Integration: Organizational, Cultural, and Individual Perspectives. Mahwah: Lawrence Erlbaum Associates, pp. 61–84. vanMeel, Juriaan. 2011. The Origins of New Ways of Working: Office Concepts in the 1970s. Facilities 29: 357–67.

Vega, Ronald P., Amanda J. Anderson, and Seth A. Kaplan. 2015. A Within-Person Examination of the Effects of Telework. Journalof Business and Psychology 30: 313–23.

Virick, Meghna, Nancy DaSilva, and Kristi Arrington. 2010. Moderators of the Curvilinear Relation between Extent of Telecommuting and Job and Life Satisfaction: The Role of Performance Outcome Orientation and Worker Type. Human Relations 63: 137–54.

Wessels, Christina, Michaéla C. Schippers, Sebastian Stegmann, Arnold B. Bakker, Peter J. van Baalen, and Karin I. Proper. 2019. Fostering Flexibility in the New World of Work: A Model of Time-Spatial Job Crafting. Frontiers in Psychology 10: 1–13.

Wojcˇák, Emil, and MatúšBaráth. 2017. National Culture and Application of Telework in Europe. European Journal of Business Science and Technology 3: 65–74.

A STUDY ON THE INVOLVEMENT OF MOOCS IN THE TEACHING LEARNING PROCESS

Dr.M.Vimalarani, M.com.,M.phil.,M.B.A.,Ph.D.,Assistant Professor,
Department of Commerce PA, KG College of Arts and Science,
Coimbatore,Tamilnadu

Abstract:

The MOOCs is the century of technological transformations representing a renewal in terms of platforms and educational methodologies through a computer. The current social requirements demand an education that adapts to the needs of people in terms of availability, time, and even lifestyle. These arise as a response to the digital vortex as a training resource in which a series of tools that promote their empowerment is implicit. The objective of this study is to carry out a bibliographic review of the last five years to establish the central interference of the MOOCs, their perspectives, and implications in the process of formation and knowledge. he MOOCs come to the digital sphere as an educational proposal that revolutionizes the traditional models of teaching, to create a learning model based on technology and the resources that come from it.

Keywords: Awareness, Higher Institutions, Massive Open Online Courses (MOOCs), Online Learning, Technology

INTRODUCTION OF THE STUDY

A MOOC – massive open online course – is a program of learning offered by a university, open via the internet to users worldwide, free of charge. MOOCs are often based on part of an existing degree course, giving students an opportunity to 'sample' the experience of studying at prestigious institutions like MIT. Teaching materials may include videos, set reading, problems to solve and student forums.

MOOC has become an important tool for some teachers to gain professional development after getting their degrees. MOOC has become an effective solution to provide high quality teacher professional development at a low cost. Second, MOOC enables teachers to learn according to their individual needs. While MOOCs are still usually intended for students *not* enrolled at the university in question, there is also a move towards universities providing free online courses for their on-campus students.In the US in particular, there's been

speculation that universities with oversubscribed courses will offer online alternatives, so students unable to fit into the classroom can still complete the necessary modules to get their degree credits.

The 21st century is characterized by the infinity of Web resources available to strengthen content in countless areas of knowledge, positioning the Massive Open Online Course, as a paradigm shift in pedagogy, educational methods or evaluation available in this new era. In this context, only a literary review will allow the determination of the structure and contribution of these online courses, particularly because of their incidence as diversifiers of education at all levels; this review also becomes a support to deepen in their configuration and how these programs are distributed and segmented at worldwide level.

BENEFITS OF MOOCS (MASSIVE OPEN ONLINE COURSES)

MOOC stands for massive open online courses. Traditional MOOCs are free online university courses offered by colleges all over the world that are normally not eligible for credit. Their enrollment can run upwards of 100,000+ students and anyone around the world can register. After registering, students will typically work at their own pace to watch informative lectures and lessons, complete assignments, and take exams.MOOCs offer many benefits well worth the time spent learning. Here are 11 advantages and benefits of MOOCs.

1. Offer a variety of subjects

College schedules are tight, so you might not be able to take every course that you want to. Your school may not even offer a subject that you're interested in. This is where MOOCs can help. Search on one of the MOOC providers' websites to find interesting classes. The subjects range from yoga to personal finance to engineering to IT to English composition, etc. In some instances, you can pay a fee to receive college credit for your hard work. Check with your school's transfer policy before paying.

2. Let you test out your major before committing

In most cases, the major you choose heavily influences the college you attend and your future career path. High school students can complete a MOOC course in their prospective major to see if it's the right fit. This risk-free, money-free method will help you figure out what major to choose and ultimately save you money. Starting college knowing what you want to study means that you won't waste time bouncing between majors and paying for useless classes.

3. Familiarize you with college-level learning before enrolling

Wondering if college learning is right for you? Taking a MOOC will help you understand what college classes are like before you're paying for them. The tests you take and assignments you complete offer insight into what the next four years might look like. If possible, try out a course at a college you're considering attending.

4. Prepare you academically for college

Feeling unprepared for college? You're not alone. In 2010, nearly 70% of high school seniors accepted to college were unprepared. Many MOOCs are designed to help combat this unpreparedness. Some MOOCs for high school students include entry-level math, first-year composition, and pre-calculus. Talk to your guidance counselor or teachers to see what areas they recommend you focus on.

5. Learn from peers around the world

Anyone from any country with internet access can take a MOOC class. Participants can communicate with one another through discussion threads and social networking. Just like in a real classroom, you'll learn from your peers and possibly broaden your worldview too.

6. They're open to everyone

Another one of the advantages of MOOCs is that there are no prerequisites for MOOC learning. You can sign up for any class no matter your background or age. Just be prepared to put in the effort.

7. MOOCs are available in different languages

Your course options aren't restricted just based on where you live. Enjoy courses taught in foreign countries without hesitation thanks to subtitles. Subtitles also make these courses friendly to individuals who are deaf or hard of hearing.

8. Learn a language for FREE

Rosetta Stone is expensive, and in-person language classes might move too quickly for you. MOOCs are a free way to learn a new language at your own pace. Easily return to lectures as needed and take your time learning instead of cramming for exams.

9. Offer FREE AP exam preparation and courses

Harvard University and MIT's edX MOOC platform offers FREE AP exam preparation and courses. You can learn confusing material at your own pace outside of your high school

classroom. These supplementary courses will help you achieve high AP exam scores that in turn will give you college credit.

10. Help your college and scholarship applications stand out

Anything you can do in high school to show future college admissions counselors that you're serious about learning will help your application. Knowledge gained from MOOCs will also help in department or interest-specific scholarship applications and interviews. Plus, taking these massive open online courses shows initiative and intellectual curiosity. These are both characteristics of a successful student.

11. Boost your job applications and career prospects

Employers look for several soft skills in their future employees. Some degree programs help students develop these skills better than others do. Free online college classes like MOOCs help bridge the gap between college graduate and employee. EdX provides several free "soft skills" courses that cover topics from teamwork to public speaking. This MOOC platform also offers paid professional programs that are certified. Their Soft Skills professional certificate program by Rochester Institute of Technology includes 6 courses and costs $49 per course. You can also opt to take their professional courses free without the certification.Completing MOOCs in a niche area can also help you secure a job. For example, say you're an English major applying to work as a copywriter for a web design firm. Taking a MOOC on basic web design or HTML coding will set you apart from other candidates. Students applying to grad school can also take advantage of MOOCs to help their university applications stand out

CHALLENGES OF MOOCS

Along with positive features, there are also some concerns around MOOCs. Creed-Dikeogu and Clark state that:

- They are not an educational panacea
- They are not yet evolved enough to provide thorough peer assessment methodology, robust business revenue models, stabilized retention rates, successful pedagogical design, or resolution for cheating and plagiarism.
- There are frequent concerns with the actual platforms on which the MOOCs are delivered on experiencing technical difficulties.
- Assessment tends to consist of Multiple choice questions
- Those enrolled rarely or never have the opportunity to write a research paper

- It is difficult for participants to build relationship with prof
- It often replicates the sage on the stage scenario as MOOCs often lack effective instructional design

ENORMOUS LIST OF MOOC PLATFORMS AROUND THE WORLD IN 2022

Back in October 2011, Stanford professors launched three free online courses, open to the public. One by one, these courses went massive, with enrollments topping 100,000 students each. Soon the media was calling these courses MOOCs, short for massive open online courses. Since then, more than 900 universities around the world have launched free online courses. In addition to the larger global MOOC platforms (Coursera, edX, FutureLearn), many national governments around the world have launched their own country-specific MOOC platforms, including India, Italy, Israel, Mexico and Thailand.

After a decade of popularization, a total of 220 million students have signed up for at least one course on one of the MOOCs platforms, and 40 million did so in 2021 alone (excluding China). MOOCs and MOOC platforms are still in growing, even after the crazy "Year of the MOOC" prompted by the pandemic and travel restrictions in 2020.At Class Central, we try to catalog as many MOOCs as possible, and our listing currently includes more than 59,000 of them, from MOOC platforms and other online learning platforms.

But due to limited resources (and sometimes a language barrier), we cannot index every single one. If you're looking for MOOCs from around the world (many in languages other than English), this list is our best attempt to catalog all different MOOC platforms that are out there. The list has been adapted with permission from Mindshift: Break Through Obstacles to Learning and Discover Your Hidden Potential by Barbara Oakley (Tarcher-Perigee, April 2017). We first published this list in 2017. It was last updated and expanded in 2022.

MOOC Platforms from North America & United States

- Coursera / United States
- edX / United States
- Udacity / United States
- Canvas Network/ United States
- Kadenze / United States
- Stanford Lagunita / United States
- Complexity Explorer / United States
- MéxicoX / Mexico

MOOC Platforms from Europe & United Kingdom

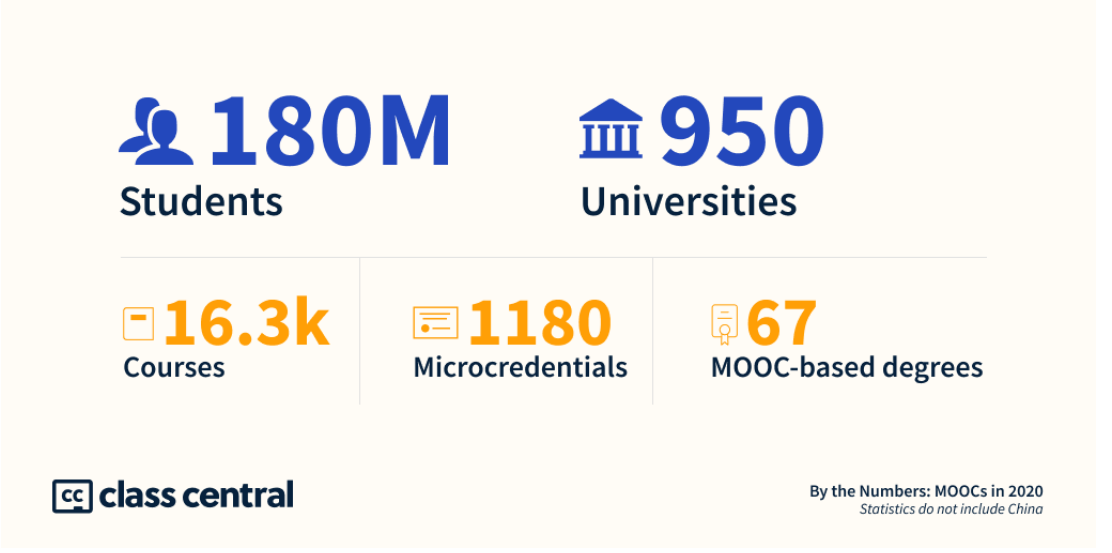
- FutureLearn / United Kingdom
- France UniversitéNumérique (FUN) / France
- Miríadax / Spain
- EduOpen / Italy
- Federica Web Learning / Italy
- European Multiple MOOC Aggregator (EMMA) / Europe
- OpenHPI / Germany
- MOOC.fi / Finland
- Prometheus / Ukraine
- Open Education (openedu.ru) / Russia

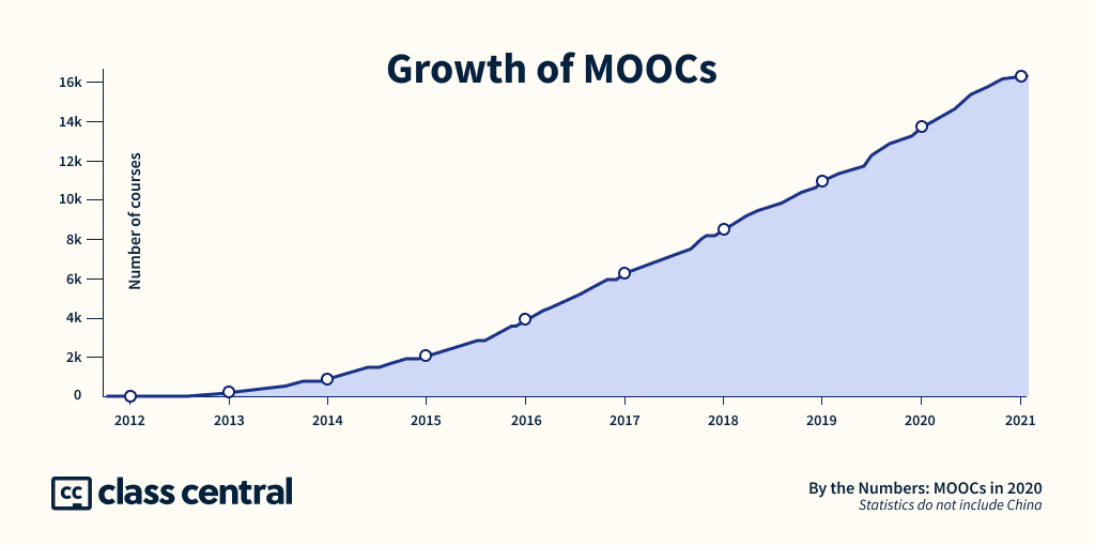
MOOC Platforms from Asia (excluding Chinese MOOC Platforms)

- SWAYAM / India
- NPTEL / India
- JMOOC / Japan
- gacco / Japan
- Fisdom / Japan
- OpenLearning / Japan
- K-MOOC / Korea
- ThaiMOOC / Thailand
- IndonesiaX / Indonesia
- Edraak (Arabic) / Jordan
- Campus-Il / Israel

Chinese Language MOOC Platforms

- XuetangX / China
- Chinese University MOOC / China
- Zhihuishu / China
- CNMOOC / China
- Xue Yin Online / China
- Open Education (openedu.tw) / Taiwan
- eWant — education you want / Taiwan
- A massive list of all Chinese language MOOC platforms





At the end of 2020, 16.3K MOOCs will be announced or launched by around 950 universities worldwide. In 2020 alone, around 2.8K courses were added.

Learners

In the years 2020, MOOC providers' growth had stagnated: they were gaining a similar number of learners every year.But in 2020, providers gained over 60 million new learners combined. Half of these were just for Coursera, who gained almost as many users in a year than edX, its next closest competitor, gained since its inception.

Online Degrees

	2017	**2018**	**2019**	**2020**
Coursera	4	11	16	25
edX	1	9	10	13
FutureLearn	4	18	23	28

In the year 2018 was a blockbuster year for MOOC-based degrees: 30 degrees were added, leading me to call it the year of MOOC-based degrees.But in 2019, we saw a big slowdown: only 11 degrees were announced.This trend has seen an uptick in 2020: 19 online degrees have been announced, and edX removed its marketing master's from Curtin University. FutureLearn also removed a degree: the Cyber Security master's from DeakinUniversity.In total, there are now 67 MOOC-based degrees. This includes Georgia Tech's online master's degree in computer science (OMSCS), which used to be offered on Udacity, but went independent in 2020.

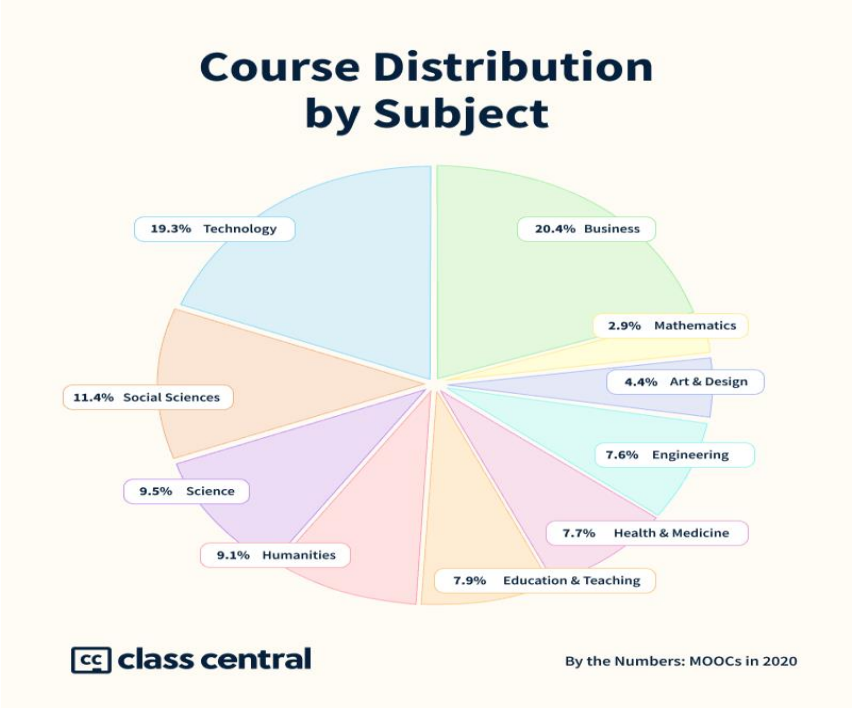
You can find a comprehensive list of MOOC-based master's degrees here.

Micro credentials

Type	**Provider**	**2018**	**2019**	**2020**
Specializations	Coursera	310	400	569
Professional Certificate	Coursera	0	13	26
MasterTrack	Coursera	3	6	18
Professional Certificate	edX	89	123	176
MicroMasters	edX	51	56	67
XSeries	edX	29	40	40
Professional Education	edX	62	73	94
MicroBachelors	edX	0	0	8
Nanodegrees	Udacity	35	40	73

Programs	FutureLearn	23	32	36
Microcredentials	FutureLearn	0	0	32
Academic Certificates[4]	FutureLearn	14	17	19
Programs	Kadenze	19	20	20

In 2020, 360 new microcredentials were launched — 200 of them by Coursera alone. This represents a significant increase over 2019, when 170 microcredentials were launched. In total, there are now 1180 microcredentials of 13 different types.



Conclusion:

The MOOCs are positioned as resources that contribute to online education and contribute to the field of knowledge in a free and open way, with innovation in pedagogical processes and in the curricular structure in different areas of knowledge.Traditional and linear education is mutating into an education that encompasses an infinite number of topics,

scenarios, structures and configurations to present students with multifunctional content, with sufficient capacity to adapt to different formats. In this sense, MOOCs require constant updating of knowledge by those who teach them, which can also represent a challenge and commitment to continuous improvement, even more so in a context that varies from minute to minute. It is evident that the MOOCs with the greatest impact correspond to the United States and are developed within the Cousersa platform, positioned as the leader in this area, in addition to reflecting a permanent collaboration with the best universities in the world and their teachers. Although there are approximately ten digital platforms where these courses operate, Coursera presents the greatest variety of topics, as well as an acceptance of the public, evidenced in the number of individuals registered

References

Aguaded, I., & Medina-Salguero, R. (2015).Criterios de calidadpara la valoración y gestión de MOOC. *RevistaIberoamericana de educación a distancia*, *18*(2), 119-143.

Alhazzani N. (2020). MOOC's impact on higher education. *Social Sciences & Humanities Open*, *2*(1), 1-6.

Al-Rahmi, W., Aldraiweesh, A., Yahaya, N., Kamin, Y.B., &Zeki, A.M. (2018). Massive Open Online Courses (MOOCs): Data on higher education. *Data in brief*, *22*, 118-125.

Wotto, M. (2020). The Future High Education Distance Learning in Canada, the United States, and France: Insights From Before COVID-19 Secondary Data Analysis. *Journal of Educational Technology Systems*, 0047239520940624.

Alturkistani, A., Lam, C., Foley, K., Stenfors, T., Blum, E.R., Van Velthoven, M.H., &Meinert, E. (2020). Massive Open Online Course Evaluation Methods: Systematic Review. *Journal of Medical Internet research*, *22*(4), e13851.

Chen, B., Fan, Y., Zhang, G., Liu, M., & Wang, Q. (2020). Teachers' networked professional learning with MOOCs. *PloS one*, *15*(7), e0235170.

Efficiency and effectiveness of Human Resources Management practices in private Arts and Science colleges in Chennai

- Theboral.P
Assistant Professor, Department of Sociology
Loyola College, Chennai

Dr.Jerusha Irene Chitra D
Assistant Professor, Department of Commerce
Loyola College, Chennai

Abstract

For any organisation, the most valuable asset in terms of skills and capabilities is the human resource. Today's organization believe it is crucial to manage their human resources so that the employees increase the organization's productivity. Institutions of higher learning prepare highly skilled specialists. By disseminating knowledge, universities support the growth of the institution, students, staff, and the broader development of the country. Over the past few years, the education industry in India has experienced tremendous growth. Educational institutions need to develop their staff, so it's critical for them to manage their human resources well. Therefore, the goal of the current study is to examine the human resource management strategies used by higher education institutions and the efficiency and effectiveness of such policies in the growth of faculties in higher educational institutors.

Introduction

India's higher education system is one of the largest systems and one of a kind in the world that has evolved in a spectacular way, especially in the post-independence era. Higher Educational Institutions are institutions of higher learning, such as universities, institutions deemed to be universities, colleges, institutions of national importance designated as such by an Act of Parliament, or constituent units of such institutions, that provide higher education beyond the completion of twelve years of formal education and that award degrees or diplomas. It also includes shorter term education and training courses (polytechnics, junior colleges, and various forms of

technical specialty schools) that are 2-3 years in length, and even correspondence courses that make use of information technology and are targeted at a broad population of students.

The Ministry of Education (GoI)/ Department of Education mentioned in its report that the number of universities in India has increased 34 times from 20 in 1950 to 677 in 2014. The number of colleges has also registered manifold increase of 74 times with just 500 in 1950 growing to 37,204, as on 31st March, 2013.Totally the he sector boasts of 45 Central Universities of which 40 are under the purview of Ministry of Education, 318 State Universities, 185 State Private universities, 129 Deemed to be Universities, 51 Institutions of National Importance (established under Acts of Parliament) under MoE (IITs - 16, NITs – 30 and IISERs – 5) and four Institutions (established under various State legislations). Currently, the main categories of University/University-level Institutions are: - Central Universities, State Universities, Deemed-to-be Universities and University-level institutions.

The four main functions of Higher education in terms of 1. Academic leadership, 2. Professional development, 3.Technological training and development and 4. General higher education demands higher educational institutions to be competitive in the field of education. This requires the institutions to changing curriculum according to the demand of the industry, recruiting faculty, research and developmental activities, updating and up gradation of technology to assist teaching methodologies etc.

However, the system is currently dealing with a number of pressing problems, such as funding, management, access, equity, and relevance; reorienting programmes to place more of an emphasis on health awareness; values, ethics, and quality of higher education; and evaluating institutions and accrediting them. These concerns are crucial for the nation because it is currently working to create a knowledge-based information society fit for the 21st century using higher education as a potent tool.

The idea of planning and administration have severely penetrated the way in which the educational institutions are functioning today. Managing Human resources in education field/Industry totally differs from corporate administration. Hence, HRM practices in educational setup are integral as it encompasses various Performance appraisal, Recruitment of faculties, HRM is gradually being accepted as the centre of any intuitions.

Review of Literature

The implementation of technical and strategic HR practices has already been empirically tested; the outcomes indicate that most companies are successful when implementing technical HR practices,

such as security and clearing companies. However, in the companies in which practices considered strategic (e.g. employee empowerment, managerial involvement and development) were effectively implemented, the impact on the organizational outcomes was significantly higher (Huselid *et al.*, 1997; Costa, Demo, &Paschoal, 2017).

The strategic human resource management (SHRM) emerged in the middle of the 1980s and is currently seen as a relevant research field and practice in business administration (Kaufman, 2015). Its academic relevance has been gaining a growing international emphasis, considering the importance of the strategic performance of human resource management (HRM) (Jackson, Schuler, & Jiang, 2014).

Yousaf, Sanders, and Yustantio (2018) advise practitioners to understand which HR practices influence employees in the manner intended by management. In the same vein, several studies provide supplementary advice such as conducting regular data collection on employees' HR perceptions (Cooke, Cooper, Bartram, Wang, & Mei, 2019; Fletcher, Alfes, & Robinson, 2018; Liao et al., 2009).

Employee perceptions of the '*how'* of HR practices involve employee views of how HR practices are designed and implemented (Delmotte, De Winne, &Sels, 2012). This research stream is distinctive from the studies of the '*what'* of HR practices in the sense that the focus is about the process through which HR messages are delivered to organizational members. A central assumption of research on the *'how'* of HR practices is that even a well-intended HR system may not produce its best possible outcomes if employees fail to make sense of it in a coherent, consistent and unified way.

Human resource management there is more like personnel management from the Fordism era than HRM in the new economy, as demonstrated by various studies. However, new approaches to the economy are proposed in place of the limited concept of economic growth, such as organisational, social, psychological, etc., in which a person is taken into account in the entirety of his qualitative characteristics (Maikenova&Aldabaeva, 2016).

A report released by Thomson Reuters (2008), after surveying 89 college and university administrators worldwide, shows that the most common measures of performance tracked by institutions of higher education are: grant funding, faculty salaries, research expenditures, patents, research output, graduation rates, private gifts, enrolment growth, faculty reputation, profitability, revenues, and rankings

According to Kleiman (2000), Performance evaluation, is the assessment of an employee's production. Therefore, an effective assessment process can generate leadership in company by

improving staff work productivity in two ways: by directing employee behaviour in the direction of corporate goals.

And monitoring the behaviour to make sure the goals are met. By emphasising employee progress toward fulfilling their portion of the strategy, a top-notch evaluation method supports an establishment's corporate strategy. Effectively, an evaluation process enables employees to understand what is expected of them and, as a result, direct their behaviour in the appropriate direction. Assessments of compensation and job payments are used to determine the relative worth of an assignment.

Balatbat (2010) claims that humanity has progressed. Its financial, commercial, and educational sectors are all changing at an accelerated rate. Every institutional change and accomplishment rely on its constituents. As a result, managing the workforce becomes crucial as enterprises face new challenges. The staff administration has been forced to reconsider its goals in order to make them more sensitive to the ongoing transformation as a result of the advent of the new global economic order and current technical know-how.

Chang and Chen (2002) conducted a thorough investigation to assess the relationships between human resource management methods and the success of Taiwanese high-tech companies in the Hsinchu science-based industrial park. The information gathered from 197 participating firms showed that HRM activities like teamwork, training and development, benefits, and performance appraisal have a big impact on employee productivity.

According to "Human Capital Theory," investing in people has economic benefits for both individuals and society as a whole (Zula and Chermack, 2007). The emergence of for-profit higher education institutions in recent years, along with globalisation and technology, has increased competition. Institutions should demand responsiveness from the capabilities of society if they are to survive and prosper in this competitive environment. In higher educational institutions, the opportunity to choose, mentor, and improve people's abilities must be taken seriously. It is necessary to design strategies for selecting the right individuals, enhancing capabilities, providing instruction, evaluating performance, and creating a comfortable operational environment. Furthermore, exclusive tertiary institutions need to be able to identify the traits and practises that fit well with their traditions, aspirations, and goals (Balatbat, 2010).

Mishra (2007) argued that although the definition of excellence, especially in advanced academia, is challenging, the expression has some thematic suggestions about which the entire theory revolves: quality as absolute (is agreed and thought of as the uppermost achievable value), quality as relative (is portrayed in comparative expressions), quality as a process (is the result of schemes

and routine needs), and quality as culture (identifies the significance of institutional ou He noted that although former quality plans have their own specific sectors, academic institutions are mostly focused on quality as a tradition. A different perspective describes quality as a notion in a different way by different interest groups.

Methodology

Objectives

- To examine the various HRM practices in higher educational institutions in private arts and science colleges in Chennai.
- To analyze the effectiveness and efficiency of training and development with performance appraisal practices in higher educational institutions.

Research Design and Data collection

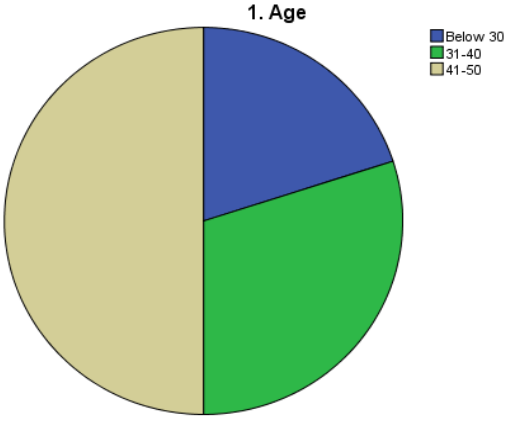
This quantitative study used a descriptive research design. Faculties of various private college in Chennai, both male and female employees were included. Based on the literature review, and with particular emphasis on the several research studies, the various human resource management practices in higher education were conceptualized. These items were adapted and incorporated in the schedule which was used to collect the data. Faculties of various private college in Chennai, both male and female employees were included. The self-administered survey was employed as a way to gather information. 60 subjects made up the study's sample size. After the data were collected, it was then compiled into usable form to which both qualitative and quantitative techniques were applied. The questionnaire, constructed by researcher was mailed to faculties in various private colleges in Chennai. The questionnaire was divided into five sections: Socio-demographic questions, Training and development, Employees participation, Performance appraisal and compensation. Each section contained from four to five elements for the respondents to rate as to the importance practiced by their institution. Responses to the scale were measured on a five-point Likert-type scale ranged as follows: 5 strongly agree, 4 agree, 3 neutral 2 disagree, and 1 strongly disagree.

Results

Frequency table for age of the respondents

Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 30	12	20.0	20.0	20.0
	31-40	18	30.0	30.0	50.0
	41-50	30	50.0	50.0	100.0
	Total	60	100.0	100.0	



Interpretation

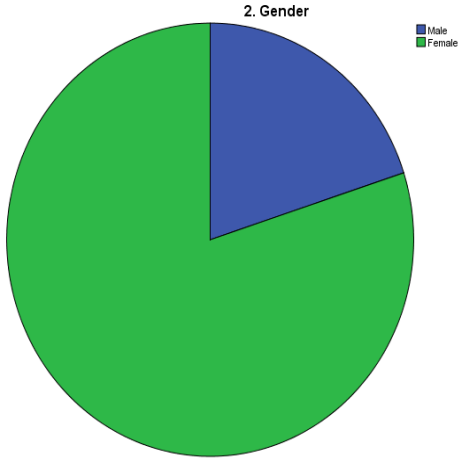
This table reflects the proportion of the respondents at different stages in life. Most respondents fall within 41 years - 50 years of age, at 50% of all respondents. While, least respondents fall within below 30 years of age , at 20% of all respondents. 30% of all respondents are of 31 years – 40 years of age.

Frequency table for gender of the respondents

Gender of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	12	20.0	20.0	20.0

	Female	48	80.0	80.0	100.0
	Total	60	100.0	100.0	



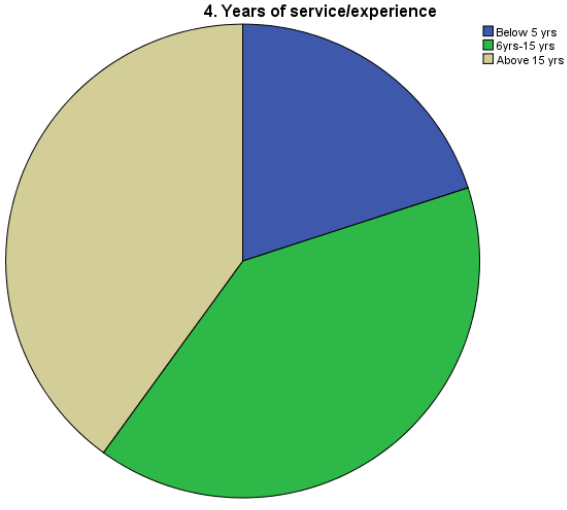
Interpretation

This table reflects the proportion of the respondents who identify as different genders. Most respondents identify as Female, at 80% of all respondents. While, no respondents identify as some other gender not listed here as a choice. 20% of all respondents identify as Male.

Frequency table for years of service/experience of the respondents

Years of service/experience of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 5 yrs	12	20.0	20.0	20.0
	6yrs-15 yrs	24	40.0	40.0	60.0
	Above 15 yrs	24	40.0	40.0	100.0
	Total	60	100.0	100.0	



Interpretation

This table reflects most respondents fall within 6 years - 15 years and above 15 years of service/experience, at 40% of all respondents. While, least respondents fall within below 5 years of service/experience, at 20% of all respondents.

- Null Hypothesis (H_0) – There is no significant association between gender and employee participation

- Alternate Hypothesis (H_1) – There is significant association between gender and employee participation

Table showing chi-square result for association between gender and employee participation

Gender

	Observed N	Expected N	Residual

Male	13	30.0	-17.0
Female	47	30.0	17.0
Total	60		

Employee Participation

	Observed N	Expected N	Residual
N	12	20.0	-8.0
	41	20.0	21.0
SA	7	20.0	-13.0
Total	60		

Test Statistics

	Gender	Employee Participation
Chi-Square	19.267[a]	33.700[b]
df	1	2
Asymp. Sig.	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 30.0.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

Interpretation

The above table shows that the significance level value (p) is less than 0.05 and hence, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted and thus, there is a significant association between gender employee participation.

- Null Hypothesis (H_0) – There is no significant association between gender and employee performance.

- Alternate Hypothesis (H_1) – There is significant association between gender and employee performance.

Table showing chi-square result for association between gender and employee performance

Gender

	Observed N	Expected N	Residual
Male	13	30.0	-17.0
Female	47	30.0	17.0
Total	60		

Employee Performance

	Observed N	Expected N	Residual
SD	12	20.0	-8.0
D	47	20.0	27.0
A	1	20.0	-19.0
Total	60		

Test Statistics

	GENDER	Employee Performance
Chi-Square	19.267[a]	57.700[b]
df	1	2
Asymp. Sig.	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 30.0.

b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 20.0.

Interpretation

The above table shows that the significance level value (p) is less than 0.05 and hence, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted and thus, there is a significant association between gender employee performances.

Null hypothesis (H0): There is no significant relationship between Training and development and

Performance Appraisal

Alternate hypothesis (H1) : There is a significant relationship between Training and development and Performance Appraisal

Correlations

		Training and development	Performance appraisal
Training and development	Pearson Correlation	1	-.107
	Sig. (2-tailed)		.414
	N	60	60
Performance appraisal	Pearson Correlation	-.107	1
	Sig. (2-tailed)	.414	
	N	60	60

Descriptive Statistics

	Mean	Std. Deviation	N
Training and development	4.4833	.50394	60
Performance appraisal	3.1167	1.05913	60

Interpretation

Above table shows that Pearson correlation = -.107 and p = 0.414 (p > 0.05). Therefore Alternative hypothesis (H_1) is rejected and Null hypothesis (H_0) is accepted and thus, there is no significant relationship between Training and development and Performance Appraisal.

Discussion

This study covered four HRM practises: staff training and development, salary, performance rating an d awards, and employee participation.Many institutions continue to see a discrepancy between the intended and actual implementation of their HR strategies.Staff across private higher educational institutions perceived that the all HRM dimensions were often applied. Therefore, it is concluded that there exists fair people management across private higher educational institutions. There is also statistical evidence that staff designation, and the perceived HRM practices have high significant relationship. The fact that this study was limited to the private higher educational institutions future study can be conducted that concerns a bigger number of HEIs, involves public ones, and deals with

more HRM dimensions and practices. This is to explore other possible results that may reveal using other set of demographic variables and HRM dimensions.

.

References

Armstrong, M. (2006) A Handbook of Human Resource Management Practice. (10th Ed.) . London: Kogan Page Limited.

A Hussain, A. Z. (2011). Barriers to knowledge management in Saudi Arabia. (Doctoral dissertation). Available from ProQuest Digital Dissertations and Theses database.(UMI No. 3481091.

Alrebh, A. (2011). Wahhabism and power in Saudi Arabia: A practical test of Weberian theory (Master's thesis). Available from ProQuest Digital Dissertations and Theses database. (UMI No. 1503468)

Berry, L. H., Hammons, J. O., & Denny, G. S. (2001). Faculty retirement turnover in community colleges: A real or imagined problem? Community College Journal of Research and Practice, 25, 123–136.

Boice, R. (2000). Advice for new faculty members: Nihilnimus. Needham Heights, MA: Allyn and Bacon.

Cooper, J., & Stevens, D. (Eds.). (2002). Tenure in the sacred grove: Issues and strategies for women and minority faculty. Albany: State University of New York Press.

Chew, J. (2004), "The influence of human resource management practices on the retention of core employees of Australian organisations: an empirical study", PhD thesis, Murdoch University, Perth.

Chew, Y. T. (2005). Achieving Organisational Prosperity through Employee Motivation and Retention: A Comparative Study of Strategic HRM Practices in Malaysian Institutions, Research and Practice in Human Resource Management, 13(2), 87-104

David W., and Issahaku J., (2013) The effectiveness of Human Resource Management Policies on Teachers: A case Study of Ghana Education Services, in Tamale Metropolis, Ghana. Educational Research

Latham, G. P. (1984). The appraisal system as a strategic control.In C. J. Fombrun, N. M. Tichy, & M. A. AlwiyaAllui and Jolly Sahni / Procedia - Social and Behavioral Sciences 235 (2016) 361 – 371 371

Lawler, III, E. E. &Mohrman, S. A. (2003). HR as a Strategic Partner: What Does It Take to Make it Happen? Human Resource Planning, 26(5), 15 (b).

Lengnick-Hall, C. A., Beck, T. E., &Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. Human Resource Management Review, 21, 243-255. Looney, R. (2004).

Nankervis, A., & Stanton, P. (2010). Managing employee performance in small organizations: Challenges and opportunities. International Journal of Human Resources Development and Management, 10, 136-151.

Sahoo, C. K., Das, S., &Sundaray, B. K. (2011). Strategic human resource management: Exploring the key drivers. Employment Relations Record, 11, 18-32.

Weeratunga, L. (2003). Human resource management. Dhaka: Bangladesh Open University

A Study on the Relationship between Personality Traits and Contextual Performance: A Study

Dr.Suniti Chandiok, Associate Professor,
Banarsidas Chandiwala Institute of Professional Studies (BCIPS), Dwarka, New Delhi.
Email: suniti@bcips.ac.in. Ph: 9868512849

Abstract:
Although the way we work today is very different fromwhat we worked on twenty years ago, effective management of employee performance is still a key to organizational success. Our rewards and recognition systems still focus primarily on task completion and goal achievement. But there is another side to employee performance that is equally important but often unrecognized and unrewarded. Contextual performance refers to activities that do not task or goal-specific but that make individuals, teams, and organizations more effective and successful. Contextual performance includes cooperating and helping others, voluntarily performing extra-role activities, persevering with enthusiasm and extra determination to complete assignments successfully, defending the organization's goals, and adhering to organizational policies even when this is inconvenient. The research focuses on the relationships between personality traits and contextual performance. The dimensions of Personality traits are based on the Big Five personality traits: Openness, Agreeableness, Conscientiousness, and Extroversion being positive traits and Neuroticism being the sole negative trait. In this research, the effects of Personality traits on contextual performance are to be analyzed.

Keywords: Performance, Personality, Pattern, Behaviour

I Introduction:

Contextual performance refers to activities that do not task or goal-specific but that make individuals, teams, and organizations more effective and successful. Contextual performance includes cooperating and helping others, voluntarily performing extra-role activities, persevering with enthusiasm and extra determination to complete assignments successfully, defending the organization's goals, and adhering to organizational policies even when this is inconvenient. These non-traditional contextual performance behaviors have become even more important with the advent of virtual teams and project-based work. Indeed, the notion of teamwork itself incorporates contextual behaviors.

Personality

Personality refers to individual differences in characteristic patterns of thinking, feeling, and behaving. The study of personality focuses on two broad areas: One is understanding individual differences in particular personality characteristics, such as sociability or irritability. The other is understanding how the various parts of a person come together as a whole.

Most theories focus on motivation and psychological interactions with one's environment. Trait-based personality theories, such as those defined by Raymond Cattell, define personality as the traits that predict a person's behavior. On the other hand, more behaviorally-based approaches define personality through learning and habits. Nevertheless, most theories view personality as relatively stable. The study of the psychology of personality, called personality psychology, attempts to explain the tendencies that underlie differences in behavior. Many approaches have been taken on to study personality, including biological, cognitive, learning, and trait-based theories, as well as psychodynamic, and humanistic approaches.

Big Five personality traits

Big Five personality traits, also known as the **five-factor model** (**FFM**) and the **OCEAN model**, are a taxonomy, or grouping, for personality traits. When factor analysis (a statistical technique) is applied to personality survey data, some words used to describe aspects of personality are often applied to the same person. For example, someone described as conscientious is more likely to be described as "always prepared" rather than "messy". This theory is based therefore on the association between words but not on neuropsychological experiments. This theory uses descriptors of common language and therefore suggests five broad dimensions commonly used to describe the human personality and psyche.

The five factors are:

- Openness to experience (inventive/curious vs. consistent/cautious)
- Conscientiousness (efficient/organized vs. easy-going/careless)
- Extroversion (outgoing/energetic vs. solitary/reserved)
- Agreeableness (friendly/compassionate vs. challenging/detached)
- Neuroticism (sensitive/nervous vs. secure/confident)

The five factors are represented by the acronym ***OCEAN*** or ***CANOE***. Beneath each proposed global factor, there are several correlated and more specific primary factors. For example, extraversion is said to include such related qualities as gregariousness, assertiveness, excitement seeking, warmth, activity, and positive emotions.

Contextual Performance

Contextual performance is defined as activities that contribute to the social and psychological core of the organization and is beginning to be viewed as equally important to task performance. Examples of contextual performance include volunteering for additional work, following organizational rules and procedures even when personally inconvenient, assisting and cooperating with coworkers, and various other discretionary behaviors. By strengthening the viability of social networks, these activities are posited to enhance the psychological climate in which the technical core is nested.

Contextual performance is related to overall employee job performance. A significant portion of supervisor ratings can be accounted for by not just task performance, but contextual performance as well. Other organizational outcomes such as turnover (employment) are related to contextual performance. Research shows that contextual performance is a significant predictor of turnover over and above task performance. Employees displaying more contextual performance behaviors were less likely to turn over than those engaging in less contextual performance behaviors. While also touted as a predictor of contextual performance, organizational commitment is an outcome of contextual performance. The facet of interpersonal facilitation significantly predicts organizational commitment. Research generally supports that contextual performance does indeed relate to overall organization performance as measured by quality, quantity, financial measures, and customer service measures. Contextual performance is a fundamental part of the employee performance criteria, then contextual performance should be considered in all aspects of the employment process, this includes selection, performance appraisal, and rewards. Selection procedures should take into account the predictors of both task and contextual performance.

II Literature Review/ Conceptual Development

It is believed that the Big Five traits are predictors of future performance outcomes. Job outcome measures include job and training proficiency and personnel data. However, research demonstrating such prediction has been criticized, in part because of the low correlation coefficients characterizing the relationship between personality and job performance. Extending Mischel's (1977) conceptualization of strong and weak situations, it was hypothesized that personality and contextual performance behavior would be most strongly correlated when there were only weak cues, and less correlated when there were strong cues. FFM is a useful taxonomy of personality. This evidence includes factor analytic evidence (Norman, 1963), genetic influences on the five factors (Bouchard, 1997), stability of the FFM across the lifespan (Costa & McCrae, 1998), and the replicability of the FFM across different theoretical frameworks, assessment approaches, in different cultures, and different languages (e.g., Digman & Takemoto-Chock, 1981; Digman & Shmelyov, 1996; Somer & Goldberg,1999.Given that the dimension of conscientiousness has been linked to motivational processes and outcomes, it is reasonable to expect that managers who score high on this dimension are more likely than their low-conscientiousness counterparts to engage in goal-directed behavior and to perform tasks carefully and enthusiastically - Organ & Ryan (1995), Scotter Motowidlo (1996) & Hattrup (1998). In their meta-analytic review, Organ and Ryan (1995) found that Conscientiousness and Agreeableness were the two strongest predictors of OCB. Some studies reviewed for the meta-analysis found a relation between the Big Five factor of neuroticism and OCB but taken together, the

results were not significant. Dr. Kevin Murphy, Professor of Psychology at Pennsylvania State University and Editor of the Journal of Applied Psychology (1996–2002) state: The problem with personality tests is that the validity of personality measures as predictors of job performance is often disappointingly low. The argument for using personality tests to predict performance does not strike me as convincing in the first place. Such criticisms were put forward by Walter Mischel, whose publication caused a two-decade-long crisis in personality psychometrics. However, later work demonstrated that the correlations obtained by psychometric personality researchers were very respectable by comparative standards and that the economic value of even incremental increases in prediction accuracy was exceptionally large, given the vast difference in performance by those who occupy complex job positions.
Experience. Furthermore, they found that when these personality constructs were aligned with the corresponding performance dimensions, higher mean validities were realized than in previous meta-analyses (e.g., Barrick & Mount, 1991; Hurtz & Donovan, 2000). There have been studies that link national innovation to openness to experience and conscientiousness. Those who express these traits have shown leadership and beneficial ideas toward the country of origin. Managers who score high on the personality dimensions of extroversion and agreeableness are likely better suited for the social and interpersonal demands of the contextual activities (e.g., fostering positive work relationships, interactions with subordinates, public relations) than are managers who score lower on these socially relevant dimensions. Moreover, we see evidence in the literature supporting relations between contextual performance and the dimensions of extroversion and agreeableness Scotter & Motowidlo (1996). Borman &Motowidlo (1997) states that personality successfully predicts contextual performance, and provides an alternative explanation for recent meta-analytic findings that personality correlates moderately with overall performance. Personality may be predicting the contextual component of overall performance. Results from studies using the Hogan Personality Inventory confirm that correlations between personality and contextual criteria are higher than correlations between personality and overall performance.

Mischel argued that personality traits are more likely to be expressed as behavior. Accordingly, the relative strength of one's job situation should moderate the amount of criterion variance explained by personality traits. Failure to account for situational effects is one explanation why, even when significant personality–performance correlations are found across job situations, personality traits only account for only a small proportion of criterion variance Pfeffer (1997) meta-analysis carried out by Chiaburu, Oh, Berry, Li, and Gardner (2011) shows that personalityinfluences both types of performance, but through different traits. Conscientiousness (p_v = .22), Openness to experience (p_v = .17), and Agreeableness (p_v = .17) influence contextual performance, while Conscientiousness (p_v = .16) and Emotional Stability (p_v = .14) influence task performance. The contextual performance and OCB research suggests that, across occupational groups, there is a relation between four of the Big Five personality factors and behaviors associated with contextual performance. However, the correlations are often modest and therefore open the door to speculation about potential moderators (Borman, Hanson, & Hedge, 1997).

Some businesses, organizations, and interviewers assess individuals based on the Big Five personality traits. Research has suggested that individuals who are considered leaders typically exhibit lower amounts of neurotic traits, maintain higher levels of openness (envisioning success), balanced levels of conscientiousness (well-organized), and balanced levels of extraversion (outgoing, but not excessive). Further studies have linked professional burnout to neuroticism, and extraversion to enduring positive work experience. Some research suggests that vocational outcomes are correlated to the Big Five personality traits. Conscientiousness predicts contextual performance in general. Conscientiousness is considered top-ranked in overall contextual performance. Research further categorized the Big 5 behaviors into 3 perspectives: task performance, organizational citizenship behavior, and counterproductive work behavior. Task performance is the set of activities that a worker is hired to complete, and results showed that Extraversion ranked second after Conscientiousness, with Emotional Stability tied with Agreeableness ranked third. For organizational citizenship behavior, relatively less tied to the specific task core but benefits an organization by contributing to its social and psychological environment, Agreeableness and Emotional Stability ranked second and third. Lastly, Agreeableness is tied with Conscientiousness as the top-ranked for Counterproductive work behavior, which refers to intentional behavior that is counter to the legitimate interests of the organization or its members.

Occupational self-efficacy has also been shown to be positively correlated with conscientiousness and negatively correlated with neuroticism. Significant predictors of career-advancement goals areextraversion, conscientiousness, and agreeableness. Openness is positively related to proactivity at the individual and the organizational levels and is negatively related to team and organizational proficiency. These effects were found to be completely independent of one another. Agreeableness is negatively related to individual task proactivity. Conscientiousness is positively related to all forms of work role performance. Neuroticism is negatively related to all forms of work role performance.
Two theories have been integrated into an attempt to account for these differences in work role performance. Trait activation theory posits that within a person trait levels predict future behavior, that trait levels differ between people, and that work-related cues activate traits thatlead to work. Relevant behaviorists that role senders provide cues to elicit desired behaviors. In this context, role senders (i.e.: supervisors, managers, et cetera) provide workers with cues for expected behaviors, which in turn activates personality traits and work-relevant behaviors. In essence, expectations of the role sender led to different behavioral outcomes depending on the trait levels of individual workers and because people differ in trait levels, responses to these cues will not be universal.

In recent years, contextual performance has emerged as an important aspect of overall job performance. Job performance is no longer considered to consist strictly of performance on a task. Rather, with an increasingly competitive job market, employees are expected to go above and beyond the requirements listed in their job descriptions.Therefore, when conducting performance appraisals, organizations may want to explicate that they take into account the facets of both contextual and task performance. Beaty,Jeanette, Cleveland & Murphy (2001)stated both a laboratory and field study investigated the extent to which the strength of behavioral cues in simulated and actual job performance situations moderate the relation between measures of broad personality dimensions and contextual performance behaviors. Beaty et al., 2001;de Kwaadsteniet et al., 2006;Snyder and Ickes, 1985)A considerable volume of basic theory and research shows that cognitive factors and personality traits exert strong influences on behavior in such weak situations

III Research Objectives and Question

- To understand the relationship between Personality traits and contextual performance.
- To find the effect of personality traits on contextual performance.

Research Questions: The present report focuses on the relationships between personality traits and contextual performance. The dimensions of Personality traits are based on the Big Five personality traits: Openness, Agreeableness, Conscientiousness, and Extroversion being positive traits and Neuroticism being the sole negative trait. In this report, the effects of Personality traits on contextual performance are to be analyzed.

Research Design

Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In this study the population was residents of India, comprising of men and women of all age groups, educational status, socio-economic status, and residential areas who have some amount of experience working in an organization.The research used the Descriptive Research Design. Descriptive research, also known as statistical research, describes data and characteristics of the population or phenomenon being studied. The research used Convenience Sampling. In this method the sample units are chosen primarily basedon the convenience to the researcher. The sample size 200 and ismeasures the number of individual samples measured or observations used in a survey or experiment. The Sources of data collection are both primary and secondary. In primary sources the data has been collected through the structured questionnaires circulated through the mode of Google Forms constitutes for the present study. Though, extensive literature search and adoption of text from different websites, published documents and books for report preparation constitutes secondary data for this study. Tools and techniques of analysis: Percentage Analysis, Pearson Correlation Analysis and Linear Regression are the tools used to establish the relationship between personality traits and contextual performance and study the impact of the same.Instrument Usedis MS Excel, and SPSS is used to create and analyzed pie charts and correlation and regression tables.

IV Data Analysis and Interpretation

In this study the population was residents of India, comprising of men and women of all age groups, educational status, socio-economic status, and residential areas who have some amount of experience working in an

organization. The data has been collected from the participants through the medium of Google forms. Tools and techniques of analysis: Percentage Analysis, Pearson Correlation Analysis, and Linear Regression are the tools used to establish a relationship between personality traits and contextual performance and study the impact of the same. The data then has been modeled into pie charts and tables through Excel and SPSS. The data has been predominantly divided into demographics, personality traits, and contextual performance.

Demographics: The data has been studied based on Gender and Age.

Table no-1

S.No	Items	Options	No of Respondents	% of Responses
1	**Genders**	Male	86	43%
		Female	114	57%
2	**Age**	21 and under	6	3%
		22 – 27	106	53%
		28 and above	88	44%

Interpretation: According to table no-1 that both gender and age of respondents the majority of participants, 57% are female with male participants being 43% and the age of respondents is 53% are
22 – 27, 44% are 28 and above and only 3% are 21 and under.

B. Personality Traits

Participants are analyzed on personality traits –Extraversion,Conscientiousness,Openness, Agreeableness and Neuroticism.

1) Extraversion: Table2

S.No.	**Options**	**No. of Respondents**	**% of Responses**
1.	Disagree	2	1%
2.	Neutral	38	19%
3.	Agreeable	144	72%
4.	Most Agreeable	16	8%
5.	Total	200	100%

Interpretation: According to table no-2that 1% disagree that they are extroverts, 19% are neutral, 72% are agreeable, and 8% are most agreeable on their extroversion traits. The majority of participants, 72% are extroverts.

2) Conscientiousness: Table3

S.No.	**Options**	**No. of Respondents**	**% Of Responses**
1.	Disagree	2	1%
2.	Neutral	12	6%
3.	Agreeable	146	73%
4.	Most Agreeable	40	20%
5.	Total	200	100%

Interpretation: According to table no 3that 1% disagree that they are conscientious, 6% are neutral, 73% are agreeable, and 20% are most agreeable on their conscientious traits. The majority of participants, 73% are conscientious.

3) Openness: Table4

S.No.	**Options**	**No. of Respondents**	**% of Responses**
1.	Disagree	2	1%
2.	Neutral	34	17%
3.	Agreeable	144	72%
4.	Most Agreeable	20	10%
5.	Total	200	100%

Interpretation: According to table no 4 that 1% disagree that they are conscientious, 17% are neutral, 72% are agreeable, and 10% are most agreeable on their openness traits. The majority of participants, 72% are high on openness.

4) Agreeableness:Table 5

S.No.	Options	No. of Respondents	% of Responses
1.	Neutral	14	7%
2.	Agreeable	114	57%
3.	Most Agreeable	72	36%
4.	Total	200	100%

Interpretation: According to table no 5that 7% are neutral, 57% are agreeable, and 36% are most disagreeable on their agreeableness traits. The majority of participants, 57% are high on agreeableness.

5) Neuroticism: Table6

S.No.	Options	No. of Respondents	% of Responses
1.	Least Agreeable	8	4%
2.	Disagreeable	102	51%
3.	Neutral	34	17%
4.	Agreeable	8	4%
5.	Total	200	100%

Interpretation: According to table no 6that 7% are neutral, 57% are agreeable, and 36% are most disagreeable on their agreeableness traits. The majority of participants, 57% are high on agreeableness.

C. Contextual Performance

The participants are analyzed over whether they are performing contextually besides their job. Tasks including - active participation in meetings, taking on challenging roles, getting along with coworkers, maintaining stress and emotions during job etc.

Table 7

S.No.	Options	No. of Respondents	% of Responses
1.	Least Agreeable	8	4%
2.	Agreeable	102	51%
3.	Neutral	34	17%
4.	Most Agreeable	8	4%
5.	Total	200	100%

Interpretation: According to table no 7 that 4% are least agreeable, 51% agreeable, 17% are neutral, 4% are most agreeable that they perform contextually too. The majority of participants, 51% are high on contextual performance i.e., they perform beyond their job performance and are also focused on the surrounding performance.In above information can be interpreted that the participants are high on the positive personality traits and low on the negative personality trait. It can also be seen that the participants are also high on contextual performance.

Pearson Correlation Analysis and Regression Analysis

A Pearson Correlation Analysis between Extraversion and Contextual Performance

Table 8

Correlations			
		EXTRAVERSION	CONTEXTUAL PERFORMANCE
EXTRAVERSION	Pearson Correlation	1	.698**
	Sig. (2-tailed)		.000
	N	100	100
CONTEXTUAL PERFORMANCE	Pearson Correlation	.698**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a significant positive relationship between Extraversion and Contextual Performance, r(98) = .69, p = .000

B Linear Regression Analysis of Extraversion and Contextual Performance

Table 9

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698[a]	.487	.481	.32735
a. Predictors: (Constant), EXTRAVERSION				

Simple correlation and is 0.69, which indicates a high degree of correlation. Here, 48.10% of the total variation in Contextual Performance can be explained can be explained by Extroversion which is large

Table 10

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.958	1	9.958	92.929	.000[b]
	Residual	10.502	98	.107		
	Total	20.460	99			
a. Dependent Variable: CONTEXTUAL PERFORMANCE						
b. Predictors: (Constant), EXTRAVERSION						

Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 11

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.529	.259		5.900	.000
	EXTRAVERSION	.647	.067	.698	9.640	.000

a. Dependent Variable: CONTEXTUAL PERFORMANCE

To present the regression equation as:Contextual Performance = 1.529 + 0.647 (Extraversion)

Interpretation: It can be interpreted that one unit change in the independent variable (Extraversion) will bring 48.10% of variation in the dependent variable (Contextual Performance)

C Pearson Correlation Analysis between Conscientiousness and Contextual Performance

Table 12

Correlations			
		CONSCIENTIOUSNESS	CONTEXTUAL PERFORMANCE
CONSCIENTIOUSNESS	Pearson Correlation	1	.508**
	Sig. (2-tailed)		.000
	N	100	100
CONTEXTUAL PERFORMANCE	Pearson Correlation	.508**	1
	Sig. (2-tailed)	.000	
	N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

There is a significant positive relationship between Conscientiousness and Contextual Performance, r(98) = .50, p = .000

D Linear Regression Analysis of Conscientiousness and Contextual Performance

Table 13

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.508[a]	.258	.250	.39361
a. Predictors: (Constant), CONSCIENTIOUSNESS				

Simple correlation and is 0.50, which indicates a high degree of correlation. Here 25.80% of the total variation in Contextual can be explained can be explained by Conscientiousness which is large

Table 14

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.277	1	5.277	34.064	.000[b]
	Residual	15.183	98	.155		
	Total	20.460	99			
a. Dependent Variable: CONTEXTUAL PERFORMANCE						
b. Predictors: (Constant), CONSCIENTIOUSNESS						

Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 15

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.087	.331		6.300	.000
	CONSCIENTIOUSNESS	.462	.079	.508	5.836	.000
a. Dependent Variable: CONTEXTUAL PERFORMANCE						

To present the regression equation as:

Contextual Performance = 2.087 + 0.462 (Conscientiousness)

Interpretation: It can be interpreted that one unit change in the independent variable (Conscientiousness) will bring 25.00% of variation in the dependent variable (Contextual Performance)

E Pearson Correlation Analysis between Openness and Contextual Performance

Table 16

Correlations			
		OPENNESS	CONTEXTUAL PERFORMANCE
OPENNESS	Pearson Correlation	1	.705**
	Sig. (2-tailed)		.000
	N	100	100
CONTEXTUAL PERFORMANCE	Pearson Correlation	.705**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a significant positive relationship between Openness and Contextual Performance, r(98) = .70, p = .000

F Linear Regression Analysis of Openness and Contextual Performance

Table 17

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.497	.492	.32393
a. Predictors: (Constant), OPENNESS				

Simple correlation and is 0.70, which indicates a high degree of correlation. Here, 49.20% of the total variation in Contextual Performance can be explained can be explained by Openness which is large

Table 18

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.177	1	10.177	96.987	.000[b]
	Residual	10.283	98	.105		
	Total	20.460	99			
a. Dependent Variable: CONTEXTUAL PERFORMANCE						
b. Predictors: (Constant), OPENNESS						

Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 19

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.563	.250		6.249	.000
	OPENNESS	.624	.063	.705	9.848	.000
a. Dependent Variable: CONTEXTUAL PERFORMANCE						

To present the regression equation as:**Contextual Performance = 1.563 + 0.250 (Openness)**

Interpretation: It can be interpreted that one unit change in the independent variable (Openness) will bring 49.20% of variation in the dependent variable (Contextual Performance)

G Pearson Correlation Analysis between Agreeableness and Contextual Performance

Table 20

Correlations			
		AGREEABLENESS	CONTEXTUAL PERFORMANCE
AGREEABLENESS	Pearson Correlation	1	.604**
	Sig. (2-tailed)		.000
	N	100	100
CONTEXTUAL PERFORMANCE	Pearson Correlation	.604**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a significant positive relationship between Agreeableness and Contextual Performance, r(98) = .60, p = .000

H Linear Regression Analysis of Agreeableness and Contextual Performance

Table 21

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604[a]	.365	.358	.36416
a. Predictors: (Constant), AGREEABLENESS				

Simple correlation and is 0.60, which indicates a high degree of correlation. Here, 35.80% of the total variation in Contextual Performance can be explained can be explained by Agreeableness which is large.

Table 22

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.464	1	7.464	56.284	.000[b]

	Residual	12.996	98	.133		
	Total	20.460	99			
a. Dependent Variable: CONTEXTUAL PERFORMANCE						
b. Predictors: (Constant), AGREEABLENESS						

Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 23

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.417	.347		4.083	.000
	AGREEABLENESS	.596	.079	.604	7.502	.000
a. Dependent Variable: CONTEXTUAL PERFORMANCE						

To present the regression equation as:**Contextual Performance = 1.417 + 0.596 (Agreeableness)**
Interpretation: It can be interpreted that one unit change in the independent variable (Agreeableness) will bring 35.80% of variation in the dependent variable (Contextual Performance)

G Pearson Correlation Analysis between Neuroticism and Contextual Performance

Table 24

Correlations			
		NEUROTICISM	CONTEXTUAL PERFORMANCE
NEUROTICISM	Pearson Correlation	1	-.701**
	Sig. (2-tailed)		.000
	N	100	100
CONTEXTUAL PERFORMANCE	Pearson Correlation	-.701**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a significant negative relationship between Neuroticism and Contextual Performance, r(98) = .70, p = .000

H Linear Regression Analysis of Neuroticism and Contextual Performance

Table 25

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.492	.486	.32579
a. Predictors: (Constant), NEUROTICISM				

Simple correlation and is 0.70, which indicates a high degree of correlation. Here, 48.60% of the total variation in Contextual Performance can be explained can be explained by Neuroticism which is large

Table 26

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.058	1	10.058	94.761	.000[b]
	Residual	10.402	98	.106		
	Total	20.460	99			
a. Dependent Variable: CONTEXTUAL PERFORMANCE						
b. Predictors: (Constant), NEUROTICISM						

Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 27

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.812	.089		54.120	.000
	NEUROTICISM	-.409	.042	-.701	-9.735	.000
a. Dependent Variable: CONTEXTUAL PERFORMANCE						

To present the regression equation as:

Contextual Performance = 4.812 + (- 0.409) (Neuroticism)

Interpretation: It can be interpreted that one unit change in the independent variable (Neuroticism) will bring 48.60% of variation in the dependent variable (Contextual Performance)

Findings of the Study:

As a whole, a majority of participants have been found out to be extroverts, they find themselves to be vital, energetic and lively (40.00%), however many find themselves as being giving into conflicts (24.00% having neutral or disagreeable opinions). 71.00% of participants are self-assertive. They also have rated themselves high on conscientiousness. 21.00% of participants have high standards of themselves. There has been a high percentage of variance in case of openness. 55.00% are attentive and able to concentrate. 28.00% are curious and exploring. 57.00% of participants positively take on challenges without hesitation. In case of agreeableness, they have rated themselves as high. 49.00% of participants are considerate and thoughtful of others. An astonishing 65.00% feel empathy and concern for their colleagues and the organization even though less participants get along well with their coworkers and help them. Participants are also found to be open to. There however are conflicting views on Neuroticism. As there are polarizing views, in case of becoming anxious in unpredictable environments, there have been equal favors in both agreeable and disagreeable opinions. Similarly in case of taking offence, there are split views. However, in stressful situations, many find it easier to bounce back (60.00%). Neuroticism impacts the contextual performance negatively. 79.00% of participants don't become anxious in stressful environments. 81.00% can bounce after stressful events. 79% of participants don't get easily offended. In case of contextual performance, many seem to give importance to contextual performance and engage in it. 70.00% of participants responded positively to looking for new challenges.60.00% claim to do more than what is expected of them. 79.00% of participants responded positively to participating in meetings. 97.00% of participants responded positively to looking for ways to improve their performance. However, there are less favorable views in comparison on contributing to organizational work, with 39.00% having neutral opinions.

Concluding Comments

This study aims to show whether there is any relationship between personality traits and contextual performance and if it, is it positive or negative. The results of the study show that there is a meaningful relationship between the components of personality contextual performance. Agreeableness, Conscientiousness, and Extraversion are closely related to contextual performance in the academic sphere. Openness however shows the most significant relationship with Contextual performance, with the variable change being 49.20% change in a unit change of openness. Contextual performance of performance is also impacted by extraversion with 48.10% of change due to a unit change of extraversion. It can be said that participants who are more considerate of their contextual performance are extroverts, who are more engaging with their coworkers and organization. Extraversion helps in engaging beyond the job as they also function beyond their job. It can be noted that personality traits like agreeableness are contributing to contextual performance like helping coworkers and keeping in touch with coworkers beyond the organization. Extraversion helps with active participation and reduced conflicts. Conscientiousness helps with being more contributing to the organization and voluntary contribution. Neuroticism on the other hand is negatively associated with contextual performance i.e. stressful, anxiety, mood instability negatively impacts contextual performance.

Emerging Managerial Implications

It can be seen that personality traits like extraversion, openness, agreeableness, and conscientiousness have a positive impact on contextual performance. In an organizational setting, personality might not have a that significant effect on job performance as they are more related to the knowledge, skills, and attributes of the employee, however contextual performance; helps in supporting the job performance of the employee. Personality indicates as in who more is willing to work on their contextual performance, as they would prefer to

engage more with their work surroundings, beyond their job. As openness is a key contributing factor to contextual performance, organizations may open up more ways in which workers may engage in team-building exercises, and building interpersonal relationships. Personality traits like agreeableness and extraversion, helps employee be more corporative in an organizational setting. From an applied perspective, the results could be useful in an organizational setting, particularly in relation to the formation of working groups, given that certain personality characteristics of group members could influence their contextual performance. These results also stress the importance of promoting self-efficacy among employees related to group tasks. Lastly, rewards and incentives should be set up to address employees who perform helping behaviors that contribute to the overall goals of an organization as well as behaviors that contribute strictly to individuals' projects.

Bibliography

- Abuhamden, S., & Csikszentmihalyi, M. (2012) The importance of challenge for the enjoyment of intrinsically motivated, goal-directed activities. Personality and Social Psychology Bulletin, 38, 317-330. doi:10.1177/0146167211427147
- Borman WC, Hanson MA, Oppler SH,pulakos ED,White LA,1993.Role of early supervisory experience in supervisor performance,J.Appl.Psycol.78(3):443-49
- Borman, W.C., Hanson, M.A. and Hedge, J.W. (1997) Personnel Selection. Annual Review of Psychology, 48, 299-337.
- http://dx.doi.org/10.1146/annurev.psych.48.1.299
- Borman,WC, & Motowidlo, SJ. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. Borman (Eds.), Personnel selection in organizations (pp.71–98). New York: Jossey–Bass.
- Duckworth, A. L., Steen, T. A., & Seligman, M. E. P. (2005). Positive psychology in clinical practice. Annual Reviews of Clinical Psychology, 1, 629-651. doi:10.1146/annurev.clinpsy.1.102803.144154
- Hattrup,K.,O'Connell,M.S.,&Wingate, P. H. (1998). Prediction of multidimensional criteria:Distinguishing task and contextual performance. Human Performance, 11, 305–319.
- James C. Beaty Jr., Jeanette N. Cleveland & Kevin R. Murphy (2001) The Relation Between Personality and Contextual Performance in "Strong" Versus "Weak" Situations, Human Performance, 14:2, 125-148.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & N. S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology (pp. 333-352). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Organ, D. W., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. Personnel Psychology, 48, 775–802.
- Pfeffer, J. (1997). New directions for organizational theory: Problems and prospects. New York: Oxford University Press
- Rabipour, S., & Raz, A. (2012). Training the brain: Fact and fad in cognitive and behavioral remediation. Brain and Cognition, 79, 159 179. doi:10.1016/j.bandc.2012.02.006
- Van Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. Journal of Applied Psychology, 81, 525–531.
- Walter C. Borman & Stephan J. Motowidlo (1997) Task Performance and Contextual Performance: The Meaning for Personnel Selection Research, Human Performance, 10:2, 99-109.

Analysis of Literacy Level of Finance Among High School Students of Pune (Maharashtra)

Ms. Davinder Kaur Sohi*, Dr. Priyanka Vijay**

***Research Scholar, Assistant Professor, Symbiosis Law School, Pune (A Constituent of Symbiosis International Deemed University, Pune, India)**

****Professor Assistant, Banasthali Vidyapith, Rajasthan, India**

Abstract

Youth must have adequate knowledge of finances for his or her future. This is of utmost importance within the context of a rising financial system like India in which social protection advantages after retirement are absent in contrast to numerous advanced nations. Also, boys and girls must accrue economic choice making because of the emergence of complicated economic products. This necessitates that a student must be financially literate to make sound economic planning. Teachers, peers, buddies at school and mother and father at home can create financial focus thus developing sound financial way of thinking. To analyse the financial literacy level of High school students, the researcher studied 418 high school students in Pune, Maharashtra. Along with this, 95 parents were also questioned to gain their perspective. The questionnaire method was used to gather primary data. It was found that students are very interested in attaining financial literacy. Further, it was revealed that parents are influential in building the financial attitude of school students. Conducting a quiz and other financial games were found to have significant influence on financial attitude of school students.

Keywords - Basic financial literacy, School students, Advanced financial education, Monetary issues

Introduction

An individual who is monetarily proficient knows how to procure, oversee and put away cash. He knows about monetary items and applies his insight to utilize them. Recent advancements have made monetary schooling and mindfulness progressively significant for monetary prosperity for a person's wellbeing.

The objective of this paper is to attempt to understand the level of financial literacy of school students and parents' attitude towards the same. The relationship between financial literacy and financial attitude of students and parents was also studied. Although several studies have been conducted in the subject of financial literacy, not many have considered the impact of financial literacy of parents on financial attitude of school students. This paper helps to fill this gap.

It is vital that parents have a correct attitude towards developing financial literacy towards their child because this will help in making financial choices and with this information expertise they can pick the best for their future, ready to distinguish enormous number of monetary items and monetary suppliers and in the end, it will prompt shopper security.

India is presently developing as expected place for its occupant where they can look forward for having sound way of life. This can ultimately be accomplished whenever all have equivalent chance for schooling and business. One of the significant blockades for getting great business is having right knowledge. This can be praised by giving them legitimate instruction on financial planning preparation.

Research Objectives

1. To study the difference in attitude of boys and girls towards financial literacy.
2. To study the attitude of parents towards financial literacy of their child.

Research Hypotheses

H1A There is a significant difference in the financial attitude among boys

and girls.

H1B Learning possibilities with mother and father have a significant effect on a student's financial attitude.

Further divided into four hypotheses:

H1Ba - There is a significant difference in the financial attitudes of students depending on their mother's qualifications.

H1Bb- There is a significant difference in the financial attitudes of students depending on their mother's occupation.

H1Bc- There is a significant difference in financial attitudes of students depending on their father's qualification.

H1Bd- There is a significant difference in financial attitudes of students depending on their father's occupation.

Literature Review

Based on earlier studies**,** the researcher gives insights on financial literacy amongst school students. In the existing literature review, the first segment addresses whether the effect of various factors (demographic variables such as gender, class, mother**'s** qualification, mother's occupation, father**'s** qualification, father**'s** occupation impact financial attitude) improves financial literacy. In the second segment is presented the impact of social learning opportunities with parents and how parental influence impacts the financial attitude of students.

Gender

For young girls and women, having financial literacy skills is very important. Women also tend to report not knowing the information on financial knowledge because they are less confident in their personal financial knowledge.

Donkers et al. (2001) in their research discovered a link between risk preference and gender, age, level of education, and income. They discovered that women and the elderly had a negative attitude toward risk, whereas education, income level, and people's attitudes have a relationship. **Malone et al. (2009)** discovered in their study a key worry that women with a high level of education and a high level of income had a more optimistic assessment of their own financial situation than men**.** **Longobardiet et al. (2017)** in their literature reported that male members are

sounder in making financial judgments than females. They further say that efforts should be made to close this gap/difference.

Mother's Qualification

In particular, if a respondent's mother left school in between, there was little doubt that mother's education was linked to learning about financial literacy. **Murphy (2005)** discovered in his research that adolescents whose mothers had not completed secondary school performed much worse on a financial literacy test. Having said that, the competency levels of most college students were typically, poor.

Father's Qualification

The degrees of general information, general mindfulness, the levels of comprehension of understanding, levels of recognition, capabilities to comprehend, decision-making abilities, and so on of fathers all grow dramatically as their educational level rises.

Mandell and Klein, (2009) in their research observed that students whose fathers and mothers are in the career of finance have an extra degree of monetary skill ability than college students do who's calling is not in finance. The inclusion of father and mother with their career experience whilst speaking with their children can simply have an effect on the attitude of the child.

Mother's Occupation

Financial literacy research has also revealed that one of the factors of literacy is one's career.

Kasman, Heuberger, and Hammond (2018), in their review opine that working women face a greater pressure because they are more likely to balance successful careers with the responsibilities of parenting and childrearing. Many women work in India, providing financial support to their families, but they place less emphasis on taking risks due to a fear of danger.

Father's occupation

Financial literacy education can be associated with one's occupational status. Individuals in expert professional occupations, as well as those in administrative ones, had higher financial proficiency ratings.

Calamato (2010) has discovered in his research that low-pay fathers are sure, to go out of school, something that, over the long run, provides to their financial illiteracy. This loss of schooling of households scored lower at the financial schooling check than students in better earnings degree among own circle of relatives.

Parental influence on their child's financial attitude, behavior and knowledge

Knapp (1991) examined how students attempt to enhance their know-how in Financial Literacy which facilitates them in taking first-class decisions, having enhanced mind-set towards money, keep assets thus enhancing highly satisfactory lifestyles and heading off pointless waste of money. **Chen & Volpe (1998)** observed that females accumulate private finance expertise from their mother and father. However, it's been observed that males are better informed than females.

Hilgert, Hogarth & Beverly (2003) discovered that financial knowledge was clearly associated with self-financial behavior. **Bandura, (1986); Clarke et al. (2005)** conducted a research and found that youngsters' whose parents included them in conversation and those who are taught with the help of their mother or father is to be greater assured on their values, beliefs and knowledge, and for that reason it allows in shaping youngsters' questioning toward finance and which may be visible in their behavior.

Report by **Organization for Economic cooperation & Development (OECD) in *2005*** *says that to take a good financial decision, financial education is needed but which is lacking in young and adults (both). Financial Literacy is well known for all age groups and even across geographical areas*. **Allen et al. (2007**) analysed in their look at and evaluated informed knowledgeable own circle of relatives maintains on discussing with circle of relatives and children are prompted through father and mother and heading in the right direction for allowances, present income. It leads to enhance their know-how and its impact may be visible of their behavior, mind-set and they're for money. **Bongini et al. 2018)** analysed monetary

know-how is vital to take selections in any other case it causes insolvency. **Financial decision-making** deals with study of parental influence to their children. It affects a person decision making with money related matters.

Lusardi et al. (2009) in their research study it has been found that their monetary information is influenced one's parent tutoring level. Students whose parents had completed their everyday schedule preparing will undoubtedly be monetarily proficient and discovered that with lower levels of instruction. **Rahmatullah et al. (2020) in** a previous review mention that individuals who taken in some huge experience about overseeing reserves and monetary issues from their parents had higher monetary data, which peroxide by financial education.

Moore and Asay (2013) reported in their review the association of parental influence on a child's financial abilities. They suggest that the singular exercises of individuals impact the social behaviour of the whole family. **Firmansyah (2014)** found in their review that adolescents get the demeanor and social lead from their family and this can predict the kind of financial choices and the board that they will pick later on in future**. Kagotho et al. (2017)** observed, discussed and found that youngsters in where parents effectively engaged them in financial issues were not just likely to report their financial related assets, yet they were additionally expected to be savers themselves.

Research Methodology

Sample and sample Size

There were 2 types of respondents – high school students and parents.

Students - 900 questionnaires were circulated to high school students studying in various government and private schools of class 8^{th} to 12^{th} standard from Pune, Maharashtra. Out of those, 418 school students' responses were received.

Parents - Questionnaire was also circulated to 130 parents. However, only 95 responses were received.

Data Collection

Secondary data

The main focus of secondary data had been studying on financial attitude of school students (boys and girls), learning opportunities from Parents and also attitude of parents towards financial literacy of their child. Secondary data was collected from research papers, national and international surveys. Data was collected from past to the present period.

Primary data

The primary data is collected from the students (boys and girls) from class 8^{th} to 12^{th} standard of government, private schools of Pune, Maharashtra. The main objective of designing questionnaire was to know the level of financial literacy among school students (boys and girls), find financial attitude of students and parents for financial literacy. For the pilot study, a structured questionnaire was distributed. Certain changes were made in it as suggested by the respondents.

Reliability Testing

It is required to test internal reliability of each construct with its distinct number of items for the two constructs that this study focused on. Cronbach's alpha for objects created for the same construct were determined to verify internal reliability. The estimated Cronbach's alpha values for the two constructs are shown in Table 1. All the values are above the cut-off point 0.7 recommended by Nunnally and Bernsties (1994) indicating that all the five constructs have strong internal consistency.

Table 1: Reliability Analysis

Construct	Number of	Cronbach's alpha
Learning opportunities with Parents	8	0.84
Financial Attitude	4	0.753

Measures utilized for inferential examination incorporate t-test, ANOVA, investigation and so on. In the exploration research, the study embraced both the descriptive and inferential data investigation methods.

Sample Profile

This section shows the profile of the 418 school students surveyed in the elected schools of Pune, Maharashtra based on five variables (gender, educational qualification of mother and father, occupation of mother and father).

Table 2: Profile of the Respondents

Variable	Categories	Frequency	Response %
Gender	Boys	190	45.5
	Girls	228	54.5
Mother's Qualification	Below Higher Secondary	14	3.3
	Higher Secondary	48	11.5
	Graduate	165	39.5
	Postgraduate and Above	191	45.7
Mother's Occupation	Self Employed	63	15.1
	Service	99	23.7
	Business	80	19.1
	Housewife	176	42.1
Father's Qualification	Below Higher Secondary	12	2.9
	Higher Secondary	133	31.8
	Graduate	247	59.1
	Postgraduate and Above	26	6.2
Father's Occupation	Self Employed	131	31.3
	Service	178	42.6
	Business	100	23.9
	Unemployed	9	2.2

Gender

The findings in Table 2 and Figure 1 show that that 45.5% of the participants in the study are boys and 54.5% are girls, which can be considered as a good representation of both the genders in the sample.

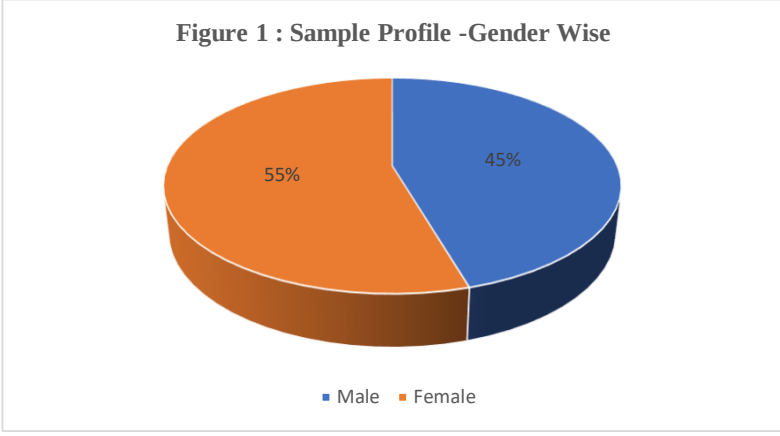


Figure 1: Sample Profile -Gender Wise

Mother's Educational Qualification

The findings in the Table 2 and Figure 2 show that those mothers who were Post graduates and graduates have been found to have substantial impact on Their children for providing financial literacy that is 45.7% and 39.5%. Mothers with a higher secondary education and those with a lower secondary education had a lower impact on their children's financial literacy, by 11.5 percent and 3.3 percent, respectively.

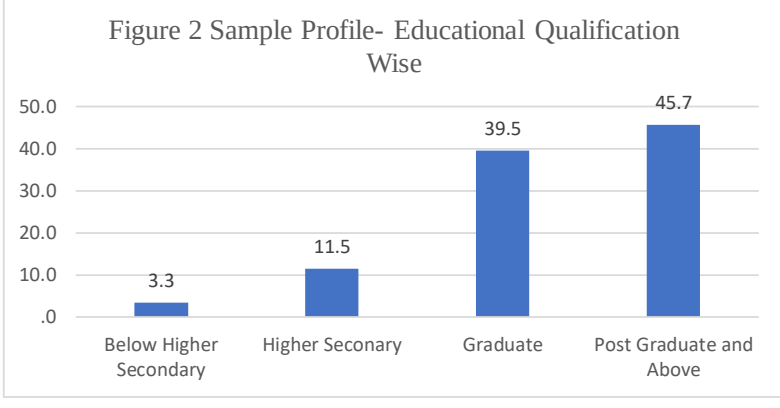


Figure 2: Sample Profile- Mother's Educational Qualification Wise

Mother's Occupation

The findings in the Table 2 and Figure 3 show that as far as mother's occupation is concerned, the major respondents 42.1% were housewives,

followed by working girls (service) 23.7%. Then 19.1% are business girls and 15.4% are self-employed.

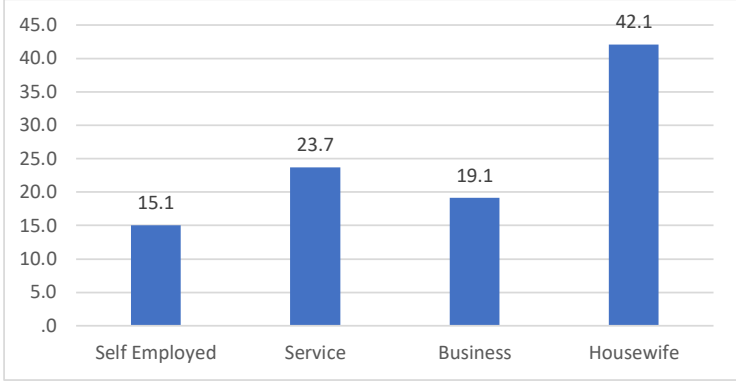


Figure 3: Sample Profile - Mother's Occupation Wise

Father's Educational Qualification

The findings in Table 2 and Figure 4 show that the fathers who had graduate and higher secondary education were found to have a substantially more effect on their children i.e., of (59.1%) and 31.8% than those who were post graduate and below higher secondary education. Their impact is less i.e., 6.2% and 2.9%.

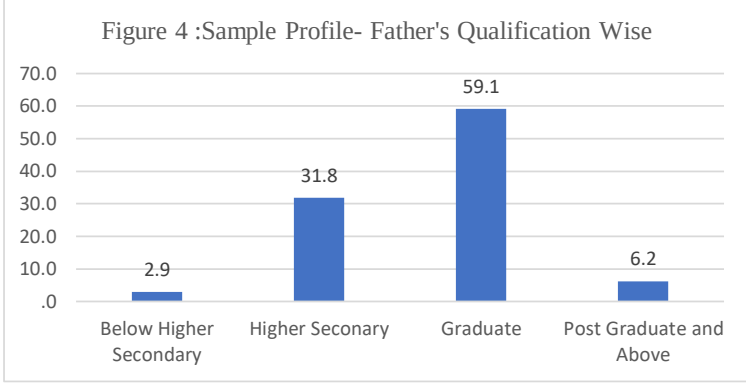


Figure 4: Profile- Father's Qualification Wise

Father's Occupation

The findings in the Table 2 and Figure 5 show that the sample consists of 42.6% of fathers as service class and 31.3% are self-employed and

fathers who belong to business is 23.9% and unemployed 2.2%.

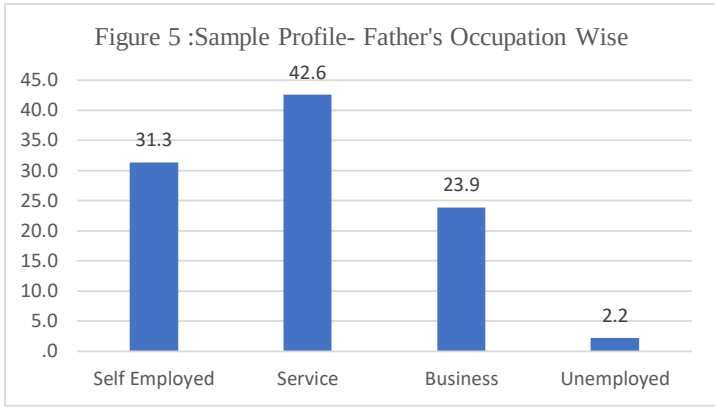


Figure 5: Sample Profile- Father's Occupation Wise

Factor Loading

Factor loading is the correlation of each item and the factor which indicates the degree of correspondence between the item and the factor. Only those items with a factor loading of 0.50 or higher (ignoring the signs) are considered significant (Hair et al., 2005). The factor loadings of all the items are above 0.650 which indicates their high correlation with the respective factors.

Table 3: Factor Loadings

Factor	Item Code	Item Description	Factor Loading				
			1	2	3	4	5
1 Learning opportunities with parents	**PI2**	I appreciate when my parent's advice regarding money management.	.680				
	PI3	My parents discuss finances in house.	.674				
	PI4	**Saving is something I do regularly because my parents wanted me to save when I was little.**	.664				
	PI5	My parents are proud of my money saving habit.	.663				
	PI6	My parents teach me how to use a debit card appropriately.	.637				
	PI7	I talk about money management with my parents.	.613				
	PI8	My parents are good example for me when it comes to money management.	.602				

	Item Code	Item Description	1	2	3	4	5
Financial Attitude	**FA1**	I am willing to spend money on things that are important to me.					.759
	FA2	I like to buy things because it makes me feel good.					.745
	FA3	After deciding about money management, I tend to worry too much about my decision.					.718
	FA4	I think it is more satisfying to spend money than to save it for the future.					.689

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 7 iterations

Hypothesis Testing

To examine the students' opinions of financial literacy in relation to their demographic factors. Financial literacy research has also found that qualification and occupation is one of the drivers of financial literacy.

a. To examine the differences in students' perceptions of the dimension of Financial Literacy across Gender, the following hypotheses was proposed:

- H1A- There is significant difference in the Financial Attitude of students between boys and girls.

The hypotheses H1A has been tested by using Independent Samples t-test. The results obtained through independent samples t-test on financial literacy perceptions between gender categories i.e., boys and girls are presented in Table 4 Results of Levene's Test for Equality of Variances reveal that variances among boys and are equal for the dimensions of financial literacy i.e., financial attitude (F=-1.649, p>.10)

Therefore, for the dimensions, t-values in the 'equal variance assumed' row are used for analyzing the results of independent samples t-test. It can be noticed that there are no significant differences between perceptions of boys and girls in case of Financial attitude (t=-1.649, p>.10). This signifies that the gender of students is not a differentiating factor with regards to the students' financial literacy. Both boys' and girls' students have similar perceptions of all the dimensions of financial literacy viz. financial attitude Hence the hypotheses H1A are rejected.

Table 4: Results of Independent Sample t-test for Relationship Quality between Boys and Girls

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	Df	p-value
FA	Equal variances assumed	0.206	0.650	-1.649	416	0.1
	Equal variances not assumed			-1.655	407.048	0.099

b. Learning possibilities with mother and father have a significant effect on a student's financial attitude.

Further divided into four:

1.To examine the differences in students' perceptions of the dimension of Financial Literacy as per Mother's Qualification, the following hypothesis is proposed:

- H1Ba – There is significant difference in the Financial Attitude of students of financial literacy across their mother's qualification.

Table 5 provides results of ANOVA for hypotheses H1B. The results indicate that there are significant differences in the financial attitude ($F=3.712$, $p<0.05$). Hence hypotheses H1Ba are accepted. Table 5 also shows that students whose mothers are less qualified (below higher secondary) have lesser financial attitude and financial knowledge (mean scores = 2.68 and 39.93 respectively. Hence H1B are accepted.

Table 5: ANOVA for Mothers' Qualification

		Sum of Squares	Df	Mean Square	F	Sig.
FA	Between Groups	9.457	3	3.152	3.712	.012
	Within Groups	351.545	414	.849		
	Total	361.002	417			

2. To examine the differences in students' perceptions of the dimension of Financial Literacy across Mother's Occupation, the following hypotheses are proposed:

- H1Bb-There is significant difference in the financial attitude of students of financial literacy across their mother's occupation.

The results for testing the significance of difference in the dimension of financial literacy of students across their mothers' occupations (H1Bb) are shown in Table 6. The results fail to provide support for the hypotheses. Hence no significant

difference is observed in the dimension of financial literacy i.e., financial attitude (F=0.465, p>0.10), of students across their mothers' occupations. Hence it can be concluded that the financial literacy of students is not affected by their mothers' occupations. Hence the hypotheses H1Bb is rejected.

Table 6: ANOVA for Mothers' Occupation

		Sum of Squares	Df	Mean Square	F	Sig.
FA	Between Groups	1.212	3	.404	.465	.707
	Within Groups	359.790	414	.869		
	Total	361.002	417			

3. To examine differences in students' perceptions of the dimension of Financial Literacy across Father's Qualification, the following hypotheses are proposed:

- H1Bc- There is significant difference in the Financial Attitude of students of financial literacy across their father's qualification.

The results for testing the significance of differences in the dimensions of financial literacy of students across their fathers' qualifications (H1Bc) are shown in Table 4.7. The results provide support for the hypothesis H1Bc. Hence it can be inferred that the financial attitude of students differs significantly across their fathers' qualifications.

Table 4.7: ANOVA for Fathers' Qualification

		Sum of Squares	Df	Mean Square	F	Sig.
F A	Between Groups	9.954	3	3.318	3.913	.009
	Within Groups	351.048	414	.848		
	Total	361.002	417			

4. To examine the differences in students' perceptions of the dimensions of Financial Literacy across Fathers' Occupation, the following hypotheses are proposed:

- H1Bd-There is significant difference in the Financial Attitude of students based of financial literacy across their fathers' occupation.

The results for testing the significance of differences in the dimensions of financial literacy of students across their fathers' occupations (H1Bd) are shown in Table 4.8. The results fail to provide support the hypotheses

Table 4.8: ANOVA for Fathers' Occupation

		Sum of Squares	Df	Mean Square	F	Sig.
FA	Between Groups	4.167	3	1.389	1.612	.186
	Within Groups	356.835	414	.862		
	Total	361.002	417			

Conclusions and Suggestions

Conclusions are summarized as aligned to the objective of the study. The objectives are:

1. To study the difference in attitude of boys and girls towards financial literacy.
2. To study the attitude of parents for financial literacy.

Objectives	Outcomes
To study the difference in attitude of students of boys and girls towards financial literacy.	Students both boys and girls were very interested in attaining financial literacy. They were eager to participate in quiz, role play, games etc. which would make them more financially literate. These activities were found to have significant influence on financial attitude of school students.
To study the attitude of parents for financial literacy.	Attitude of parents for financial literacy was found to be positive. Parents have significant association with financial attitude of students for financial literacy. This implies that parents are influential in building the financial attitude of school students.

Key Points of Conclusion

1. When it comes to learning chances for children to develop a positive financial attitude, parents have a great influence.
2. In terms of learning prospects, parents have a greater influence on financial attitudes as evidenced by their preferences for various financial literacy objectives. Girls have a lower risk capacity and are more financially dependent than boys.
3. Boys have more succession rights and obligations, and thus have a larger tendency to prepare and make financial decisions in succession.

4. Girls have a higher collective value and are more likely to discuss money difficulties with their family or spouse. At home, girls reveal more financial information.
5. Students of class 12^{th} have higher financial attitude. It implies that of higher classes students have stronger financial attitude as compared to students in lower classes.
6. Students' mother higher qualifications have a beneficial impact on healthy financial decisions because they have a strong financial attitude and knowledge, and there are no significant disparities in their financial conduct based on their mothers' qualifications.
7. Children's financial literacy is not affected by their mother's occupation.
8. Students whose fathers have a postgraduate or higher level of education have a more positive financial outlook.
9. The students' financial literacy is unaffected by their father's work in the dimensions of financial attitude.

Suggestions to Parents and Researchers

1. Asking parents to engage in financial literacy programmes can help mould their financial attitudes and beliefs. efforts must be made to improve Parents' financial attitudes, and parents should discuss money issues with their children.
2. Since parents have such a strong influence on their children's attitudes and behaviour when it comes to money, it is critical to instill in them a positive attitude and behaviour towards understanding and managing money now and in the future.
3. Girls should play a larger role in family financial decisions, necessitating financial education and empowerment.

In a nutshell, parents and every student in the school can be taught the value of increased financial literacy, which includes increased financial knowledge, a positive financial attitude, and financial behaviour. The findings of the study could aid in the preparation and improvement of financial literacy among children, youth, and all citizen of the country.

Future Scope

The study adds to the body of knowledge about the role of important stakeholders in instilling financial literacy and moulding a child's financial attitude toward

school education. The study is based on primary data and has a few limitations, including sample selection biases. Further research might be carried out with a broad sample size, encompassing schools from various regions and states. Future research on analyzing the financial attitudes, knowledge, and behaviour of parents, teachers, and even college students could be a fascinating field of study for academics. Additionally, demographic factors such as family composition, geographical location of rural and urban areas, and so on can be incorporated for future research.

References

Allen, D. N., Strauss, G. P., Donohue, B., & Van Kammen, D. P. (2007). Factor support for social cognition as a separable cognitive domain in schizophrenia. *Schizophrenia research*, *93*(1-3), 325-333.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice- Hall. Englewood Cliffs, NJ: Prentice -Hall

Bongini, P., & Zia, B. (2018). Introduction: The Financial Literacy Collective.

Economic Notes: Review of banking, Finance and Monetary Economics, 47 (2-3), 235-244.

Calamato, M. P. (2010). *Learning financial literacy in the family*. San Jose State University.

Chen, H., & Volpe, R. (1998). An analysis of personal Financial Literacy among college students. Financial Services Review, 7 (2), 107-128.

Clarke, M.D., Heaton, M. B., Israel Sen, C. L., & Eggett, D.L. (2005). The Acquisition of family roles and responsibilities. *Family and Consumer Sciences Research Journal.* 33 (4), 321-340.

Donkers, B., Melenberggg, B., Van Soest, A. (2001). Estimating Risk Attitudes using lotteries: A Large Sample Approach. The Journal of Risk and Uncertainty, 22 (2), 165- 195.

Firmansyah, D. (2014). The influence of family backgrounds toward student saving behavior: a survey of college students in Jabodetabek. *International Journal of Scientific and Research Publication*, *4*(1), 1-6.

Kagotho, N., Nabunya, P., Ssewamala, F., Mwangi, E. N., & Njenga, G. (2017). The role of family financial socialization and financial skills on youth saving behavior. *Journal of adolescence*, *59*, 134-138.

Lusardi, A., & Mitchell, O.S. (2008) Planning and Financial Literacy: do women fare? American Economic Review: papers & proceeding, 98 (2), 413-417.

Malone, K., Steward, S.D., Wilson, Korsching, P.F. (2009). Perceptions of financial wellbeing among American Women in Diverse families. *Journal Of Family and Economic Issues*, 31 (1), 63-81.

Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling &Planning*, *20*(1). pp.15-24.

Moore, T.J. and Asay, S.M. (2013). Family resource management. Second edition. Los Angeles: Sage publications.

Porter, N.M. (1990). Testing a model of financial wellbeing. Financial Counselling and Planning, 4, 135-164.

Inanna, I., Rahmatullah, R., Haeruddin, M. & Marhawati, M. (2020). Silk weaving as a cultural heritage in the informal entrepreneurship education perspective. *Journal of Entrepreneurship Education*, *23*(1), 1-11.

Yates, D., & Ward, C. (2011). Financial literacy: Examining the knowledge transfer of finance from high school to college to adulthood. *American of Business Education (AJBE)*, *4*(1).

IMPACT OF NEP 2020
&
FRAMEWORK ON ACCREDITATION OF EDUCATION

Dr. Shipra Jain, Associate Professor, GNIM, Punjabi Bagh, jainshipra11@gmail.com
Navjot Kaur , Student(MCA), GNIM, Punjabi Bagh

ABSTRACT

The National Education Policy (NEP) 2020 focuses on key reforms in higher education that prepare the next generation to thrive and compete in the new digital age**.** The NATIONAL EDUCATION POLICY (NEP 2020), launched on 29 July 2020, outlines the vision of India's new education system. NEP 2020 focuses on five pillars: Affordability, Accessibility, Quality, Equity, and Accountability – to ensure continual learning. It has been crafted consistent with the needs of the citizens as a demand for knowledge in society and economy called for a need to acquire new skills on a regular basis. Thus, providing quality education and creating lifelong learning opportunities for all, leading to full and productive employment and decent work as enlisted in United Nations Sustainable Development Goals 2030, forms the thrust of NEP 2020. The new policy replaces the previous National Policy on Education, 1986 and forms a comprehensive framework to transform both elementary and higher education in India by 2040.

INTRODUCTION

In 2020, the Indian Ministry of Education introduced the National Education Policy (NEP) 2020, replacing the 34-year-old National Policy on Education, 1986. Along with the many reforms in the policy to strengthen higher education in the country, the NEP mandated accreditation of all state-run schools from grade 1 to 12.

Accreditation is a process carried out to improve the standards of education, outcomes, and governance of schools. It looks at measures such as the quality of teaching, attendance, number of teachers across subjects and grades, safety, financial probity, curriculum, basic sustainable infrastructure, resources, community participation, governance process, and accountability. A fair, transparent, and rigorous accreditation and evaluation process can enable education systems to change the academics, management, and leadership of institutions for the better.

Under this system, all schools (state-run and privately run) have to ensure adherence to established minimum standards in key performance domains. These include the school's administrative responsibility, its infrastructure, teaching quality, community participation, integrity, and inclusion. The process is based on predefined standards by the states for their schools, and is carried out by an authorized body of the state education department.

What the NEP proposes?

The NEP has asked each state to form an independent and autonomous body, State School Standards Authority (SSSA), by 2023. These SSSA bodies will be responsible for regulating public and private schools and monitoring that they maintain the minimum common standards.

Furthermore, according to the directives in the NEP, the State Council of Education Research and Training will work towards developing a School Quality Assessment and Accreditation Framework with the support of multiple stakeholders (including schools, education departments, and nonprofits) in order to implement the policy effectively. The framework they develop will focus on setting parameters of school performance—such as academia, infrastructure, finances, and teaching quality—and identify critical areas for improvement.

All the schools will be assessed on these set standards, and the self-disclosure of all essential information will be published on the SSSA website as well as on the website of each school. At the end of the assessment, all schools will be provided with a report card consisting of comprehensively analyzed data and insights.

Why do schools need to be accredited in the first place?

According to a ASER Education Report in 2018, approximate 50% of Indian school-going children cannot read and comprehend a simple text by Standard 5 (age 10). Another education report states, in India, 30% of girls from economically disadvantaged groups have never been to school due to lack of accessibility and viable infrastructure. Accreditation plays a vital role in defining the infrastructural requirements and availability for schools. In fact, according to the Right to Education Act (RTE), schools must provide children with basic infrastructure, including separate toilets for boys and girls. Building on the RTE, the NEP 2020 mandates schools to disclose accreditation data on public domains—the state departments and authorities would be given a list of requirements they have to meet, and their ability to meet them will be made public; this, in turn, will help improve the accountability of the system.

The proposed measures will aid schools, states, communities, and their respective stakeholders in determining these minimum quality standards for education.

By introducing minimum quality standards for schools to follow, the proposed measures to accredit schools can help monitor and build an ecosystem of transparency and accountability to ensure quality education in even the most remote parts of the country. Moreover, it will aid schools, states, communities, and their respective stakeholders in determining these minimum quality standards for education.

Future pathway and implementation challenges

A successful example of accreditation is the Dubai Schools Inspection Bureau (DISB). The DISB engages school assessors from all over the globe to evaluate their schools. As a result, Dubai's schools have a culture of transparency and accountability, which has helped in improving the overall quality of education in the country.

In India the process of accreditation is being operationalized in accordance with the NEP 2020. The formation of SSSA bodies should help guarantee the maintenance of minimum quality standards based on predetermined parameters. Furthermore, the policy emphasizes transparency by making all fundamental regulatory information available on a public platform.

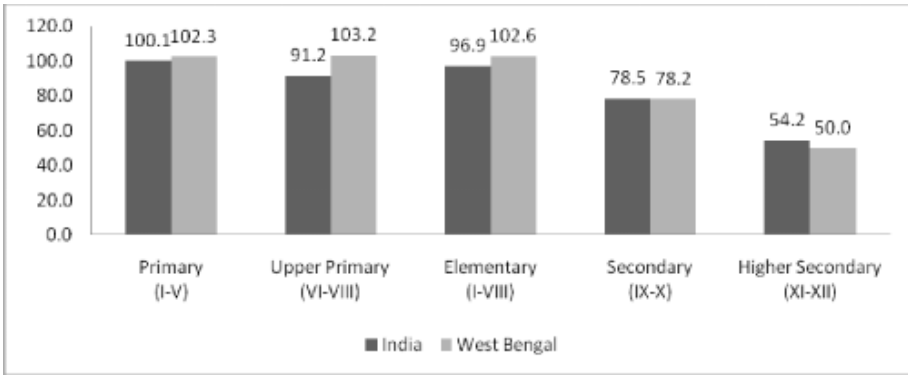
Nonetheless, it is important for us to keep a few potential challenges in mind:

- **Resources:** While accreditation will shed light on the areas where schools need support, will each state be able to provide its schools the resources (both monetary and otherwise) that they need to improve their infrastructure, curriculum, teacher quality, teacher recruitment, etc.?
- **Accessibility:** While the NEP 2020 asks for all accreditation information to be made publicly available, we need to ensure that this is done in a way that will allow community members (especially parents) to understand and engage with it.
- **Potential for uptake:** Schools themselves need to be coached to understand the importance of the accreditation process, what data they need to collect and the importance of data transparency, and how they communicate their gaps to their communities.

Today, states are gearing up for the process of accreditation. And while they are faced with real concerns, the expectation is that each state will embrace the process and use it to improve the overall quality of its schools.

Higher Education in NEP 2020

The NEP 2020 was conceived to raise the Gross Enrolment Ratio (GER) from the current 26 percent to 50 percent by 2030 in the higher education space. It aims at building the overall personality of students by strengthening infrastructure for open and distance learning, online education and increasing the use of technology in education.



Gross Enrolment Ratio (GER) in School Education in India and West Bengal in 2014-15

Moreover, the National Research Foundation (NRF) will be set up to boost research work in the country. A National Accreditation Council (NAC) envisaged as a single regulator for higher education institutions across the country will be established. The Higher Education Council of India (HECI) will have multiple verticals to fulfill various roles. Efforts will be undertaken to set up a National Recruitment Agency for all government recruitment exams, and a Common Eligibility Test (CET) for various recruitment exams of the same level.

Moreover, the courses and programmes in subjects, such as Indology, Indian languages, yoga, arts, music, history, culture, and modern India, internationally relevant curricula in the sciences, social sciences, and beyond, meaningful opportunities for social engagement, quality residential facilities and on-campus support, etc. will be fostered to attain this goal of global quality standards.

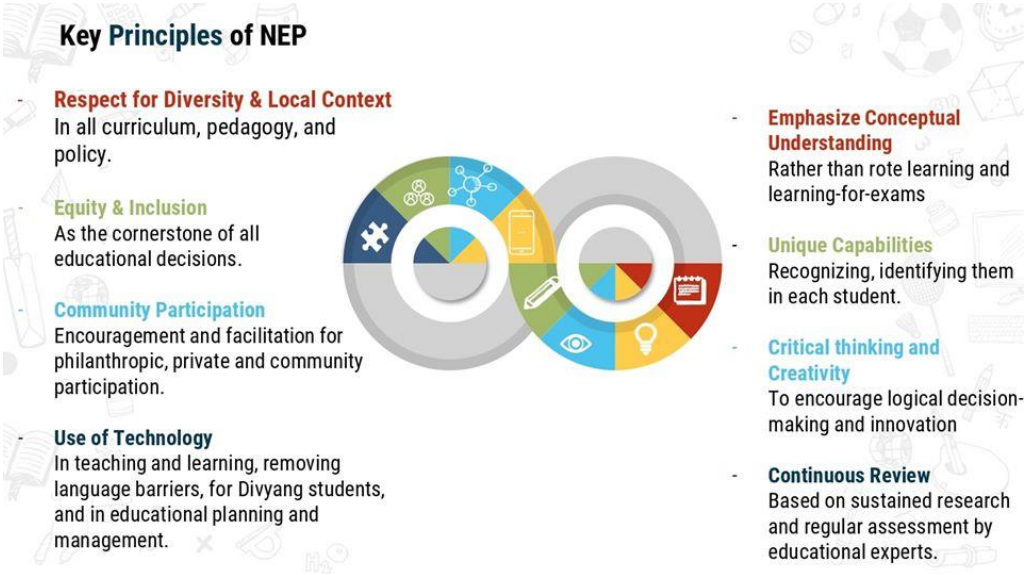
Accreditation in Higher Education

Regulatory mechanisms of higher education would have “accreditation” conducted by an independent body amongst other key functions. Institutions will have the option to run Open Distance Learning (ODL) and online programmes, provided they are accredited to do so, to enhance their offerings, improve access, increase GER, and provide opportunities for lifelong learning.

The accreditation scheme for improving credibility of Learning Service Provider (LSP) has been developed by National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI) under Department of Industrial Promotion and Internal Trade (DPIIT), Ministry of Commerce and Industries, Government of India. Accreditation ensures Quality Assurance of

Trainer/Faculty, Infrastructure; Program Design (Development and Delivery); Training Management System (3 Dimensions: Hardware, Software, Humanware / Skinware).

FEATURES OF NEP 2020: HIGHER EDUCATION



THE FUNDAMENTAL PRINCIPLES OF THE POLICY:

- Recognizing, identifying, and fostering the unique capabilities of each student, by sensitizing teachers as well as parents to promote each student's holistic development in both academic and non-academic spheres.

- According the highest priority to achieving Foundational Literacy and Numeracy by all students by Grade 3.

- Flexibility, so that learners have the ability to choose their learning trajectories and programmes, and thereby choose their own paths in life according to their talents and interests.

- No hard separations between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams, etc. in order to eliminate harmful hierarchies among, and silos between different areas of learning.

- Multidisciplinary and a holistic education across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge.

- Emphasis on conceptual understanding rather than rote learning and learning-for-exams.

- Creativity and critical thinking to encourage logical decision-making and innovation.

- Ethics and human & Constitutional values like empathy, respect for others, cleanliness, courtesy, democratic spirit, spirit of service, respect for public property, scientific temper, liberty, responsibility, pluralism, equality, and justice.

• Promoting multilingualism and the power of language in teaching and learning.

• Life skills such as communication, cooperation, teamwork, and resilience; • focus on regular formative assessment for learning rather than the summative assessment that encourages today's 'coaching culture'.

• Extensive use of technology in teaching and learning, removing language barriers, increasing access for "Divyang" students, and educational planning and management.

• Respect for diversity and respect for the local context in all curriculum, pedagogy, and policy, always keeping in mind that education is a concurrent subject; • full equity and inclusion as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system.

• Synergy in curriculum across all levels of education from early childhood care and education to school education to higher education.

• Teachers and faculty as the heart of the learning process – their recruitment, continuous professional development, positive working environments and service conditions.

• A 'light but tight' regulatory framework to ensure integrity, transparency, and resource efficiency of the educational system through audit and public disclosure while encouraging innovation and out-of-the-box ideas through autonomy, good governance, and empowerment.

• Outstanding research as a corequisite for outstanding education and development.

• Continuous review of progress based on sustained research and regular assessment by educational experts.

• A rootedness and pride in India, and its rich, diverse, ancient and modern culture and knowledge systems and traditions.

• Education is a public service; access to quality education must be considered a basic right of every child.

• Substantial investment in a strong, vibrant public education system as well as the encouragement and facilitation of true philanthropic private and community participation.

THE VISION OF THIS POLICY

• An education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower.

• The curriculum and pedagogy of our institutions must develop a deep sense of respect towards the fundamental duties and Constitutional values, bonding with one's country, and a conscious awareness of one's roles and responsibilities in a changing world.

• To instill a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen.

QUALITY UNIVERSITIES AND COLLEGES:

A NEW AND FORWARD-LOOKING VISION FOR INDIA'S HIGHER EDUCATION SYSTEM

- Quality higher education must aim to develop good, thoughtful, well-rounded, and creative individuals.

- It must enable an individual to study one or more specialized areas of interest at a deep level, and also develop character, ethical and Constitutional values, intellectual curiosity, scientific temper, creativity, spirit of service, and 21st century capabilities across a range of disciplines including sciences, social sciences, arts, humanities, languages, as well as professional, technical, and vocational subjects.

- A quality higher education must enable personal accomplishment and enlightenment, constructive public engagement, and productive contribution to the society.

- It must prepare students for more meaningful and satisfying lives and work roles and enable economic independence.

- Some of the major problems currently faced by the higher education system in India include:

- a severely fragmented higher educational ecosystem.

- less emphasis on the development of cognitive skills and learning outcomes.

- a rigid separation of disciplines, with early specialization and streaming of students into narrow areas of study.

- limited access particularly in socio-economically disadvantaged areas, with few HEIs that teach in local languages

- limited teacher and institutional autonomy;

- inadequate mechanisms for merit-based career management and progression of faculty and institutional leaders.

- lesser emphasis on research at most universities and colleges, and lack of competitive peer-reviewed research funding across disciplines.

- suboptimal governance and leadership of HEIs.

- an ineffective regulatory system; and large affiliating universities resulting in low standards of undergraduate education.

This policy envisions the following key changes to the current system: o moving towards multidisciplinary universities and colleges, with more HEIs across India that offer medium of instruction in local/Indian languages. moving towards a more multidisciplinary undergraduate education.

The objective of this reformation of the Indian education system is **"No child will be left behind"**. It is intended to fill the gaps in the current education scenario. So, we can say, *NEP 2020 is brought for the 'learning to learn' approach.*

Highlights of the new education policy:

- The present school system will be divided into 5 + 3 + 3 + 4 stages as Foundation, Preparatory, Middle & Secondary respectively.
- Mother tongue or regional language will be taught up to at least class 5.
- Vocational education will be integrated from class 6 with 10 days of mandatory internship.
- National Testing Agency will conduct SAT-Like college entrance tests twice a year.
- Students will be benefitted with a 4-Year multi-disciplinary bachelor's program.
- Mid-term drop-out students will be able to complete the degree after a break.
- Foreign colleges could enter India, and Indian universities would go global.
-

These will be some changes in the existing education policy to bring out the best in oneself, be it any field of study. It can surely make **India a global knowledge superpower**.

Impact on Students:

NEP 2020 will open up new learning opportunities to the students. Its biggest impact would be the change in the learning environment and the learning process for the students. The new education policy will:

- Increase focus on the skill improvement and competency development of the students.
- Make the students future-ready by building 21st-century skills.
- Make students focus on both academic and non-academic pursuits.
- Provide various learning opportunities for pre-primary, open, and distance-learning students.
- Give access to counseling and other services for students.
-

Nearly 30% of students in India drop out after grade 10 – as per KPMG's report.

Therefore, this new national policy on education will also provide multiple exit options for mid-term drop-out students with 1 year of training or 2 years of Diploma.
With so many growing opportunities, students' curiosity and confusion will also grow. So, they are suggested to take the help of the experts and professionals in making the right career decisions.
The first expert the students come across is the Teacher. Hence, the Indian government has something to offer for the teachers as well.

Impact on Teachers:

13% of secondary school teachers in India are not professionally skilled – as per KPMG's report.

Therefore, the Government of India has decided to make their teachers more skilled and equipped with futuristic teaching skills. See what teachers will get from the new education policy:

- Introduction of professional teaching standards.
- Clearer outlined roles and responsibilities.
- Training to monitor and improve their capabilities.
- More focus on 21st-century teaching skills.
- A transparent recruitment and selection process for teachers to motivate them and improve their performance.
-

Education is not about loading a child with information. It is to develop the body and the mind to the highest possible capability. – Anonymous

Teachers not only guide the students for their academic excellence but also mentor them in taking the right career decisions. Therefore, they should equip themselves with new-age teaching methods.

REFERENCES:

1.Govt. of India (1968). National Education Policy, 1968. https://web.archive.org/web/ 20090731002808/http://www.education.ni c.in/policy/npe-1968.pdf

2.Govt. of India (1986). National Education Policy, 1986. https://web.archive.org/web/ 20090619075631/http://education.nic.in/c d50years/g/T/49/0T490401.htm

3.Govt. of India (2020). National Education Policy 2020. https://www.mhrd.gov.in/sites/ upload_files/mhrd/files/NEP_Final_Engli sh_0.pdf

4.IGNOU (1985). The Indira Gandhi National Open University Act 1985 (No. 50 of 1985). http://www.ignou.ac.in/userfiles/I GNOU_ACT (Amended%20till%2024_09_19).pdf

5. Praveen Jha, Pooja Parvati, (2020), "Long on Rhetoric and Short on substance National Education Policy, 2020", Economic and Political review journal, Vol. 55, Issue No. 34.

6. KPMG International Ltd. Impact of National Education Policy 2020 and Opportunities to Stakeholders. Available on: https://assets.kpmg/content/dam/kpmg/in/pdf/2020/08/impact-of-national-education-policy-2020-and-opportunities-forstakeholders.pdf

7. Ministry of Human Resource Development (MHRD). Draft National Education Policy 2019 (Summary).

8.Madhushree, L. M., Radhakrishnan, R., &Aithal, P. S. (2019). A Review on Impact of Information Communication & Computation Technology (ICCT) on Selected Primary, Secondary, and Tertiary Industrial Sectors. Saudi Journal of Business and Management Studies, 4(1), 106-127.

9.Ossiannilsson, E., Altinay, F., &Altinay, Z. (2016). MOOCs as change agents to boost innovation in higher education learning arenas. Education Sciences, 6(3), 25-30.

10. Devi, S., Rizwaan, M., &Chander, S. (2012). ICT for Quality of Education in India. International Journal of Physical and Social Sciences, 2(6), 542-554.

Impact of New Education Policy, Methodology & Opportunities

Dr. Shipra Jain (Associate Professor, GNIM, Punjabi Bagh, jainshipra11@gmail.com)
Dr. Archana Deshpande (Associate Professor, GNIM, Punjabi Bagh,archana@ddprocess.com)
Rohan Singh (Student, GNIM, Punjabi Bagh, rohansing976@gmail.com)

ABSTRACT

India has now reached its 73rd year of independence, and the country continues to strive towards universal or 100 percent literacy. It is important to consider the plans and objectives established for India's independence. The goal is to achieve national equality, which will result in equality in education. This illustrates the necessity of enhancing India's educational system. In view of this, the new National Education Policy has been implemented during the Pandemic Year under the supervision of distinguished scientist Dr. K. Kasturirangan. By offering top-notch education to everyone, the National Education Policy directly aids in the long-term transformation of our country into a fair and thriving knowledge society. The new National Education Policy, which provides a complete framework for primary education through higher education as well as vocational training in both rural and urban India, was adopted by the Union Cabinet of India on July 29, 2020. The new strategy seeks to make education available to everyone from preschool through secondary school, with a 100% Gross Enrolment Ratio (GER) in school education by 2030, and a 50% GER in higher education by 2025. The implementation of NEP 2020 presents both many opportunities and difficult problems to the education community.

Keywords: National Education Policy, Higher Education, universalisation, impact on teachers

INTRODUCTION

With a target of 100 percent Gross Enrolment Ratio (GEER) or zero school dropouts by 2030, the government wants to address social gaps in participation, access, and learning outcomes in school education under the new policy.

The top 5 highlights of NEP 2020 are:

- Discontinuation of MPhil programmes
- Many admissions and exit options for degree programmes
- A single regulator for institutions of higher education
- Low stakes board exams
- Common entrance exams for universities.

Evolution of India's education policy

A timeline from independence to the present: The University Education Commission 1948–1949, sometimes referred to as the Radhakrishnan commission, was the first body formed after India gained its independence. This committee, which prioritised higher education, was run by Sarvepalli Radhakrishnan. The education that occurs after primary school but before university education began was the primary emphasis of the Secondary Education Commission in 1952–1953. The Education Commission, popularly known as the Kothari Commission, was run by Dr. D. S. Kothari from 1964 to 1966.This Commission used a comprehensive approach and

provided the government with advice on the national educational pattern and broad policies, taking into account every stage from primary through post-graduation. In order to achieve national integration and increased economic and cultural growth, the government launched The National Strategy on Education in 1968 based on the Kothari Commission's recommendations and a policy for equal educational opportunities. In order to equalise educational opportunity for all, the National Policy on Education of 1986 placed special focus on eliminating inequities in the educational system.In 1992, "Common Minimum Programme," a modification to this statute, was made with a focus on women, Scheduled Tribes (ST), and Schedule Castes (SC). Every kid now has a fundamental right to primary education according to the passage of the Right of Children to Free and Compulsory Education (RTE) Act in 2009. In 2016, the T.S.R. Subramanian Committee, also known as the Committee for Evolution of the New Education Policy, tried to overcome implementation flaws in order to raise the standard and credibility of education.

Finally, the Dr. K. Kasturirangan Committee was established to write the new National Education Policy, and on May 31, 2019, the committee turned in its final report. This proposal aimed to solve the problems with current education system's access, equity, quality, affordability, and accountability. The HRD ministry was renamed Ministry of Education by the committee.

Highlights of Policies NEP 2020 for Higher Education System: Policy changes:

1. The Gross Enrolment Ratio in HE includes Vocational education will increase from current 26.3% (2018) to 50% by 2035.

2. HEIs which deliver the highest quality will get more incentives from the Government.

3. Reputed international universities to be encouraged to setup campuses in India.

4. Higher education institutions will promote multidisciplinary educationand flexible curriculum structure that will offer multiple entry and exit points to create new possibilities for lifelong learning.

5. Greater focus on online education and open distance learning (ODL) as a key means to improve access equity and inclusion

6. Integration of vocational education within higher education. At least 50% of learners to have exposure to vocational education by 2025.

7.To draw in more international students, HE quality will be raised to a level of global quality, and credits earned abroad will contribute for awards. All students of allopathic medical education must have a fundamental understanding of Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy (AYUSH), and vice versa. This requires an integrated healthcare education system. Community medicine and preventative healthcare should receive more attention in all forms of healthcare education. Technical education ought to be provided in multidisciplinary educational settings and ought to emphasise chances for in-depth interaction with other disciplines. With applications to health, the environment, and sustainable living, the emphasis should be on providing artificial intelligence (AI), 3-D printing, big data analysis, and machine learning, in addition to genetic studies, biotechnology, nanotechnology, and neuroscience.

OBJECTIVES

The study is made to fulfil the objectives mentioned below:

a. To know the key highlights of NEP in relation to Higher Education

b. To trace the history of Indian Education System and its present status.

c. To analyse the impact of National Education Policy 2020 on Higher Education.

METHODOLOGY

The methodology entails a conceptual debate on emphasising the main points of the framework for national educational policy and highlighting specific NEP 2020 policy sections related to the higher education system. The process of focus group discussions is used to determine the impact of NEP on higher education. Utilizing the predictive analysis technique, the opportunities and challenges of the new policy connected to higher education are examined.

KEY TAKEAWAYS OF NEP 2020

The objective of this reformation of the Indian education system is **"No child will be left behind"**. It is intended to fill the gaps in the current education scenario. So, we can say, *NEP 2020 is brought for the 'learning to learn' approach.*

Highlights of the new education policy:

- The present school system will be divided into 5 + 3 + 3 + 4 stages as Foundation, Preparatory, Middle & Secondary respectively.
- Mother tongue or regional language will be taught up to at least class 5.
- Vocational education will be integrated from class 6 with 10 days of mandatory internship.
- National Testing Agency will conduct SAT-Like college entrance tests twice a year.
- Students will be benefitted with a 4-Year multi-disciplinary bachelor's program.
- Mid-term drop-out students will be able to complete the degree after a break.
- Foreign colleges could enter India, and Indian universities would go global.

These will be some changes in the existing education policy to bring out the best in oneself, be it any field of study. It can surely make **India a global knowledge superpower**.

NEP 2020: IMPACT ON HIGHER EDUCATION

1. Through a strong self-regulatory framework, the NEP 2020 sets the way for less regulation and more autonomy for institutions. In contrast to western institutions, which favour self-regulation, Indian educational institutions have long practised over-regulation. All higher education institutions will gradually be awarded autonomy and certification through NEP 2020.

2. It will be possible for foreign universities to establish campuses in India. It will encourage research and introduce adaptability. The universities from outside would promote programme and institution mobility. The concept of higher education internationalisation is founded on the transnational mobility of students, teachers, programmes, and institutions.

3. The NEP 2020 seeks to establish multidisciplinary universities that provide courses with top-notch instruction, research, and community involvement. Students will profit from this since they will have a wider range of options for studies across the humanities, sciences, sports, and other vocational fields. There will be more to it than just scholastic theory and study.

4. The new legislation emphasises online and e-learning. Education has always taken a more traditional, non-technological approach. The distance between students and institutions will be significantly closed through online education. What is currently supplementary in schooling will soon become essential. With the use of digital and video-centric technologies, the virtual world will surpass the physical world in realness.

5. The New Education Policy goes beyond academic credentials. Focusing on life skills and vocational education is key. It will be a student-centered approach where students can get the most out of their education and where there will be affordability and accessibility. Through open education, online learning, and open distance learning, more access, equity, and inclusion will be encouraged.

NEW EDUCATION POLICY 2020: ADVANTAGES & DISADVANTAGES

The Indian educational system has recently undergone numerous modifications, from the elementary school to the college level. The Union Cabinet has approved a new national education policy that takes all the changes into account. This recently adopted plan discusses significant, much praised adjustments to the Indian academic system. Along with praise, there is also criticism that highlights the shortcomings of this new educational strategy. Following are the Advantages and Disadvantages of New Education Policy 2020.

Advantages:

1. The Government aims to make schooling available to everyone with the help of NEP 2020.

2. Approximately two crore school students will be able to come back to educational institutes through this new approach.

3. According to the national education policy 2020, the 5+3+3+4 structure will replace the existing 10+2 structure. This structure is focused on student's formative years of learning. This 5+3+3+4 structure corresponds to ages from 3 to 8, 8 to 11, 11 to 14 and 14 to 18. 12 years of schooling, 3 years if Anganwadi and pre-schooling are included in this structure.

4. For children up to the age of 8, a National Curricular and Pedagogical Framework for Early Childhood Care and Education will be designed and developed by NCERT.

5. The Education Ministry is required to establish a National Mission on Foundational Literacy and Numeracy in accordance with the national education policy 2020. The states of India are responsible for ensuring that all pupils up through third grade have a solid foundation in reading and numeracy. By 2025, this implementation should be complete.

6. One of the merits of NEP 2020 is the formation of the National Book promotion Policy in India.

7. The third, fifth, and eighth grade exams will be administered by the appropriate authorities. Grades 10 and 12 board exams will still be given, but NEP 2020 wants to redesign the system to emphasise holistic development.

8. Parakh national education policy is to be set up by the Government.

9. Special daytime boarding school "Bal Bhavans" to be established in every state/ district in India. This boarding school will be used for participation in activities related to play, career, art.

10. An Academic Bank of Credit will be founded in accordance with the national education policy 2020. The credits that students have earned can be saved and counted toward the completion of the student's degree.

11. Multidisciplinary Education and Research Universities comparable to the IITs and IIMs will be established across the nation, according to the national education policy 2020. These will be organised to introduce transdisciplinary academic.

12. The same list of accreditation and regulation rules will be used for guiding both the public and private academic bodies.

13. Phased out college affiliation and autonomy will be granted to colleges.

14. By the year 2030, it will be mandatory to have at least four years B. Ed degree for joining the occupation of teaching.

15. For making the students prepared for future pandemic situations, online academic will be promoted on a larger scale.

Drawbacks:

1. As a result of India's problematic teacher-to-student ratio and the difficulty of introducing mother tongues for each subject in academic institutions, language is seen negatively in the National Education Policy 2020. Finding qualified teachers can be difficult at times, and the NEP 2020's inclusion of study materials in mother tongues presents a new obstacle.

2. The national education strategy 2020 states that students who want to graduate must study for four years, although anyone can simply earn a diploma in two years. This can tempt the student to drop out midway through the course.

3. The national education policy 2020 states that children in private schools will begin learning English far earlier than students in government schools. The academic curriculum will be taught to government school students in their native regional tongues. One of the main

problems with the new educational policies is that more students would find it difficult to communicate in English, which will exacerbate the social divide.

Impact of new NEP 2020 can be studied under the following headings:

- *Large-scale consolidation will help in quality universities and colleges:*

The value volume of the country's higher education institutions will be significantly impacted by institutional restructuring and consolidation because it would reduce them by almost one third. The average number of students enrolled in a college in India is currently 693 (AISHE 18-19, Ministry of Human Resource Development, KPMG in India Analysis), despite the fact that the strategy seeks to establish higher education institutions with 3000+ students. To encourage excellence, this new policy concentrates on increasing the number of independent colleges. Out of the almost 40000 colleges in India, less than 1000 independent colleges are still operating. This demonstrates that the policy's limitation will result in numerous mergers and cooperation among higher education institutions in India.The aforementioned change is anticipated to reduce India's higher education sector from 50000 colleges to only 15,000 colleges.

- *Focus on multidisciplinary education:*

IIT, IIM, and AIIM are examples of single-disciplinary Islands of Excellence that define the Indian higher education system. The goal of the new national education policy is to create major multi-disciplinary universities known as multidisciplinary education and research universities (MERUs), similarto those found in the United States of America and the United Kingdom. By establishing MERUs, all societal groups will have access to high-quality education in a variety of fields, spanning both urban and rural areas of the nation. This will provide students a lot of flexibility in choosing their areas of interest.

- *Faculty shortage and need for improvement in faculty quality:*

The right to education act increased the instructor to student ratio in our country from 1:30 to 1:20, which is regarded as a healthy ratio. This modification will result in the system employing at least 500000 new academic members. In addition to addressing faculty shortage the quality of faculty also need to be addressed. By 2022, a set of national professional standards for teachers (NPST) will have been developed, and these standards will be used to determine tenure, ongoing professional development initiatives, salaries, promotions, and other recognitions for teachers, among other aspects of managing their careers. The policy also mentions developing performance criteria for instructors that explicitly define the function of the teacher at various levels of expertise and the necessary competencies at each step.

- *Catalysing Research Activities:*

The National Research Foundation (NRF), which the NEP has proposed, is likely to put a dedicated emphasis on high-quality research, as well as reduce research funding by making it more competitive and by increasing the effectiveness of funding procedures to have a more targeted approach to funding research initiatives. The students will be exposed to research activities from an early age.

- *Improving access and equity through Open Distance Learning (ODL) and online programmes:*

Around 40 lakh students, or 11% of all students enrolled in higher education in India, use ODL. The pandemic issue also contributes to ODL system improvement, which is expected to significantly increase in the upcoming years and assist double India's Gross Enrolment.

IMPACT OF NEP 2020 AND OPPORTUNITIES FOR STAKEHOLDERS

The National Education Policy 2020 seeks to change the Indian educational system. By guaranteeing inclusive and equitable quality education and encouraging chances for lifelong learning for everyone in the coming ten years, the NEP is intended to put India on pace to meet Goal #4 of the 2030 agenda for sustainable development. Significantly, the strategy places attention on four critical reform areas, namely curriculum adjustments to develop strong fundamental abilities, enhancing learning quality at all educational levels, a change in assessment methods, and the necessity of systemic transformation.

CONCLUSION

The 2030 Sustainable Development Goals and the needs of the 21st century are two goals that are aligned with the new national education policy 2020, which is a strong policy. The NEP is the result of a protracted process that aims to reach a gross enrolment ratio of 100 percent by 2030. The Ministry of Human Resource Development (MHRD) recently presented the national education strategy 2020 with the goal of building a more inclusive, cohesive, and productive society. In many ways, the policy's intention appears to be perfect, but the implementation is where the success rests.The NEP 2020's reforms are focused on developing students' 21st-century abilities, including as creativity, problem-solving, critical thinking, and digital literacy. The current education models need to be re-evaluated in light of the challenges of the global economy as technology improvements, fast globalisation, and unanticipated developments - such as the covid-19 pandemic - reshape the future of employment.

REFERENCES

1. Sinha, V., & Subramanian, K. S. (2013). Accreditation in India: path of achieving educational excellence. Business education & accreditation, 5(2), 107-116.
2. Singh, J. D. (2011). Higher education in India–Issues, challenges and suggestions. Higher education, 93-103, ISBN: 978-3-8465-1753-6.
3. Deb, P. (2020). Vision for Foreign Universities in the National Education Policy 2020: A Critique. Rajiv Gandhi Institute for Contemporary Studies, 1-29. https://www.rgics.org/wpcontent/ uploads/Foreign-Universitiesin-India-Palash-Deb.pdf
4. Eddie Mark (2013) Student satisfaction and the customer focus in higher education, Journal of Higher Education Policy and Management, 35:1, 2-10, DOI: 10.1080/1360080X.2012.727703 Jha, P., & Parvati, P. (2020). National Education Policy, 2020. (2020). Governance at Banks, Economic & Political Weekly, 55(34), 14-17.
5. https://www.researchgate.net/publication/346654722_Impact_of_New_Education_Policy_2020_on_Higher_Education

6. https://vikaspedia.in/education/policies-and-schemes/national-education-policy-2020
7. Aithal, P. S.; Aithal, Shubhrajyotsna (2019). "Analysis of Higher Education in Indian National
8. Education Policy Proposal 2019 and Its Implementation Challenges". International Journal of Applied
9. Nandini, ed. (29 July 2020). "New Education Policy 2020 Highlights: School and higher education to
10. Jebaraj, Priscilla (2 August 2020). "The Hindu Explains | What has the National Education Policy

Remarkable Impact of NEP 2020 and accreditation on education

Dr. Shipra Jain (Associate Professor, GNIM, Punjabi Bagh, jainshipra11@gmail.com)
Mr. Nilesh Dokania (Assistant Professor, GNIM, Punjabi Bagh, nileshvansh@gmail.com)
Garvita Talwar (Student, GNIM, Punjabi Bagh)

ABSTRACT:

The New Education Policy declared by Government of India (NEP 2020) was an inviting change and new news in the midst of the multitude of negativities encompassing the world because of the difficulties presented by Covid-19 pandemic. The declaration of NEP 2020 was simply surprising by quite a few people. The progressions that NEP 2020 has suggested were something that numerous educationists never saw coming. However the instruction strategy has affected school and school training similarly, this article fundamentally centers around NEP 2020 and its effect on Higher Education. This paper likewise frames the notable highlights of NEP and examinations what they mean for the current school system.

INTRODUCTION:

The National Policy on Education (NPE) is a strategy formed by the Government of India to advance instruction among India's kin. The approach covers rudimentary training to universities in both provincial and metropolitan India. The main NPE was proclaimed by the Government of India by Prime Minister Indira Gandhi in 1968, the second by Prime Minister Rajiv Gandhi in 1986, and the third by Prime Minister Narendra Modi in 2020. The National Education Policy 2020 (NEP 2020), which was supported by the Union Cabinet of India on 29 July 2020, frames the vision of India's new schooling system. The new arrangement replaces the past National Policy on Education, 1986. The strategy is a thorough system for rudimentary schooling to advanced education as well as professional preparation in both country and metropolitan India. The approach plans to change India's school system by 2021. The language strategy in NEP is a wide rule and warning in nature; and it really depends on the states, organizations, and schools to settle on the execution. The NEP 2020 sanctions various changes in India's schooling strategy. It intends to increment state use on schooling from around 4% to 6% of the GDP quickly. In January 2015, a board under previous Cabinet Secretary T. S. R. Subramanian began the interview interaction for the New Education Policy. In light of the board report, in June 2017, the draft NEP was submitted in 2019 by a board drove by previous Indian Space Research Organization (ISRO) boss Krishnaswamy Kasturirangan. The Draft New Education Policy (DNEP) 2019, was subsequently delivered by Ministry of Human Resource Development, trailed by various public conferences. The Draft NEP had 484 pages. The Ministry embraced a thorough discussion process in planning the draft strategy: "More than two lakh ideas from 2.5 lakh gram panchayats, 6,600 blocks, 6,000 Urban Local Bodies (ULBs), 676 regions were gotten." The vision of the National Education Policy is: "Public Education Policy 2020 imagines an India-driven schooling system that contributes straightforwardly to changing our country reasonably into a fair and energetic information society by giving great training to all." Quality advanced education should expect to foster people who are magnificent, smart, balanced, and imaginative. It should empower an individual to concentrate on at least one specific areas of interest at a top to bottom level and foster person, moral and sacred qualities, scholarly interest, logical attitude, innovativeness, administration soul, and the abilities of the 21st hundred years across a scope of fields, including sciences, sociologies, artistic expression, humanities, dialects, individual, mechanical the professional subjects. The new training strategy carries a few major changes to the ebb and flow framework, and the key features are multidisciplinary colleges and schools, with no less than one in or close to each locale, redoing understudy educational programs, teaching method, assessment, and backing for improved understudy insight, laying out a National Research Foundation to help phenomenal companion checked on work and really seed learn at colleges and universities. The principal issues looked by the Indian advanced education framework incorporates authorized partition of capabilities, early specialization and understudy gushing into confined research regions, less spotlight on research all things considered colleges and schools, and absence of cutthroat companion investigated scholarly examination financing and enormous subsidiary colleges prompting low degrees of undergrad instruction.

Institutional rebuilding and union plan to end the fracture of advanced education by changing advanced education organizations into enormous multidisciplinary, making balanced and imaginative people, and changing different nations instructively and financially, expanding the gross enrolment proportion in advanced education, including professional preparation, from 26.3% (2018) to half by 2035. All-encompassing and multidisciplinary schooling ought to endeavour in a coordinated manner to further develop all human limits mental, social, social, physical, close to home, and moral. In the long haul, such a complete training will be the strategy for all undergrad programs, remembering those for clinical, specialized, and professional disciplines. Ideal learning conditions and backing for understudies offer an all-encompassing methodology including satisfactory educational plan, intelligent teaching method, reliable developmental evaluation, and sufficient help for understudies. Targets of the review The essential goal of this examination is to concentrate on the effect of New Education Policy 2020 on advanced education. The concentrate additionally frames the notable elements of NEP and investigations what they mean for the current school system. Research strategy This examination is an expressive report. The important optional information was gathered from different sites including those of Government of India, magazines, diaries, different distributions, and so forth. This information was then broke down and evaluated to come to the derivations and end results.

REMARKABLE FEATURES OF NEP RELATED TO HIGHER EDUCATION:

The new NEP has been acquainted with a point with formalize changes in the framework from school level to school/college level. Remembering the creating situation, instruction content consequently, will zero in on key-ideas, thoughts, applications and critical thinking points. The National Education Policy is supposed to welcome positive and dependable effect on the advanced education arrangement of the country. The way that unfamiliar colleges will be permitted to open grounds in India is an estimable drive by the public authority. This will assist the understudies with encountering the worldwide nature of training in their own personal country. The strategy of presenting multi-disciplinary organizations will prompt a restored centre around each field, for example, expressions, humanities and this type of instruction will assist understudies with learning and develop comprehensively. Accordingly, understudies will be furnished with more grounded information base.

The presentation of single normal entry test is another positive step which will decrease the pressure of different cutthroat tests and dial down the strain of planning for so many of them. It will likewise guarantee a level playing ground for all understudy candidates proceeding. Laying out Academic Bank of Credit (ABC) is certainly a powerful plan to store the scholastic credits that understudies procure by taking courses from different perceived advanced education foundations. An understudy can procure scores by following through with a tasks and these will be credited to the ABC account. One can then move these credits if he/she chooses to switch universities. In the event that an understudy at any point exits for certain reasons, these credits will stay in one piece which implies he/she can return years after the fact and get from where the understudy had left. The new advanced education administrative design will guarantee that particular managerial, authorization, funding, and scholastic standard-setting jobs are performed by discrete, independent, and engaged bodies. These four designs will be laid out as four free verticals inside a solitary umbrella establishment, India's Higher Education Commission (HECI). There are a ton of changes and new improvements which have been presented by NEP in the advanced education area. A portion of the notable elements are:

• Single administrative body for advanced education: The NEP expects to lay out Higher Education Commission of India which will be the single administrative body with the exception of lawful and clinical instruction.

• Multiple passage and leave program: There will be different section and leave choices for the people who wish to leave the course in the centre. Their credits will be moved through Academic Bank of Credits.

• Tech-based choice for grown-up learning through applications, TV stations: Quality innovation based choices for grown-up learning, for example, applications, online courses/modules, satellite-based TV stations, online books, and ICT-prepared libraries and Adult Education Centers, and so on will be created.

• E-courses to be accessible in provincial dialects: Technology will be important for instruction arranging, educating, learning, appraisal, instructor, school, and understudy preparing. The e-content to be accessible in local dialects, beginning with 8 significant dialects - Kannada, Odia, Bengali among others to join the e-courses accessible in Hindi and English.

• Unfamiliar colleges to set-up grounds in India: World's main 100 unfamiliar colleges will be worked with to work in India through another regulation. As per the HRD Ministry record, "such (unfamiliar) colleges will be given extraordinary allotment in regards to administrative, administration, and content standards comparable to other independent organizations of India."

• Normal placement test for all schools: The normal Entrance test for all advanced education foundations to be held by National Testing Agency (NTA). The test will be discretionary. • A Higher Education Council of India (HECI) will be set up to direct advanced education. The gathering's objective will be to increment gross enlistment proportion. The HECI will have 4 verticals:

a) National Higher Education Regulatory Council (NHERC), to manage advanced education, including educator training, while at the same time barring clinical and lawful schooling. b) National Accreditation Council (NAC), a "meta-certifying body".

c) Higher Education Grants Council (HEGC), for subsidizing and funding of colleges and schools. This will swap the current National Council for Teacher Education, All India Council for Technical Education and the University Grants Commission.

d) General Education Council (GEC), to outline "graduate credits", specifically the learning results anticipated. It will likewise be mindful in outlining a National Higher Education Qualification Framework (NHEQF). The National Council for Teacher Education will go under the GEC, as an expert standard setting body (PSSB).

NITTY GRITTY ANALYSIS OF IMPACT OF NEP ON HIGHER EDUCATION:

Regulatory System of Higher Education: A huge change in NEP 2020 is the proposition to set up the Higher Education Commission of India (HECI), as an umbrella body for advanced education, barring clinical and lawful schooling. This will typically draw out an inquiry that what will befall the present UGC and AICTE? HECI is targeting improving the advanced education area; the Bill will isolate the Academic and Funding parts of the area. As per the new Bill, HECI won't have any monetary abilities. The financing processes which were dealt with by the University Grants Commission (UGC) will be taken consideration by the Ministry of Education, recently known as the Ministry of Human Resource Development (MHRD). This change anyway is supposed to clear the administrative wreck in India's Higher Education framework. HECI is supposed to have four free verticals - National Higher Education Regulatory Council (NHERC) for guideline, General Education Council (GEC) for standard-setting, Higher Education Grants Council (HEGC) for subsidizing, and National Accreditation Council (NAC) for certification. To have consistency in schooling principles, a solitary umbrella body was consistently a necessity and this has been a dream of various educationists. This is considered as the right move toward smoothing out schooling strategy. In any case, to guarantee nature of advanced education, establishments should be estimated in view of significant boundaries like exploration, industry linkages, arrangements and scholastic greatness, and so forth. On the off chance that the HECI can deal with this, the advantages to its greatest partner, the young people of India, may be critical. Reviewed Accreditation and Graded Autonomy: The idea of "strengthening and independence to improve" is one of the critical elements in NEP 2020 which upholds a "eliminating" technique from Affiliated Colleges to Autonomous Institutions. The expanded adaptability proposed to independent establishments additionally

gives trust in educational program advancement. It additionally expresses that with proper licenses, Autonomous degree-giving Colleges could advance into Research-concentrated or Teaching-escalated Universities, assuming they so aim. The declaration of setting up Multidisciplinary Education and Research Universities (MERUs) in the nation gives more expectation. These foundations will be at standard with the current IITs and IIMs and will intend to exhibit multidisciplinary training for the Indian understudies. Another significant change the NEP 2020 recommends that the National Testing Agency will act as a head, master, independent testing association to direct selection tests for undergrad and graduate confirmations and cooperation's in Higher Education Institutions. The top notch, reach, and adaptability of the NTA testing administrations will empower most colleges to utilize these normal selection tests - as opposed to having many colleges each concocting their own placement tests - subsequently radically diminishing the weight on understudies, colleges and schools, and the whole schooling system. It will be surrendered to individual colleges and schools to involve NTA evaluations for their affirmations. It additionally clearly assists the understudies with effectively moving their certifications and credits to colleges abroad.

Internationalization at home: NEP 2020 likewise permits unfamiliar colleges and universities to come to India and this draws out really difficult for the local establishments to work on the nature of instruction given by them. The Indian advanced education area is humming overall around as the chance of making ready for unfamiliar colleges to set up grounds in the country. India has one of the biggest organizations of advanced education frameworks on the planet, with in excess of 900 colleges and 40,000 schools. Yet, GER (Gross Enrolment Ratio) of India in advanced education is 26.3%, which is fundamentally low when contrasted with other BRICS nations like Brazil (half) or China (51%), and particularly lower when contrasted and European and North American countries which would be over 80%. India should accomplish a huge development in the space of worldwide advanced education for getting a practical financial development, which ought not be driven by regular assets, however by information assets. According to the reports, India will require one more in excess of 1,500 new advanced education establishments by 2030 to oblige a tremendous inflow of understudies, that is the reason the Indian government needs to advance FDIs (Foreign Direct Investment) and open up the ECB (External Commercial Borrowing) course to reinforce the capital speculation for the training area. The service is additionally attempting to support India's picture as a schooling place since currently in excess of 7 Lakhs of Indian understudies are concentrating abroad. Thus, the expectation of this strategy is that, permitting unfamiliar colleges will empower top notch training accessible locally at an essentially lower cost without voyaging and will impressively decrease the human resources relocating to different nations for study and occupation possibilities. As per the different worldwide overviews, cross-line instruction is gainful for the economy and brings a more extensive degree of worldwide mindfulness, socially insightful, and intensity. Unfamiliar coordinated efforts empower neighbourhood establishments to plan their educational program in arrangement with worldwide teaching method and proposition a different arrangement of subjects and specialization to understudies. More Holistic and Multidisciplinary Education: The NEP 2020 cases that, a comprehensive and multidisciplinary training would plan to foster all limits of people - scholarly, tasteful, social, physical, profound, and moral in a coordinated way. Such a training will assist with growing balanced people that have basic 21st century limits in fields across human expression, humanities, dialects, sciences, sociologies, and expert, specialized, and professional fields; an ethic of social commitment; delicate abilities, like correspondence, conversation and discussion; and thorough specialization in a picked field or fields. The NEP 2020 imagines one huge multidisciplinary Higher Education Institution (HEI) in or close to each locale, by 2030. Towards the fulfilment of such an all-encompassing and multidisciplinary schooling, the adaptable and creative educational programs of all HEIs will incorporate credit-based courses and undertakings in the space of local area commitment and administration, ecological training, and worth based training. Climate instruction will incorporate regions, for example, environmental change, contamination, squander the executives, disinfection, preservation of organic variety, the board of natural assets and biodiversity, timberland and untamed life protection, and supportable turn of events and living. Esteem based schooling will incorporate the improvement of humanistic, moral, Constitutional, and general human upsides of truth (Satya), exemplary lead (dharma), harmony (shanti), love (prem), peacefulness (ahimsa), logical attitude,

citizenship values, and furthermore fundamental abilities; illustrations in seva/administration and cooperation in local area administration projects will be viewed as an essential piece of all-encompassing training.

As the world is turning out to be progressively interconnected, Global Citizenship Education (GCED), a reaction to contemporary worldwide difficulties, will be given to enable students to become mindful of and grasp worldwide issues and to become dynamic advertisers of more tranquil, lenient, comprehensive, secure, and supportable social orders. At long last, as a component of all-encompassing training, understudies at all HEIs will be furnished with potential open doors for temporary positions with neighbourhood industry, organizations, specialists, creates people, and so on, as well as examination entry level positions with staff and scientists at their own or other HEIs/research establishments, so understudies may effectively draw in with the useful side of their learning and, as a result, further work on their employability.

The construction and lengths of degree programs: with regards to the National Education Policy 2020 plan, any college degree in any establishment will be of term of three or four years. One can leave the degree inside this period. Any instructive foundation should provide for the understudy a confirmation degree after the understudy finishes two years of study, a certification after the understudy finishes three years of study and a declaration to those understudies who complete one year of concentrate in any expert or professional course of their decision. The Government of India will likewise help in laying out an Academic Bank of Credit for putting away the scholastic scores carefully. This will empower the establishments to count the credit toward the end and put it in the level of the understudy. This will be useful for those people who could need to leave the course mid-way. They can begin the course later on from the last known point of interest and not start from the outset indeed. Despite the fact that NEP 2020 says that Higher schooling establishments will be given the opportunity to begin PG courses there might be some trouble in planning One Year PG Degree for understudies who have finished 4 Year UG Degree and a Two Year PG Degree for understudies who have finished 3 Year UG Degree.

CONCLUSION:

The strategy presents an entire range of changes and peruses generally as an exceptionally moderate report, with a strong handle on the current financial scene and the possibility of future vulnerability. Training for another age of students needs to basically draw in with the rising dematerialisation and digitalisation of economies, which requires a totally new arrangement of capacities to have the option to keep up. This is by all accounts a considerably more fundamental perquisite now, with the pattern towards digitalisation and problematic mechanization being revived by the pandemic. Generally, the NEP 2020 addresses the need to foster experts in different fields going from Agriculture to Artificial Intelligence. India should be prepared for what's in store. What's more, the NEP 2020 prepares ahead for the vast majority youthful hopeful understudies to be outfitted with the right range of abilities. The new training strategy has an excellent vision, yet its solidarity will rely upon whether it can successfully coordinate with the other arrangement drives of government like Digital India, Skill India and the New Industrial Policy to give some examples, to impact an intelligible underlying change. Consequently, strategy linkages can guarantee that schooling strategy locations to and gains from Skill India's involvement with connecting all the more progressively with the corporate area to shape professional training educational program to make it a triumph. There is likewise a need for more proof based independent direction, to adjust to quickly developing changes and interruptions. NEP has reassuringly provisioned for ongoing assessment frameworks and a consultative observing and survey system. This will engage the schooling system to continually change itself, rather than expecting for another training strategy consistently for a change in educational program. This, in itself, will be an exceptional accomplishment. The NEP 2020 is a pivotal turning point for advanced education. Successful and time-bound execution will make it genuinely way breaking.

REFERENCES

1. Aithal, P. S.; Aithal, Shubhrajyotsna (2019). "Analysis of Higher Education in Indian National

Education Policy Proposal 2019 and Its Implementation Challenges". International Journal of Applied Engineering and Management Letters. 3 (2): 1–35. SSRN 3417517

2. Nandini, ed. (29 July 2020). "New Education Policy 2020 Highlights: School and higher education to see major changes". Hindustan Times.

3. Jebaraj, Priscilla (2 August 2020). "The Hindu Explains | What has the National Education Policy 2020 proposed?". The Hindu. ISSN 0971-751X

4. Chopra, Ritika (2 August 2020). "Explained: Reading the new National Education Policy 2020". The Indian Express.

5. Rohatgi, Anubha, ed. (7 August 2020). "Highlights | NEP will play role in reducing gap between research and education in India: PM Modi". Hindustan Times.

6. Krishna, Atul (29 July 2020). "NEP 2020 Highlights: School And Higher Education". NDTV.

7. Naidu, M. Venkaiah (8 August 2020). "The New Education Policy 2020 is set to be a landmark in India's history of education". Times of India Blog.

8. http://bweducation.businessworld.in/article/NEP-2020-Impact-On-Higher-Education-/07-08-2020-305999/

9. https://timesofindia.indiatimes.com/readersblog/theaitics/implications-of-the-national-education-policy-2020-on-higher-education-in-india-2-24729/

10. https://www.hindustantimes.com/india-news/pm-modi-s-address-at-conclave-on-transformational-reforms-in-higher-education-under-national-education-policy-highlights/story-dehOW8q8ZRrONbbFSRjg0H.html

Digital marketing post NEP and a comparison of consumer attitude towards digital app with special reference to Blinkit, Grofers and others

Dr. Mamta Shah- Assistant professor, Guru Nanak Institute of management, Punjabi bagh

Garvita Talwar –Student B.Com (H),Guru Nanak Institute of management, Punjabi bagh

Abstract-India has seen a surge in the growth of digital marketing, people who once surpassed and ignored digital marketing for their business/brand have now understood why online presence matters. In today's digital era each and everyone irrespective of their gender, age, or location, want to learn digital mark

Learning digital marketing will give the various job opportunities! It helps to know about the ongoing market, the search engine optimization skills, the social media marketing platforms like Facebook, Instagram which is in fact loved by them a lot, and also website designing and development.

This gives a holistic development to the children and lets them explore the horizon of opportunities. Yes, with the new education policy, the students have a lot of time to find the person inside them, and learning is the best way.

The present paper is going to discuss about consumer preference towards these app for inline shopping. And demand for digital marketing coursepost NEP.

Introduction

With India going digital, there arrives every single possibility to light up a digital marketer's career in coming years especially after introduction of New education policy. Bigger budgets, increased pay and more career choices are just some of the benefits digital marketing professionals are looking forward to have in the year and beyond. In fact, digital marketing is one of only a handful couple of industries where you can climb up the job ladder quickly.

Food is a fundamental need of individuals. We overall buy food in our everyday presence to meet food necessities. In the present rapidly creating world, we all in all are found scraping by. Hence, we in general incline in the direction of buying things online these days.

The staple Delivery application is one of those on-demand moving applications which is as a rule used to orchestrate essential food things on the web. The top staple Delivery application saves your time via conveying your food to your home so to speak.

There are various Grocery Delivery App Development Company that gives Grocery Delivery App. Most of the Grocery Delivery App plans goes under cream App Development and Native App Development. If the application is for android clients just, it goes under Android App Development.

Objectives of the study

The objectives of this study are:

- To understand the consumers perception on food apps.
- Two concentrate on the client's degree of fulfilment with respect to Internet shopping.
- To analyse the factors that influences consumer perception towards food apps.
- To look at whether clients favour Internet shopping or actual stores.
- To understand the competition between various apps.

Top grocery delivery apps in India

BIGBASKET: Bigbasket was co-founded by Mr. Hari Menon, VS Sudhakar, Vipul Parekh, Abhinay Choudhary, and V S Ramesh in December 2011, with the idea of creating one of the optimum online grocery apps. Bengaluru is the headquarters of BigBasket, which has expanded its business in more than 25 cities.BigBasket has more than 18,000 products from 1000+ brands. It has a PAN-India presence and a customer base of 6 million, making it the most extensive online grocery delivery app in India.BigBasket saw an increase in 84% of the customers and a more than 100% rise during the COVID-19 pandemic lockdown. The impressive features of BigBasket are a wide range of products, attractive offers and discounts, best quality products, on-time delivery, simple search selections, and search option in vernacular languages.

Blinkit (formerly Grofers): Grofers is one of the leading grocery delivery apps in India. It has its headquarters in Gurugram and was founded by Saurabh Kumar and Albinder Dhindsa in December 2013. It functions in 29 cities and offers fresh fruits and vegetables, sweets, snacks, pet care products, bakery products, etc.Most of the products of Grofers belong to its in-house brands: Grofers Mothers choice, Havemore, G Fresh, Grofers Happy Day, O'range, and budget brands Savemore and Grofers Happy Home.

Grofers has raised in excess of $600 Million in funding till date. According to a recent report, Grofers may see a rise of 30,000 crores in its GMV (gross merchandise value) by 2022. One of the company's officials said that every month the company is adding one or more cities to achieve its target of reaching more than 50 cities by 2021.

AMAZON PANTRY: Amazon Pantry is a feature of eCommerce giant Amazon. It is a delivery service for groceries and other household items. It offers free shipping to Amazon prime members.Amazon Pantry helps Amazon to compete with other online grocery delivery stores. In India, Amazon Pantry is available across more than 300 cities. It first started its service in Hyderabad in 2016. Users can browse the Pantry section through the Amazon app. Orders are delivered within 1-4 business days.

FLIPKART SUPERMARKET: On July 2nd, 2011, Sachin and Binny Bansal founded Flipkart. It's headquartered in Bengaluru and registered in Singapore. Flipkart also has a 'Supermart,' an online grocery store offering fresh and affordable groceries to online customers.Flipkart Supermarket is operational in metropolitan cities such as Mumbai, Bangalore, and Hyderabad. On Flipkart Supermarket, a consumer can connect with a voice assistant to place their orderEasy payment options are available for the users such as COD, Flipkart Pay Later, debit card, net banking, Cardless Credit. Both Android and iOS users can use this service

DUNZO: Dunzo is an Indian grocery app funded by Google and founded by Kabeer Biswas, Ankur Agarwal, Dalvir Suri, and Mukund Jha in July 2014. The app currently serves in 8 cities, Jaipur, Chennai, Delhi, Gurugram, Bengaluru, Hyderabad, Mumbai, Pune. Its headquarters is in Indiranagar, Bengaluru.Dunzo also offers a Bike Taxi Service to its customers in Gurugram. It receives more than 10 lakh orders in a month. Dunzo has raised more than $120 Million in funding till date.

Benefits of online grocery shopping

- It saves time.
- No unwanted luxury purchases.
- Correlation.
- Find everything you need

Limitations of online grocery shopping

- You Can't Personally Look at Items

- Conveyance can be a test.
- Cost.

Research methodology

The research to find out the answers to these objectives was totally a primary research through online survey. People from different cities were provided questionnaires through online mode which they were asked to fill from best of their knowledge.

SAMPLE SIZE & METHOD OF SELECTING SIZE

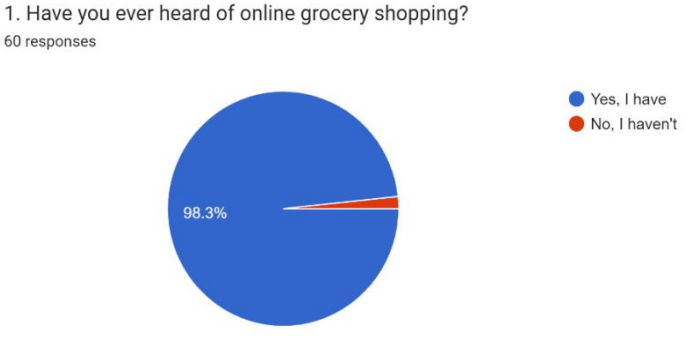
Sampling: - sampling is a procedure of obtaining a sample which is a small number or mass of individuals for the purpose of representation of entire population.

The analysis is done by random sampling where the questionnaires sent to the people in order to find out the answers of the objectives of the study.

Sample size: - 60 individuals as respondents are belonging to several categories like salaried or professional, businessmen and student etc.

Form of Questionnaire: - The questionnaire was closed ended with the provision of choices and the interviewed people had to answer from the choices only.

DATA ANALYSIS



\

3. If you never had online grocery shopping, please specify the reason.

Ans-

Due to unavailability of delivery in my city.

I have used it already,

I think the quality might differ or it may not be good enough

Unavailable

NA

No

It saves time

Sorry.. But I didn't

Just never really thought about it

I do not feel it safe..safe in the sense they might deliver the used product

No reason

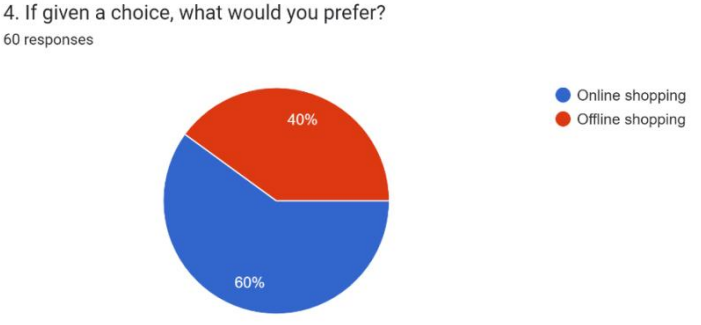
Convenient

Trust issue on product

I have never tried it because of the thought that how the vegetables and d fruits will be fresh and moreover, online grocery shopping facility is not available in every city.

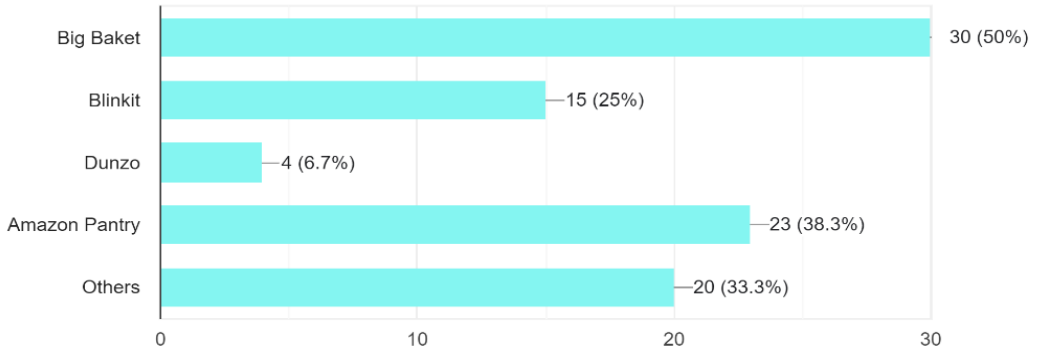
Due to unavailability

Unavailable



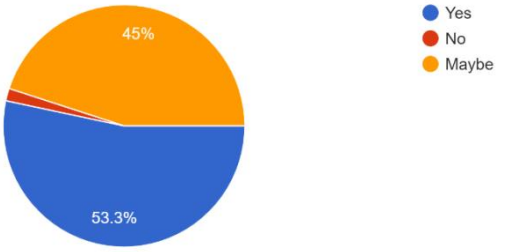
5. Which apps would you choose for grocery shopping?

60 responses



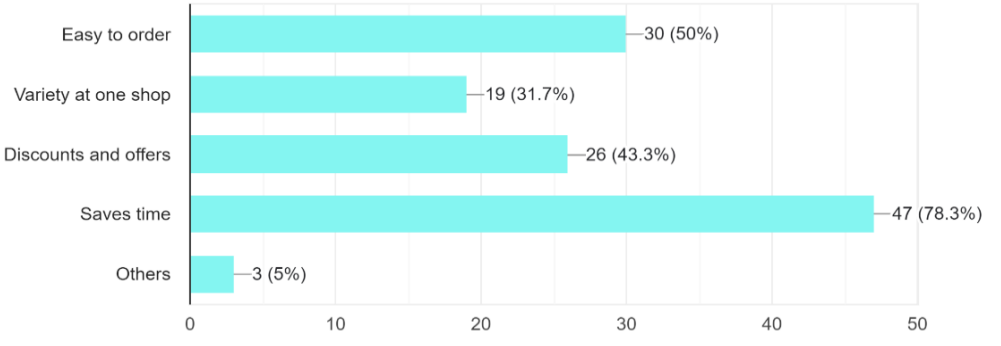
6. Do you think online grocery shopping is beneficial?

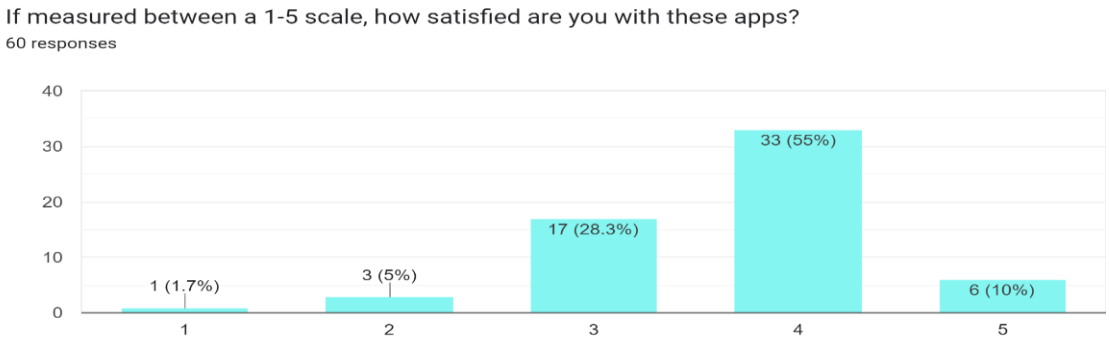
60 responses



7. If yes, why do you think online grocery shopping is beneficial?

60 responses





INTERPRETATION

According to the responses, out of 98.3% of the people who have heard about the online grocery shopping, 75% have actually it.

60% of the people prefers online grocery shopping over offline shopping. The main reason of the people for not using these apps was the unavailability at their places. Other reasons include trust issues, or bad experience etc.

Out of all the apps, the Big Basket was the most preferred by the people after the amazon pantry and others.

53.3% of the people finds online grocery delivery apps quite helpful but, 45% of the people still doubt if it can be of help or not.

Talking about the satisfaction level, most of the people are satisfied with these apps.

Conclusion

There is a great market potential for the startups of online grocery delivery. Though, many people haven't tried online grocery shopping due to unavailability of them at their places. It will take some time for these companies to grow and setup in every city possible.

A research was done to find know the views of the consumers towards grocery delivery apps and to find out the answers to the objectives.From the responses of the consumers, it could be found out that the people hesitate to order online because of the lack of trust. They think that they might be delivered the wrong product or the used product or the product might not be fresh and many other reasons are there.

References

websites:-

www.wikipedia.com

www.icoderzsolutions.com

www.couponswala.com

www.livemint.com

www.cashify.in

www.desidime.com

www.mobisoftinfotech.com

www.mindster.com

www.jungleswork.com

Data Analysis with R and Python

Prof. Shubhra Saggar**
shubhrasaggar@gmail.com
** Professor, GNIM
*Student, GNIM

Anamika*
Anamika.mika9354@gmail.com
Shreya Maurya*
shreyamaurya2103@gmail.com

Abstract

Data Science and Artificial Intelligence are the ones leading this from the front. These two things are giving life to things that we haven't imagined would be true. If you're aware of this world, then you are also aware of the two programming languages that are always a matter of interest and debate. R and Python are programming languages and both these languages are similar in few ways.
R and Python are both open-source programming languages with a large community. New libraries or tools are added continuously to their respective catalog. R is mainly used for statistical analysis while Python provides a more general approach to data science.
R and Python are state of the art in terms of programming language oriented towards data science. Learning both of them is, of course, the ideal solution. R and Python requires a time-investment, and such luxury is not available for everyone. Python is a general-purpose language with a readable syntax. R, however, is built by statisticians and encompasses their specific language.

1. Introduction

"Data science" as a scientific term was initially proposed about 15 years ago, and has since increasingly attracted attention and debate within statistics, analytics, computing, social science, and other scientific domains and disciplines. Although arguments have emerged from different communities such as, "How and why is data science different from statistics?" and "Why do we need data science when for decades we have had information science?", it is undoubtedly a fact that data science is driving a new era of data-driven thinking, research, practice and education which goes far beyond the breadth and depth of previous efforts.
In this data-intensive universe, data is a critical asset, and data science is the interdisciplinary core that drives new research, education and economy in many diverse areas. Although different definitions and interpretations exist, data science, as a scientific field, develops relevant methodologies, theories, technologies and applications for data, ranging from data capture, creation, representation, storage, search, sharing, privacy, security, modeling, analysis, learning, presentation and visualization, to integration across heterogeneous, interdependent complex resources for real-time decision-making, collaboration, value creation, and decision-support. The field encompasses the larger areas of statistics, data analytics, machine learning, big data management, and other disciplines, including complex systems, communications, social science, decision science, and management science.
Data analytics and science has emerged as an important paradigm for driving the new economy and domains such as the Internet of Things, social and mobile networks, and cloud computing, and reforming classic disciplines such as telecommunications, biology, health and social science, as well as upgrading core business and economic activity. Data-driven scientific discovery, innovation and practice have become essential for gleaning understanding from large data sets and converting data into actionable intelligence, whether it is data available to enterprises and governments, or on the Web.
In recent years, various initiatives have been created by government, business and professional organizations to promote the development of big data, data science and analytics, such as the provision of funding support from national science foundations for big data research, the IEEE Task Force on Data Science and Advanced Analytics, the IEEE Conference on Data Science and Advanced Analytics, and new courses on data science and analytics.
The Journal of Data Science and Analytics (JDSA) was launched to specifically strengthen scientific innovation and practical development in this new era of data and analytics. JDSA aims to be a prestigious publishing venue in the data science and analytics field for the exchange of new theoretical and experimental designs, solid findings and insights, best practices and applications to real-life situations, and reviews of new opportunities and frameworks for data science and analytics. JDSA is the ideal venue for synergizing important innovations, major impacts, and significant contributions in data science and advanced analytics from

diverse domains and disciplines for the advancement of interpretation, management, and usage of data intelligence.
As the first scientific journal dedicated to data science and analytics science, JDSA will publish original, fundamental and applied research outcomes in data and analytics theories, technologies and applications, and will promote new scientific and technological approaches to strategic value creation in data-rich applications. Topics of relevance will include all aspects of the scientific foundations, techniques, and applications of data and analytics, especially new statistical and mathematical theories and techniques, data characteristics and complexity understanding, as well as theories on, and means to achieve, the synthesis and meta-synthesis of ubiquitous intelligence, including data intelligence, domain intelligence, business intelligence, organizational intelligence, social intelligence, behaviour intelligence, human intelligence, and network intelligence. JDSA particularly welcomes comprehensive surveys and reviews of all aspects of data science and analytics, together with position papers on the trends and controversies within data science and analytics science

2. Data Science

data science combines multiple fields, including statistics, scientific methods, artificial intelligence (AI), and data analysis, to extract value from data. It encompasses preparing data for analysis, including cleansing, aggregating, and manipulating the data to perform advanced data analysis.
Data science is applicable in different industries, and it's helping to solve problems and discover more about the universe. In the health industry, data science helps doctors to make use of past data in making decisions, for example, diagnosis, or the right treatment for a disease. The education sector is not left out, you can now predict students dropping out of school, all thanks to data science.

Data analysis is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, and is used in different business, science, and social science domains. In today's business world, data analysis plays a role in making decisions more scientific and helping businesses operate more effectively. Data mining is a particular data analysis technique that focuses on statistical modelling and knowledge discovery for predictive rather than purely descriptive purposes, while business intelligence covers data analysis that relies heavily on aggregation, focusing mainly on business information.

Data analysis process

As the data available to companies continues to grow both in amount and complexity, so too does the need for an effective and efficient process by which to harness the value of that data. The analysis method typically moves through several iterative phases. Let’s take a closer look at each.

Identify the business question you’d like to answer. What problem is the company trying to solve? What do you need to measure, and how will you measure it?
Collect the raw data sets you’ll need to help you answer the identified question. Data collection might come from internal sources, like a company’s client relationship management (CRM) software, or from secondary sources, like government records or social media application programming interfaces (APIs).
Clean the data to prepare it for analysis. This often involves purging duplicate and anomalous data, reconciling inconsistencies, standardizing data structure and format, and dealing with white spaces and other syntax errors.
Analyze the data. By manipulating the data using various data analysis tools and techniques, you can begin to find trends, correlations, outliers, and variations that begin to tell a story. During this stage, you might use data mining to discover patterns within databases or data visualization software to help transform data into an easy-to-understand graphical format.
Interpret the results of your analysis to see how well the data answered your original question. What recommendations can you make based on the data? What are the limitations to your conclusions?

Types of data analysis

Data can be used to answer questions and support decisions in several different ways. It can help to group these types of analysis into four categories commonly used in the field. We’ll take a look at each of these data analysis methods, along with an example of

how each might be applied in the real world.

Descriptive analysis (answers the question, "what happened?"): Descriptive analysis tells us what happened. This type of analysis helps describe or summarize quantitative data by presenting statistics. For example, descriptive statistical analysis could show the distribution of sales across a group of employees and the average sales figure per employee.

Diagnostic analysis (answers the question, "why did it happen?"): If the descriptive analysis determines the "what," diagnostic analysis determines the "why." Let's say a descriptive analysis shows an unusual influx of patients in a hospital. Drilling into the data further might reveal that many of these patients shared symptoms of a particular virus. This diagnostic analysis can help you determine that an infectious agent—the "why"—led to the influx of patients.

Predictive analysis (answers the question, "what might happen in the future?"): So far, we've looked at types of analysis that examine and draw conclusions about the past. Predictive analytics uses data to form projections about the future. Using predictive analysis, you might notice that a given product has had its best sales during the months of September and October each year, leading you to predict a similar high point during the upcoming year.

Prescriptive analysis (answers the question, "what should we do about it?"): Prescriptive analysis takes all the insights gathered from the first three types of analysis and uses them to form recommendations for how a company should act. Using our previous example, this type of analysis might suggest a market plan to build on the success of the high sales months and harness new growth opportunities in the slower months.

Tools for Data Analysis

Microsoft Power BI is a top business intelligence platform with support for dozens of data sources. It allows users to create and share reports, visualizations, and dashboards. Users can combine a group of dashboards and reports into a Power BI app for simple distribution. Power BI also allows users to build automated machine learning models and integrates with Azure Machine Learning.

SAP BusinessObjects provides a suite of business intelligence applications for data discovery, analysis, and reporting. The tools are aimed at less technical business users, but they're also capable of performing complex analysis. BusinessObjects integrates with Microsoft Office products, allowing business analysts to quickly go back and forth between applications such as Excel and BusinessObjects reports. It also allows for self-service predictive analytics.

Sisense is a data analytics platform aimed at helping both technical developers and business analysts process and visualize all of their business data. It boasts a large collection of drag-and-drop tools and provides interactive dashboards for collaboration. A unique aspect of the Sisense platform is its custom In-Chip technology, which optimizes computation to utilize CPU caching rather than slower RAM. For some workflows, this can lead to 10–100x faster computation.

TIBCO Spotfire is a data analytics platform that provides natural language search and AI-powered data insights. It's a comprehensive visualization tool that can publish reports to both mobile and desktop applications. Spotfire also provides point-and-click tools for building predictive analytics models.

Thoughtspot is an analytics platform that allows users to explore data from various types of sources through reports and natural language searches. Its AI system, SpotIQ, finds insights automatically to help users uncover patterns they didn't know to look for. The platform also allows users to automatically join tables from different data sources to help break down data silos.

Qlik provides a self-service data analytics and business intelligence platform that supports both cloud and on-premises deployment. The tool boasts strong support for data exploration and discovery by technical and nontechnical users alike. Qlik supports many types of charts that users can customize with both embedded SQL and drag-and-drop modules.

SAS Business Intelligence provides a suite of applications for self-service analytics. It has many built-in collaboration features, such as the ability to push reports to mobile applications. While SAS Business Intelligence is a comprehensive and flexible platform, it can be more expensive than some of its competitors. Larger enterprises may find it worth the price due to its versatility.

Tableau is a data visualization and analytics platform that allows users to create reports and share them across desktop and mobile platforms, within a browser, or embedded in an application. It can run on the cloud or on-premises. Much of the Tableau platform runs on top of its core query language, VizQL. This translates drag-and-drop dashboard and visualization components into efficient back-end queries and minimizes the need for end-user performance optimizations. However, Tableau lacks support for advanced SQL queries.

Google Data Studio is a free dashboarding and data visualization tool that automatically integrates with most other Google applications, such as Google Analytics, Google Ads, and Google BigQuery. Thanks to its integration with other Google services, Data Studio is great for those who need to analyze their Google data. For instance, marketers can build dashboards for their Google Ads and Analytics data to better understand customer conversion and retention. Data Studio can work with data from a variety of other sources as well, provided that the data is first replicated to BigQuery using a data pipeline like Stitch.

Redash is a lightweight and cost-effective tool for querying data sources and building visualizations. The code is open source, and an affordable hosted version is available for organizations that want to get started fast. The core of Redash is the query

editor, which provides a simple interface for writing queries, exploring schemas, and managing integrations. Query results are cached within Redash and users can schedule updates to run automatically.

Periscope Data — now owned by Sisense — is a business intelligence platform that supports integrations for a variety of popular data warehouses and databases. Technical analysts can transform data using SQL, Python, or R, and less technical users can easily create and share dashboards. Periscope Data also boasts a number of security certifications, such as HIPAA-HITECH.

Metabase is a free, open-source analytics and business intelligence tool. Metabase allows users to "ask questions" about data, which is a way for nontechnical users to use a point-and-click interface for query construction. This works well for simple filtering and aggregations; more technical users can go straight to raw SQL for more complex analysis. Metabase also has the ability to push analytics results to external systems like Slack.

Jupyter Notebook is a free, open-source web application that can be run in a browser or on desktop platforms after installation using the Anaconda platform or Python's package manager, pip. It allows developers to create reports with data and visualizations from live code. The system supports more than 40 programming languages. Jupyter Notebook — formerly IPython Notebook — was originally programmed using Python, and allows developers to make use of the wide range of Python packages for analytics and visualizations. The tool has a wide developer community using other languages as well.

IBM Cognos is a business intelligence platform that features built-in AI tools to reveal insights hidden in data and explain them in plain English. Cognos also has automated data preparation tools to automatically cleanse and aggregate data sources, which allows for quickly integrating and experimenting with data sources for analysis.

Chartio is a self-service business intelligence system that integrates with various data warehouses and allows for easy import of files such as spreadsheets. Chartio has a unique visual representation of SQL that allows for point-and-click construction of queries, which lets business analysts who aren't familiar with SQL syntax modify and experiment with queries without having to dig into the language.

Mode is an analytics platform focused on giving data scientists an easy and iterative environment. It provides an interactive SQL editor and notebook environment for analysis, along with visualization and collaboration tools for less technical users. Mode has a unique data engine called Helix that streams data from external databases and stores it in memory to allow for fast and interactive analysis. It supports in-memory analysis of up to 10GB of data.

KNIME — short for the Konstanz Information Miner — is a free, open source data analytics platform that supports data integration, processing, visualization, and reporting. It plugs in machine learning and data mining libraries with minimal or no programming requirements. KNIME is great for data scientists who need to integrate and process data for machine learning and other statistical models but don't necessarily have strong programming skills. The graphical interface allows for point-and-click analysis and modeling.

Looker is a cloud-based business intelligence and data analytics platform. It features automatic data model generation that scans data schemas and infers relationships between tables and data sources. Data engineers can modify the generated models through a built-in code editor.

RapidMiner provides all the technology users need to integrate, clean, and transform data before they run predictive analytics and statistical models. Users can perform nearly all of this through a simple graphical interface. RapidMiner can also be extended using R and Python scripts, and numerous third-party plugins are available through the company's marketplace. However, the product is heavily optimized for its graphical interface so that analysts can prepare data and run models on their own.

Domo provides more than 1,000 built-in integrations — called connectors — that allow users to transfer data to and from on-premises and cloud external systems. Domo also supports building custom apps that integrate with the platform, which allows developers to extend the system with immediate access to the connectors and visualization tools. Domo comes as a single platform that includes a data warehouse and ETL software, so businesses that already have their own data warehouse and data pipeline set up may want to look elsewhere.

Oracle Analytics Cloud is a suite of cloud business intelligence and analytics applications. It's focused on helping large enterprises transition their legacy systems to a modern cloud platform. Users can take advantage of its wide range of analytics features to do everything from producing simple visualizations to using machine learning algorithms to obtain insights from data.

R is an open source programming language and computing environment with a focus on statistics and graphical data visualization. R features numerous graphical tools and over 15,000 open source packages available, including many for loading, manipulating, modeling, and visualizing data. The environment allows technical analysts with programming skills to build almost any type of data analysis, but users without those programming skills should look elsewhere.

Python is an open source, high-level programming language that's often used by technical analysts and data scientists. It now boasts more worldwide developers than Java and has more than 200,000 available packages. Python can handle many different analyses on its own, and can integrate with third-party packages for machine learning and data visualization. Popular data visualization packages include Matplotlib, Plotly, and Seaborn. Python is also used as a programming interface to other analytics systems.

Microsoft Excel is the most common tool used for manipulating spreadsheets and building analyses. With decades of development behind it, Excel can support almost any standard analytics workflow and is extendable through its native programming language, Visual Basic. Excel is suitable for simple analysis, but it is not suited for analyzing big data — it has a

limit of around 1 million rows — and it does not have good support for collaboration or versioning. Enterprises should consider more modern cloud-based analytics platforms for large and collaborative analyses.

4. Python

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built-in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Why Python for Data Science?

For many people (myself Among them), the Python Language is easy to fall in love with. Since its first appearance in 1991, Python has become one of the most popular dynamic, programming language, along with Perl, Ruby, and other. Python and Ruby have become especially popular in recent years for building websites using their numerous web frameworks, like Rails (Ruby) and Django (Python). Such language are often called scripting languages as they can be used to write quick-and-dirty small programs, scripts. I don't like the term "scripting language" as it carries a connotation that they cannot be used for building mission-critical software.

Among interpreted languages Python is distinguished by its large and active scientific computing community. Adoption of Python for scientific computing in both industry application and academic research has increased significantly since the early 2000s.

For Data Analysis and interactive, exploratory computing and data visualization, Python will inevitably draw comparisons with the many other domain-specific open source and commercial programming languages and tools in wide use, such as R, MATLAB, SAS, Stata, and others. In recent years, Python's improved library support (primarily pandas) has made it a strong alternative for data manipulation tasks. Combined with Python's strength in general purpose programming, it is an excellent choice as a single language for building data-centric applications.

Why Python Important in Data Science?

It uses the elegant syntax, hence the programs are easier to read.
It is a simple to access language, which makes it easy to achieve the program working.
The large standard library and community support.
The interactive mode of Python makes its simple to test codes.
In Python, it is also simple to extend the code by appending new modules that are implemented in other compiled language like C++ or C.
Python is an expressive language which is possible to embed into applications to offer a programmable interface.
Allows developer to run the code anywhere, including Windows, Mac OS X, UNIX, and Linux.
It is free software in a couple of categories. It does not cost anything to use or download Pythons or to add it to the application.

What Makes Python Suitable for Data Science?

It's Flexible: If you want to try something creative that's never done before; then Python is perfect for you. It's ideal for developers who want to script applications and websites.

It's Easy to Learn: Thanks to Python's focus on simplicity and readability, it boasts a gradual and relatively low learning curve. This ease of learning makes Python an ideal tool for beginning programmers. Python offers programmers the advantage of using fewer lines of code to accomplish tasks than one needs when using older languages. In other words, you spend more time playing with it and less time dealing with code.

It's Open Source: Python is open-source, which means it's free and uses a community-based model for development. Python is designed to run on Windows and Linux environments. Also, it can easily be ported to multiple platforms. There are many open-source Python libraries such as Data manipulation, Data Visualization, Statistics, Mathematics, Machine Learning, and Natural Language Processing, to name just a few (though see below for more about this).
It's Well-Supported: Anything that can go wrong will go wrong, and if you're using something that you didn't need to pay for, getting help can be quite a challenge. Fortunately, Python has a large following and is heavily used in academic and industrial circles, which means that there are plenty of useful analytics libraries available. Python users needing help can always turn to Stack Overflow, mailing lists, and user-contributed code and documentation. And the more popular Python becomes, the more users will contribute information on their user experience, and that means more support material is available at no cost. This creates a self-perpetuating spiral of acceptance by a growing number of data analysts and data scientists. No wonder Python's popularity is increasing!

5. R Language

R is a language and environment for statistical computing and graphics. R provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, …) and graphical techniques, and is highly extensible. One of R's strengths is the ease with which well-designed publication-quality plots can be produced, including mathematical symbols and formulae where needed. Great care has been taken over the defaults for the minor design choices in graphics, but the user retains full control. R is available as Free Software under the terms of the Free Software Foundation's GNU General Public License in source code form. It compiles and runs on a wide variety of UNIX platforms and similar systems (including FreeBSD and Linux), Windows and MacOS.

Why R for Data Science

R is one of the programming languages that provide an intensive environment for you to analyze, process, transform and visualize information.
It is the primary choice for many statisticians who want to involve themselves in designing statistical models for solving complex problems.
R contains a sea of packages that appeal to all the forms of disciplines like astronomy, biology, etc. While R was originally used for academic purposes, it is now being used in industries as well.
R is an advanced language that is used for performing complex statistical modeling. Moreover, R also provides support for operations on arrays, matrices, and vectors. **R is famous for its graphical libraries** that allow the users to delineate aesthetic graphs and make them intractable for the users.

Moreover, R allows its users to develop web-applications using R Shiny, which is used for embedding visualizations in web-pages and provides a high level of interaction to the users.
Furthermore, *data extraction is an important part of data science*. In order to do so, R provides the option of interfacing your R code with database management systems.

In addition to this, **R provides you with several options of advanced data analytics** like the development of prediction models, **machine learning algorithms**, etc. R also provides several packages for image processing

Why is R Important in Data Science?

R provides various important **packages for data wrangling** like dplyr, purrr, readxl, google sheets, datapasta, jsonlite,tidyquant, tidyr etc.
R provides **extensive support for statistical modelling**. Since Data Science is statistics heavy, R is an ideal tool forimplementing various statistical operations on it.
R is an **attractive tool for various data science application**s because it provides aesthetic visualization tools like ggplot2,scatterplot3D, lattice, highcharter etc.

R is heavily used in data science applications for ETL (Extract, Transform, Load). It provides an interface for many databases like SQL and even spreadsheets.
Another important ability of **R is to interface with NoSQL databases and analyze unstructured data**. This is very useful in Data Science applications where a pool of data has to be analyzed.
With R, **data scientists can apply machine learning algorithms** to gain insights about future events. There are variouspackages like rpart, CARET, randomForest, and nnet.

What Makes R Suitable for Data Science?

R is reliable and useful in **academia** for many years. Traditionally, R was used for research purposes at the academy because it provided various statistical tools for analysis. With the advancements in data science and the need for analyzing data, R became a popular choice in the industry as well.

R is an ideal tool when it comes to **data wrangling**. It allows the usage of several preprocessed packages that makes data wrangling a lot easier. This is one of the main reasons as to why R is preferred in the Data Science community.

R provides its famous ggplot2 package which is most famous for its **visualizations**. Ggplot2 provides aesthetic visualizations that cater to all the data operations. Furthermore, ggplot2 provides a degree of interactivity to the users so that they can understand the data embedded in the visualization more clearly.

R contains **machine learning packages** for various operations. Be it boosting, building random forests or performing regression and classification, machine learning provides a wide array of packages.

6. Conclusion

It's debatable when it comes to the usage of Python and R. Both of these languages come with their advantages and disadvantages. Python is used by a lot of people for multiple people, but R is also under usage. Python is used for a wide range of features, and R is used majorly for statistics. It depends upon the user to pick the language based on the requirement.

7. Reference:

1. https://www.makeuseof.com/why-is-python-popular-for-data-science/
2. https://www.interviewbit.com/blog/python-vs-r/
3. https://www.guru99.com/r-vs-python.html
4. https://link.springer.com/article/10.1007/s41060-016-0006-1 - Faculty of Engineering and IT, University of Technology, Sydney, Australia
5. https://en.wikipedia.org/wiki/Data_analysis
6. https://www.coursera.org/articles/what-is-data-analysis-with-examples
7. https://www.stitchdata.com/resources/data-analysis-tools
8. python.org/doc/essays/blurb/
9. Book: Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython By Wes McKinney
10. https://www.r-project.org/about.html
11. https://data-flair.training/blogs/using-r-for-data-science/#:~:text=R%20is%20an%20ideal%20tool%20when%20it%20comes%20to%20data,most%20famous%20for%20its%20visualizations.
12. https://www.simplilearn.com/why-python-is-essential-for-data-analysis-article
13. geeksforgeeks.org/python-for-data-science/#:~:text=Python%20is%20open%20source%2C%20interpreted,mathematics%2C%20statistics%20and%20scientific%20function.

A review on workplace Spirituality and Employee engagement contributing in agile organization

Dr.S.Balamurugan*- Research Supervisor, Department of Management Studies, Periyar University, Salem-11

Ms.R.Ambaliga Bharathi Kavithai ** - Research Scholar, Department of Management Studies, Periyar University, Salem-11

Abstract:

This paper deals with the main concept workplace spirituality that it comes from the combination of Human resources management and organizational behavior. This paper reviews various articles towards how an effective organizations practice their employees with engaged in higher workplace spirituality and how it scores it effectiveness and contribution towards the organizational growth that leads to success. The term agile organization means sound full and active in nature. Researcher had reviewed various research articles for better understanding for this particular concept. It also found the inter relation between workplace spirituality and employee engagement. All the reviews are collected from various research articles.

Keywords:

Workplace spirituality, Workforce agility, Human resource management, organizational behavior.

Introduction:

Like any other service industry, the hospitality industry requires staff members to work in direct contact with the customers and coworkers. Employees are expected to provide their guests a good stay and make them leave the place with pleasant memories. (Chaudhary, 2022)[1.] The challenge today is not just retaining talented people, but fully engaging them, capturing their minds and hearts at each stage of their work lives. Employee engagement has emerged as a critical driver of business success in today's competitive marketplace. Further, employee engagement can be a deciding factor in organizational success. Not only does engagement have the potential to significantly affect employee retention, productivity and loyalty, it is also a key link to customer satisfaction, company reputation and overall stakeholder value. Employee engagement is a complex concept, with many issues influencing engagement levels. Consequently, there are many pathways to foster engagement, with no one that fits all organizations. While each company may define employee engagement

differently, ultimately, the key to effective engagement will be rooted in the flexibility of approach most appropriate for each individual firm. (Jyoti Naganath Shinde, 2015)[2].

Workplace Spirituality:

According to spirituality the stress is the state of Soul. Soul has its own three faculties i.e. Mind, Intellect and impressions. And when the mind and intellect are not working in harmony, the intellect can't work accurately. These three faculties has three main works i.e. Mind is for thinking and Intellect is for decision making and when we do any work again and again it becomes our Sanskara or impression. And when these three are not working accurately that is the stress. In the stress Mind thinks a lot about the things necessary or unnecessary. (Balamurugan, 2021)[4] Spirituality in the workplace has been acknowledged as a unique approach to improving employee performance. "the spiritual approach causes a change in the values at work to promote collaboration rather than fear at work." A particular pattern of spiritual guidance emerges when the workplace may provide appropriate conditions for professionals, where they share their behavior and attitudes to foster moral values and a sense of meaning in their work. Spirituality in the academic workplace thus needs to foster a teaching community and administrative professionals with persistence, assertive behaviour, and agile thinking to achieve their organization's objectives, particularly in the Covid 19 scenario. (Saeed, 2022) [5]

Employee Engagement:

Employee engagement is critical to any organization, conducted the most influential study on employee engagement in 1985. expanded on early work by differentiating between intrinsic and extrinsic motivation. Competence, autonomy, and psychological relatedness which are psychological needs, motivate the individual to initiate behavior essential for psychological health and well-being of an individual and if satisfied may lead to optimal function and growth. The basic needs of satisfaction have been found to directly relate to dedication of employees. (Schrita Osborne, 2017)[6]

Higher Education Academicians:

Teachers are the soul of any academic institution, and therefore there is a need to devise new strategies in order to develop their technical, professional and core competencies at workplace and also cultivate an agile mindset that assists in improving their relationships with students, fellow colleagues and top management at workplace. The progress of a nation is not feasible without increasing potential ability and eminence of the teachers who are crucial for the society. Teachers who are satisfied with their jobs will be more loyal to their institutions. Spirituality comprises of a sense of unity, belongingness at workplace and reflects divine principles. WS has been recognized

as one of the inimitable ways of enhancing the performance of employees. (Pau, 2019)[7] Teachers must provide the mental and emotional support to the students at times when need arises to face a challenging situation and emerge victorious. Just as corporate organizations worldwide have toiled hard to achieve business excellence through the creation of an agile workforce, academicians' of higher educational institutions (HEI) also need to emerge with flying colors by adopting the same methods. Modern-day institutes of higher learning are trying to create agile operational strategies to facilitate the teaching professionals to create an agile learning environment.

Review of Literature:

Table 1

Reviews Gathered for this Research

S.NO	Name of the Website
1.	Google Scholar
2.	Taylor and Francis
3.	Science Direct
4.	SAGE

Using a modified Dissimilarity Index to quantify the segregation of three Chilean cohorts, we find that, unlike in secondary education, academic performance is more decisive than socioeconomic background in the distribution of students in postsecondary education, with a notable reduction in the socioeconomic segregation levels in the transition to the latter. (Kuzmanic, 2022) Informing teachers about what inclusive education is may only have limited impact on teachers' actual inclusive education practices. More support in how teachers can apply the concept of inclusive education to practice may be needed so that their beliefs in their capabilities to teach inclusively are fostered and bolstered. (Woodcock, 2022). Analysis revealed that teaching experience and teaching context impacted self-efficacy. Knowledge of inclusive education policies elevated the self-efficacy beliefs of teachers. Confidence in teaching in inclusive classrooms, pre-service teacher education, professional learning and experiential contact with people with disability were also influential. (Wray, 2022). Six online focus groups (with thirty-two lecturers) revealed both enthusiasm and stress, and six tension fields that influenced their experiences with online education during COVID-19: (1) connection with students, (2) connection with colleagues, (3) digital opportunities and threats for students' learning processes (online student feedback, online interaction, structured learning

materials, flexibility in time and space), (4) changing teacher roles, (5) tension due to time pressure and (6) support issues. Every tension field contains both opportunities and threats for online education, which can inform practitioners of online education in the future of university education. (Bruggeman, 2022). The model incorporates employees' psychological needs satisfaction and their subsequent crisis coping strategies so as to explain the process that underlies the effects of leader communication on employee engagement. (Tao, 2022). As hypothesized, employees were more engaged on the days they designed their work to be more playful, which was explained by the satisfaction of their needs for autonomy, relatedness, and competence. Moreover, as expected, designing fun and designing competition differed in how and why they related to work engagement. (Scharp, 2022). High (low) workforce agility via increased (decreased) firm performance was associated with high (low) corporate reputation. Furthermore, transformational leadership of top management and talent management via workforce agility were positively related to firm performance (Das, 2022). The literature has been reviewed on the agility concept. Different agility aspects, dimensions, nature, and terminology are covered in the literature review. Different types of organizational capabilities have been discussed and the organization capability dimensions required to achieve agility in the manufacturing system have been identified (Sharma, 2022).

Conclusion:

Workplace Spirituality research has moved from its initial stages to the stage where researchers are trying to find out the organizationally beneficial effects of the idea of workplace spirituality. Spirit at work, individual spirituality, organizational spirituality, spiritual development, spiritual climate and spiritual leadership are the various research constructs which the researchers have developed in the domain of workplace spirituality research. This facilitates the research to move from the process of scale development to the stage of empirical testing of the same in order to satisfy the tests of reliability and validity of the instruments concerned. Thus, this process contributes to the robustness and empirical vigor of workplace spirituality research, toward which this paper has contributed so as to facilitate the process of strengthening the psychometric properties of Workplace Spirituality.

Reference:

1. Lata, M., & Chaudhary, R. (2022). Workplace spirituality and employee incivility: Exploring the role of ethical climate and narcissism. *International Journal of Hospitality Management*, *102*, 103178.
2. Shinde, J. N. S., & Sawant, V. K. (2015). A study of factors affecting Employee Engagement in IT Industry. *International Journal of Science, Technology & Management*, 133-1335.

3. Balamurugan, S. (2020). Techno Stress and Job Engagement among Employees: A Study on Textile Industry Sector.
4. Saeed, I., Khan, J., Zada, M., Ullah, R., Vega-Muñoz, A., & Contreras-Barraza, N. (2022). Towards examining the link between workplace spirituality and workforce agility: Exploring higher educational institutions. *Psychology Research and Behavior Management*, *15*, 31.
5. Alkhateeb, H., Romanowski, M. H., Sellami, A., Abu-Tineh, A. M., & Chaaban, Y. (2022). Challenges Facing Teacher Education in Qatar: Q Methodology Research. *Heliyon*, e09845.
6. Osborne, S., & Hammoud, M. S. (2017). Effective employee engagement in the workplace. *International Journal of Applied Management and Technology*, *16*(1), 4.
7. Paul, M., Jena, L.K. & Sahoo, K. Workplace Spirituality and Workforce Agility: A Psychological Exploration Among Teaching Professionals. J Relig Health 59, 135–153 (2020).
8. Kuzmanic, D., Valenzuela, J. P., Villalobos, C., & Quaresma, M. L. (2022). Reproduction of Academic and Socioeconomic Segregation in the Transition to Postsecondary Education: A New Approach. *Research in Social Stratification and Mobility*, 100711.
9. Woodcock, S., Sharma, U., Subban, P., & Hitches, E. (2022). Teacher self-efficacy and inclusive education practices: Rethinking teachers' engagement with inclusive practices. *Teaching and Teacher Education*, *117*, 103802.
10. Wray, E., Sharma, U., & Subban, P. (2022). Factors influencing teacher self-efficacy for inclusive education: A systematic literature review. *Teaching and Teacher Education*, *117*, 103800.
11. Bruggeman, B., Garone, A., Struyven, K., Pynoo, B., & Tondeur, J. (2022). Exploring university teachers' online education during COVID-19: Tensions between enthusiasm and stress. *Computers and Education Open*, 100095.
12. Tao, W., Lee, Y., Sun, R., Li, J. Y., & He, M. (2022). Enhancing Employee Engagement via Leaders' Motivational Language in times of crisis: Perspectives from the COVID-19 outbreak. *Public relations review*, *48*(1), 102133.
13. Scharp, Y. S., Bakker, A. B., & Breevaart, K. (2022). Playful work design and employee work engagement: A self-determination perspective. *Journal of Vocational Behavior*, *134*, 103693.
14. Das, K. P., Mukhopadhyay, S., & Suar, D. (2022). Enablers of workforce agility, firm performance, and corporate reputation. *Asia Pacific Management Review*.

15. Sharma, S., Oberoi, J. S., Gupta, R. D., Saini, S., Gupta, A. K., & Sharma, N. (2022). Effect of agility in different dimensions of manufacturing systems: A review. *Materials Today: Proceedings*.
16. Stirpe, L., Profili, S., & Sammarra, A. (2022). Satisfaction with HR practices and employee performance: A moderated mediation model of engagement and health. *European Management Journal*, *40*(2), 295-305.
17. Dang, A., Khanra, S., & Kagzi, M. (2022). Barriers towards the continued usage of massive open online courses: A case study in India. *The International Journal of Management Education*, *20*(1), 100562.
18. Gill, S. K., Dhir, A., Singh, G., & Vrontis, D. (2022). Transformative quality in higher education institutions (HEIs): Conceptualisation, scale development and validation. *Journal of Business Research*, *138*, 275-286.
19. Durmush, G., Craven, R. G., Brockman, R., Yeung, A. S., Mooney, J., Turner, K., & Guenther, J. (2021). Empowering the voices and agency of Indigenous Australian youth and their wellbeing in higher education☆. *International Journal of Educational Research*, *109*, 101798.
20. Liu, Y., Hassan, M., Chupradit, S., Ageli, M., Shoukry, A. M., & Aldeek, F. F. (2021). Aggressive workplace behavior, motivation, and worker's output: Mediating effect of religiosity among the service sector employees. *Aggression and Violent Behavior*, 101625.
21. Niswaty, R., Wirawan, H., Akib, H., Saggaf, M. S., & Daraba, D. (2021). Investigating the effect of authentic leadership and employees' psychological capital on work engagement: evidence from Indonesia. *Heliyon*, *7*(5), e06992.
22. Fan, J., Zhang, M., Wei, X., Gursoy, D., & Zhang, X. (2021). The bright side of work-related deviant behavior for hotel employees themselves: Impacts on recovery level and work engagement. *Tourism Management*, *87*, 104375.
23. Ozturk, A., Karatepe, O. M., & Okumus, F. (2021). The effect of servant leadership on hotel employees' behavioral consequences: Work engagement versus job satisfaction. *International Journal of Hospitality Management*, *97*, 102994.
24. Du, J., Ma, E., & Lin, X. (2021). When diversity leads to divided teams: A multi-level moderated mediation model of team faultlines and employee engagement. *International Journal of Hospitality Management*, *94*, 102818.

25. Singh, P., Saharan, T., & Bhat, M. Y. (2021). Does Workplace Issues Influence Women Career Progression? A Case of Indian Airline Industry. *Research in Transportation Business & Management*, 100699.
26. Soliman, M., Di Virgilio, F., Figueiredo, R., & Sousa, M. J. (2021). The impact of workplace spirituality on lecturers' attitudes in tourism and hospitality higher education institutions. *Tourism Management Perspectives*, *38*, 100826.
27. Wang, C., Xu, J., Zhang, T. C., & Li, Q. M. (2020). Effects of professional identity on turnover intention in China's hotel employees: The mediating role of employee engagement and job satisfaction. *Journal of Hospitality and Tourism Management*, *45*, 10-22.
28. Nidhi, M. B., & Suryan, A. (2020). Disruptions in Engineering Education: Perceptions of Mid-Career Academicians. *Procedia Computer Science*, *172*, 797-802.
29. Latha, S. (2020). Vuca in engineering education: Enhancement of faculty competency for capacity building. *Procedia Computer Science*, *172*, 741-747.
30. Pandey, A., Gupta, V., & Gupta, R. K. (2019). Spirituality and innovative behaviour in teams: Examining the mediating role of team learning. *IIMB Management Review*, *31*(2), 116-126.
31. Jena, L. K., Pradhan, S., & Panigrahy, N. P. (2018). Pursuit of organisational trust: Role of employee engagement, psychological well-being and transformational leadership. *Asia Pacific Management Review*, *23*(3), 227-234.
32. Fanggidae, R. E., Suryana, Y., & Efendi, N. (2016). Effect of a spirituality workplace on organizational commitment and job satisfaction (study on the lecturer of private Universities in the Kupang city-Indonesia). *Procedia-Social and Behavioral Sciences*, *219*, 639-646.
33. Herawati, S. D. (2012). Review of the learning method in the Accountancy Profession Education (APE) programs and connection to the students soft skills development. *Procedia-Social and Behavioral Sciences*, *57*, 155-162.
34. Rask, K. (2010). Attrition in STEM fields at a liberal arts college: The importance of grades and pre-collegiate preferences. *Economics of Education Review*, *29*(6), 892-900.
35. Ramesh, A., & Dani, V. (2014). Embedding Spirituality for Professionals–A Study Using Movies as Pedagogy. *Procedia-Social and Behavioral Sciences*, *133*, 473-480.
36. Yoganandan, G., & Vignesh, T. (2017). Expectations and Effectiveness of MBA Students Among Educational Institution in Salem District of TamilNadu. *Asia Pacific Journal of Research*, *1*(55), 151-164.

ECOMMERCE WEBSITE

PHONISTA

Dr. Ekta Gupta(Associate Professor, GNIM, Delhi)

Ms. Navjot kaur Matharu (Student, GNIM, Delhi)

Ms. Sheetal Kataria (Student, GNIM, Delhi)

Abstract

The world economy is witnessing a transition. All companies are transformed into information-based operations through online technologies. The pace of technical transition is so exponential that modern electronic commerce is now making significant shifts in the economic environment, impacting all areas of industry. The Web has expanded companies' scope. The vast quantity of business information made accessible by the global network that facilitates the gathering of information between firms, a corporation, its clients and the various divisions of a business is increasing exponentially. The information-based virtual value chains for any company cannot be overlooked operationally or strategically. This review article discussed the aspects of electronic commerce including its importance, facilitators, benefits, challenges and scope in the Indian market.

Introduction

PHONISTA is an online store for purchasing Mobile Phones. This store is an ecommerce website which has been developed using HTML, CSS, BOOTSTRAP, MySQL and PHP. In this website, HTML, CSS, BOOTSTRAP is used for front end and PHP for back end with MYSQL for the queries for Database. The user can see a number of mobile phones with their price and they can easily add the mobile phones in the cart, which can be one or more. The customer can easily log in to the system. First, there will be a home page where user can see an interface and four sections of mobile phones of different brands. After that, customer can easily go and see the phones and the prices, but for adding them to cart or moving forward to buying it, they must need to LOG IN. The MODAL will be visible for logging in. After that, with same email and password the user can login again, once the session is over. The customers will be able to see the total amount they have to pay. They can also add more mobile phone or remove the selected ones. The total and final amount will be provided to the customer. After that, or after confirming the order, the customer will simply land to the success page. **The benefits of setting up this ecommerce website's project are:**

Low operating cost with 24/7 availability

Unlike a physical shop, an online store does not need a space to rent, so you don't need to worry about paying rent, or electricity fee, or any other fees that come with renting a space. That's a lot of savings you can invest in promoting and growing your business! Plus, this stores are open round the clock, always ready to sell to buyers worldwide at no extra cost. Around the clock e-commerce websites are very valuable and will enhance your business.

Control over brand and message

Setting up your own retail website allows you to connect with prospective shoppers on your own terms. Share the latest customer success story, display the entire product portfolio, and so much more. Whatever you think will close the sale, go for it and don't worry about character limits, image caps or layout restrictions. Furthermore, you control your marketing. For example, you can choose to send emails to your customers every day, informing them of a sale or a new product.

Data

You can gather a massive amount of data that can be very useful. Track your customers' behavior and their interaction. This will boost your marketing efforts and identify your most popular products. Subsequently, you can make a conscious decision to allocate your time on products that are wanted and maybe discontinue products or services that are not as popular.

Furthermore, you can track which page a customer exited on your website. If this happens several times, you might want to look at that page and consider what you can do to improve it and make the customer want to move on to the next step in the process instead of exiting.

Shelf space exclusivity

One disadvantage to trading through an online marketplace is that your goods or services are placed next to competing ones. The struggle for attention forces merchants to slash prices and pay premium listing fees that reduce margins. However, if you own an e-commerce website, your visitors will only see the products and services you offer instead. Additionally, your visitors are there purely because of the interest they have in your products and services.

SEO visibility

Allocating time to implement search engine optimization of your e-commerce website builds visibility for your brand. Basically, everything you're spending time and money on is purely for the sake of your e-commerce website. Ensure that visitors find your shopping website on Google when they search for a product and make it effortless for them to purchase directly.

No transaction fees

While payment models differ, most e-commerce website platforms charge a flat subscription fee instead of charging per listing or transaction. Costs are low and transparent, no matter how wildly successful you are.

Encourage loyalty

One purpose of an e-commerce website is to have repeat customers and repeat sales. You should ensure that you encourage loyalty in a repeat customer who buys various products from your e-commerce website.

Challenges faced during the making of this ecommerce website:

Right Choice of Product Range

If you want to be an e-entrepreneur and set up an ecommerce site, the first challenge is the right choice of products. The range of services or products you provide can usually make or break a deal. Before setting up our store, assured that we first did did our research on key market trends, the kind of products that are in demand and if the business is sustainable.

building connections, so that data must be securely saved into database, keeping privacy of a customer a priority.

Converting Website Visitors into Shoppers

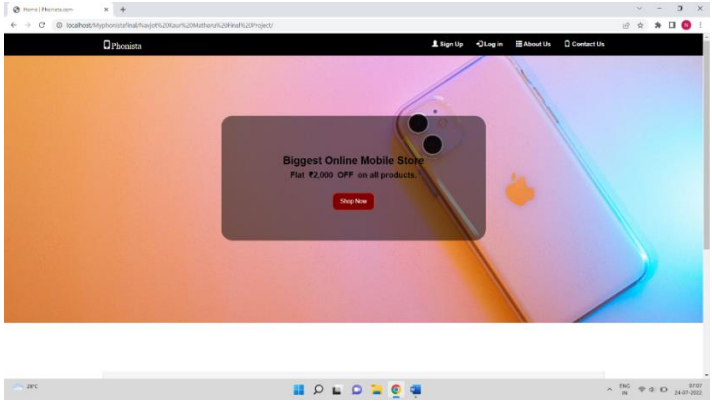
our task does not end once you get traffic onto our website. It is important that we convert those visitors into paying customers. The first rule of the game is to bring in quality leads. Then your photographs, site user interface, design, product cataloguing and brand equity will do the rest. Entice the shopper with the right communication; one which makes them buy.

Web pages

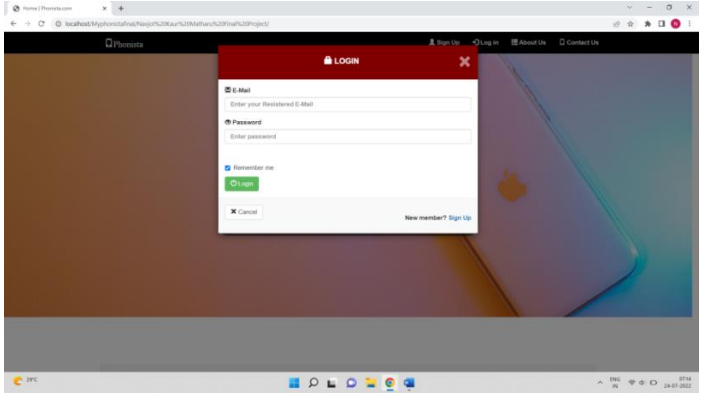
This website includes 9 HTML or PHP pages.

I. Index.php
II. About_us.php
III. Settings.php
IV. Signup.php
V. Cart-add.php
VI. Cart.php
VII. Login_submit.php
VIII. Success.php
IX. Contact_us.php

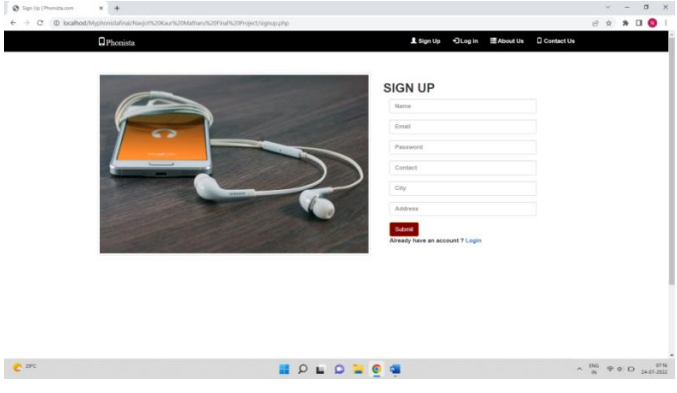
Home page



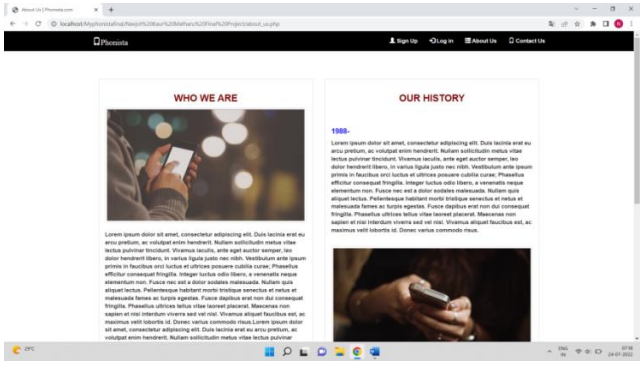
Login Modal



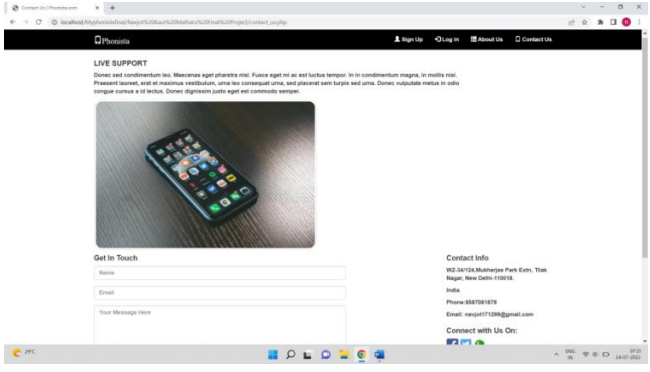
Sign up, if new



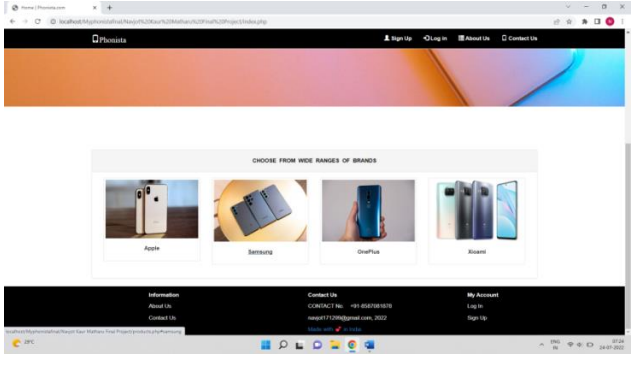
About us page

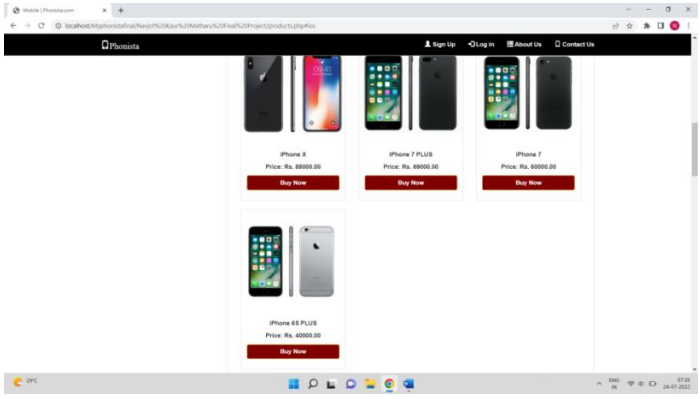


Contact us page

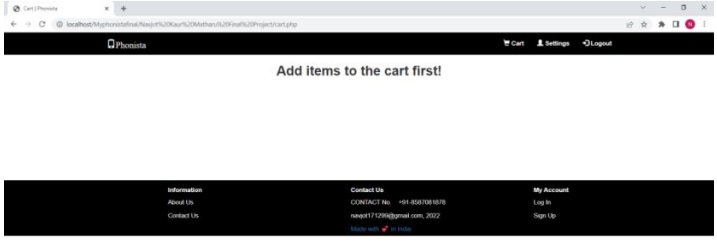


Interfae for mobile phones

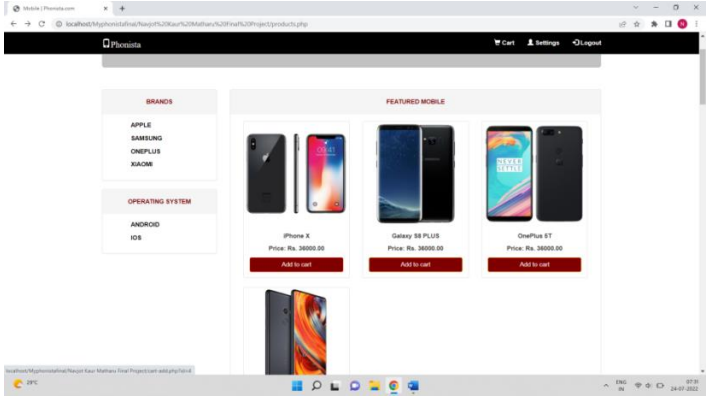




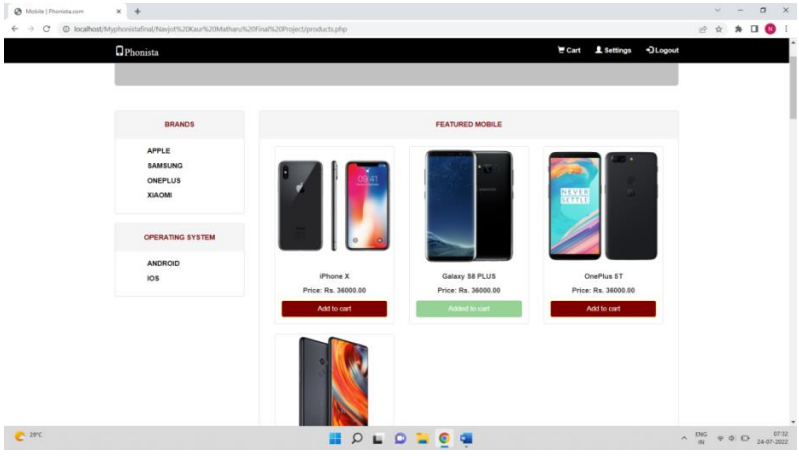
After giving your registered email and password , user can see a cart page ,

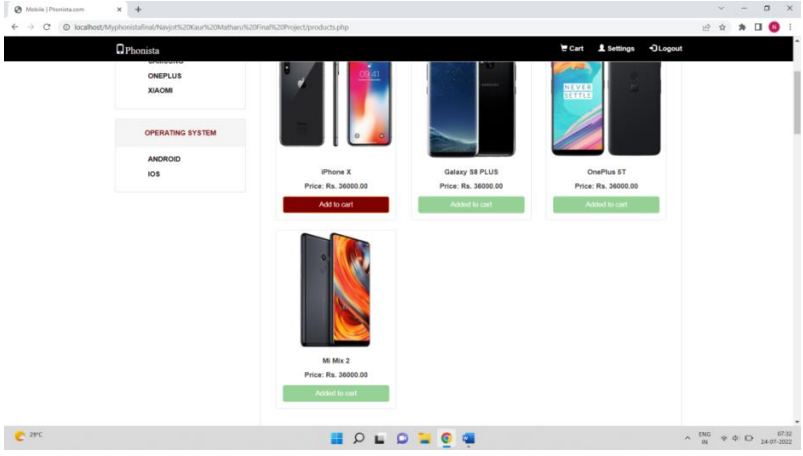


By adding to the cart

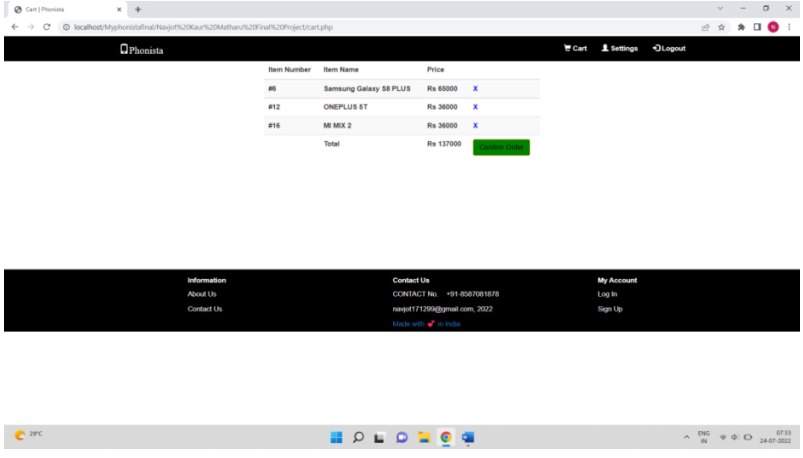


Like this



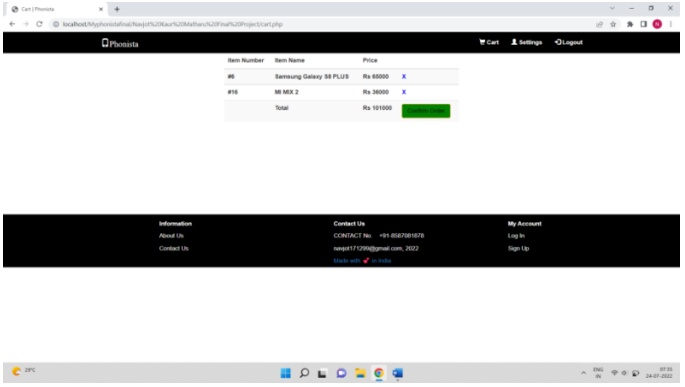


So, now to check the cart page in navbar



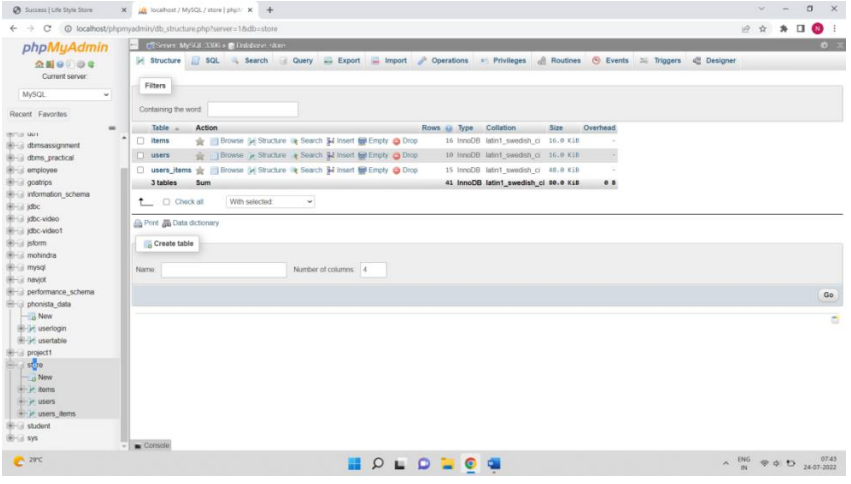
You can see the amount added of three phones selected.

You can even remove one if you don't want to buy, with a simple click on cross.

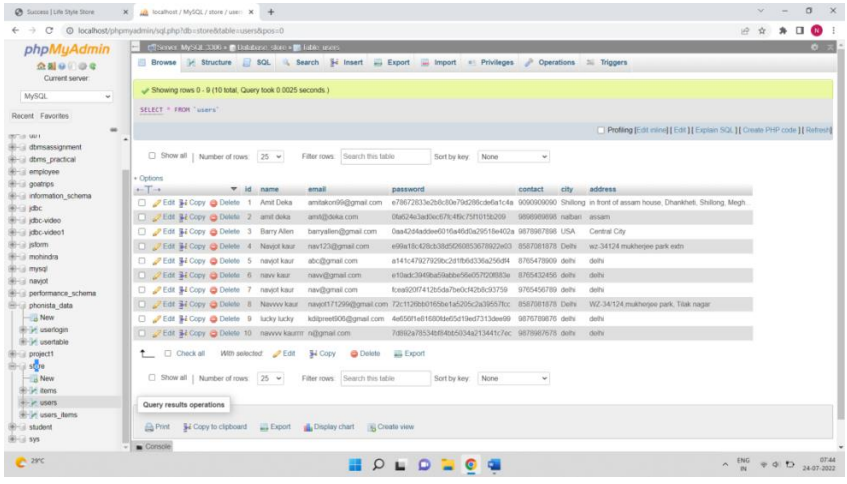


Now the confirm order button will land you to the success page.

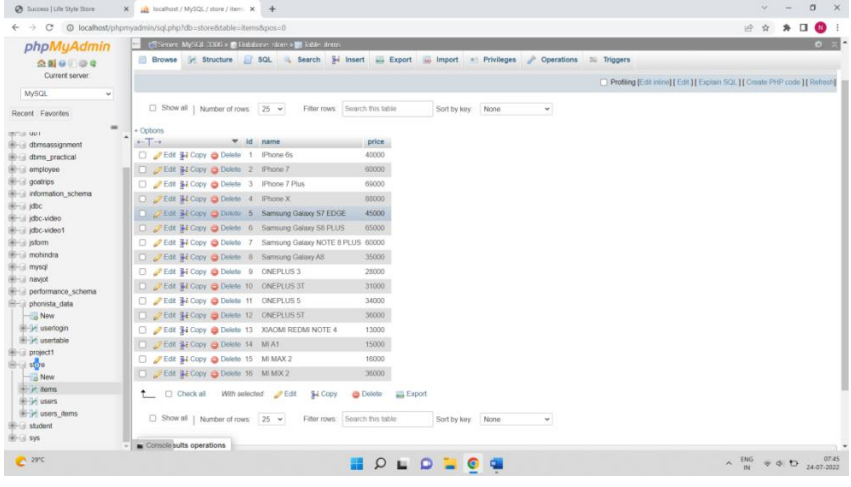
Database connection, these Three tables will store the data. In database store



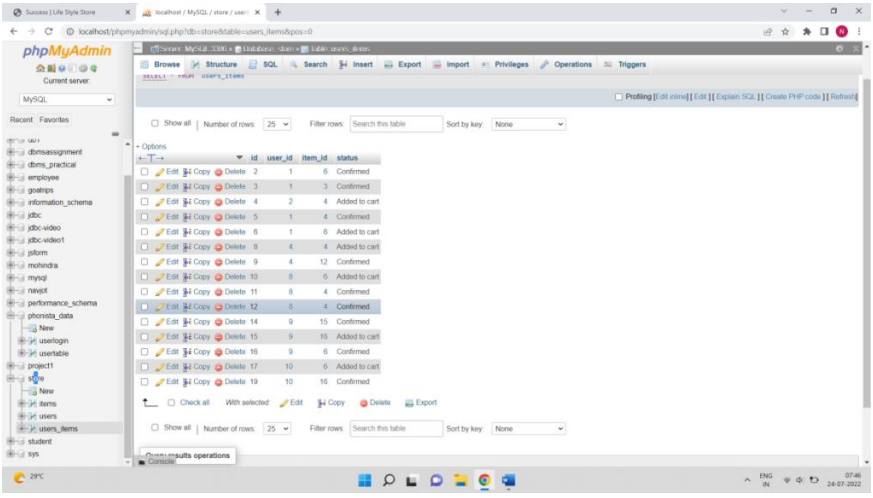
.One is for user login data:



One is for items we are having to sell with their ids



Last but most important is the combined table for user and the product, to do the further calculations.



So, this was the working of this ecommerce website phonista.

Need of project

Through this website, anyone can buy anything at their place, reducing time consumption. In this physical growing world, there is a prime to need to consume time efficiently, to reduce time consumption and give them a virtual store to shop and compare items.

Scope of system

This provides an interface, where user can sign up, login in the system and can see different products. This interface provides facility to see mobile phones of different companies and they can order according to their need. This is a user-friendly interface, users can sign up, login in system and select items according to them and place their order, anytime and anywhere. It will reduce time consumption and available 24*7.

Html

HTML (Hypertext Mark-up Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation or functionality/ behaviour.

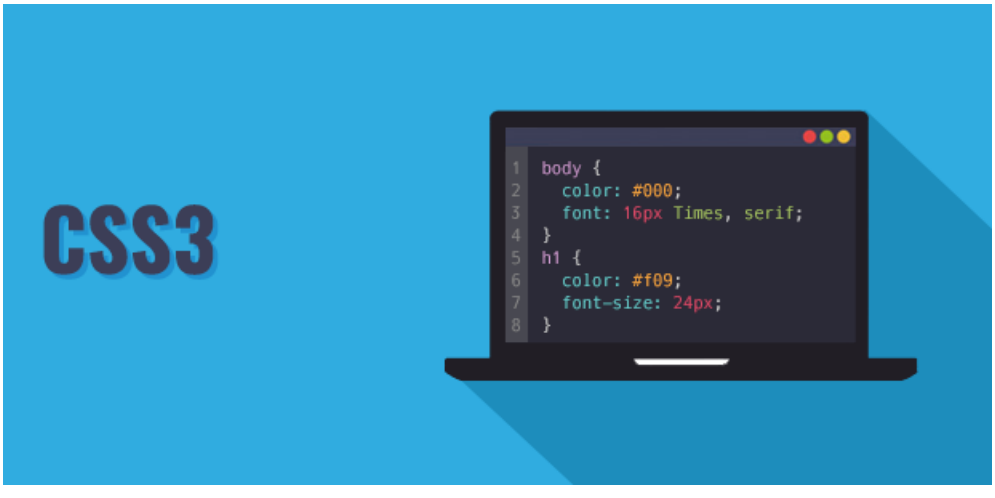
"Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.HTML uses "mark up" to annotate text, images, and other content for display in a Web browser. HTML mark up includes special "elements" such as `<head>`, `<title>`, `<body>`, `<header>`, `<footer>`, `<section>`, `<p>`, `<div>`, `<span>`, `<img>`, `<nav>`, `<ul>`, `<ol>`, `<li>` and many others.HTML is not a programming language, meaning it doesn't have the ability to create dynamic functionality. Instead, it makes it possible to organize and format documents, similarly to Microsoft Word.Html is written in the form of elements consisting of tags and closed in angle brackets (like<HTML>). Html tags most commonly comes in pairs like <h1>&</h1>, although some tags present empty elements and so are unpaired, for <img>.

A web browser can read html file and composed them into visible or audible web page. The browser does not display the html tags, but uses them to interpreted the content of the page. HTML describe the structure of a web site semantically along with cues for presentation, making it a mark-up language rather than a programming language.

HTML elements form the building blocks of all web sides HTML allows images and objects to embed and can be used to create interactive forms. It provides a mean to create structured document by denoting structural semantics for text such as heading, paragraph, list, link quotes and other items. It can embed scripts written in languages such as java scripts which effect the behavior of html web pages.

CSS

Cascading **S**tyle **S**heets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.CSS handles the look and feel part of a web page. Using CSS, you can control the colour of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colours are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the mark up languages HTML or XHTML. Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a mark up language such as HTML.CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.



CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.[3] This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file which reduces complexity and repetition in the structural content as well as enabling the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. Bootstrap is a HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project. As such, the primary factor is whether the developers in charge find those choices to their liking. Once added to a project, Bootstrap provides basic style definitions for all HTML elements. The result is a uniform appearance for prose, tables and form elements across web browsers. In addition, developers can take advantage of CSS classes defined in Bootstrap to further customize the appearance of their contents. For example, Bootstrap has provisioned for light- and dark-colored tables, page headings, more prominent pull quotes, and text with a highlight.

Database

MySQL is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Wideness's daughter, and "SQL", the abbreviation for Structured Query Language.

A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmer use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

PHP

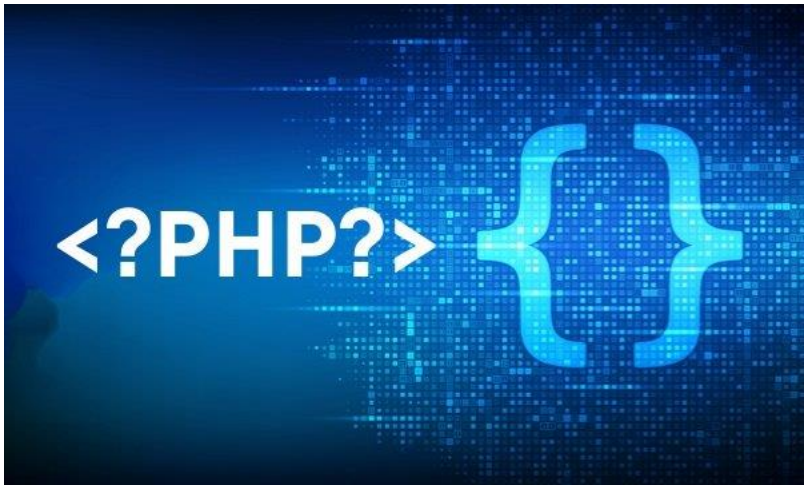
PHP started out as a small open-source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

PHP is a MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning PHP:

PHP is a recursive acronym for "PHP: Hypertext Pre-processor".

PHP is a server-side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.

It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.



PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.

PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.

PHP is forgiving: PHP language tries to be as forgiving as possible.

PHP Syntax is C-Like.

Characteristics of PHP:

Important characteristics make PHP's practical nature possible −

- Simplicity
- Efficiency
- Security

Tools and Environment

Hardware requirements

- Processor: single or dual core processor
- Speed :233 milz minimum speed
- Ram: min 4gb
- Super VGA (1280*1024) or higher resolution adapter and monitor.
- Hard disk: 200GB minimum

Software requirements

- Operating system
- WAMP sever
- Internet explorer
- Application development environment notepad
- Windows 2000/XP; windows 7; or above.
- Internet explorer /google chrome
- Notepad++

Unit testing

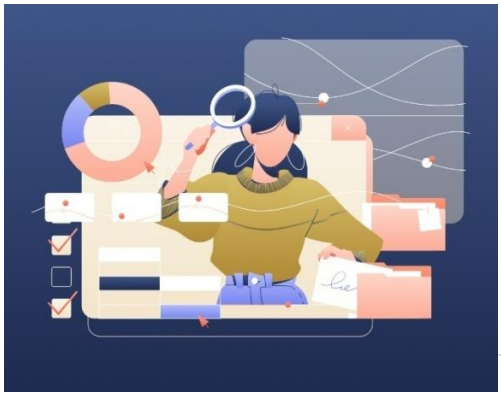
IT is the software development process in which the smallest unit of the system is tested. While performing unit testing of different types of source code the following problems occurred. Scripts and its connectivity to the HTML, PHP. Coding failed several times due to the minimal mistakes in the coding. Data did not get saved in the MySQL database due to the index error in the source code. Scripts did not work in some browsers as scripting wasdisabled as default setting. Submit button did not work in google chrome due to the security restrictions of accessing and modifying systems file in thechrome.

Integration testing

After the unit testing, we have to perform integration testing the goal here is to see if modules can be integrated properly., the emphasis being on testing interfaces between modules. Upon testing we found that all the modules are properly integrated and working fine.

System testing

Software meets its requirement in system testing the entire software is tested. The reference document for this process is the requirements document, and the goal is to see if so.



Acceptance testing

It is performed with realistic data of the client to demonstrate that the software is working satisfactorily. Testing here is focused on external behavior of the system; the internal logic of programs is not emphasized.

Result

The application can be used for any E-commerce application. It is easy to use, since it uses the GUI provided in the user dialog. User friendly screens are provided. The application is easy to use and interactive making online shopping a recreational activity for users. It has been thoroughly tested and implemented.

Conclusion

The increase trend of online shopping will only grow and expand in the future. According to a study, "as experience and comfort grows, spending increases." Furthermore, it concludes that people have substituted their needs to shop at local stores by shopping online. The convenience and innovative way of shopping will persuade more consumers to shop online. However, in the long run, small businesses will suffer the negative effects of online shopping. Small businesses have a harder time to establish market share online. They also have to compete with larger more well-known and trusted firms. With the growing demand of online shoppers, businesses have to alter their business model. Despite the advantages of shopping online, negative concerns of online shopping can still be reduced to enhance a user's online shopping experience. E-tailors can gain trust from consumers by guaranteeing privacy and security on their sites through a third-party seal of approval. Also, it can use interactive tools to help consumers make their purchasing decisions. Through their efforts, they can attract more consumers online and enhance a shopping experience so that consumers will return. As a result traditional retail shopping will be reduced and possibly replaced by online shopping in the future.

References

1.Chanana Nisha and Goele Sangeeta, "Future of e-commerce in India", International Journal of Computing & Business Research, ISSN (Online): 2229-6166

2.Rina, D. (2016, March-April). Challenges and Future Scope of E-commerce in India. International Journal of Emerging Trends & Technology in Computer Science, 5(2), 232-235.

3.Gunasekaran, A., Marri, H., McCaughey, R., & Nebhwani, M. (2002). E-commerce and its impact on operations management. International Journal Of Production Economics, 185-197.

4. R. E. Walch, "Electronic commerce," in Key Aspects of German Business Law (Fourth Edition): A Practical Manual, 2009.

5.E. Turban, J.Whiteside, D.King, and J. Outland, Introduction to Electronic Commerce and Social Commerce. 2017.

6."E-Commerce and E-Business," in Information and Communication Technology in Organizations: Adoption, Implementation, Use and Effects, 2012.

7. D. Gefen, "E-commerce: The role of familiarity and trust," Omega, 2000, doi: 10.1016/S0305-0483(00)00021-9.

8. D. Peterson, "Introduction to E-commerce," in Financial Services Information Systems, 2000.

9. R. Rahayu and J. Day, "E-commerce adoption by SMEs in developing countries: evidence from Indonesia,"
Eurasian Bus. Rev., 2017, doi: 10.1007/s40821-016-0044-6.

A Study on Measures to Promote Research in Higher Education Sector

Dr. Seema Girdhar, Associate Professor GNIM

Kanika Rajput, B.Com Student GNIM

Kashish Rajput, B.Com Student GNIM

ABSTRACT

India has been the seat of learning and abode of knowledge and wisdom since time immemorial. Higher education provides a gateway to n number ofopportunities in the future. It is just like a door of opening to pathways, and one can always raise his orher living standards by studying in higher in life. As our higher education needs are extensive and dynamic, beset by a number of challenges like population explosion, unemployment, brain-drain, the need of the hour is to drastically recreate our higher education sector throughinnovation and excellence – both in academics and research.

To study the concept researcher has tried to do research through secondary data for which various data available in books, journals, Magazines, online site etc.

Key Words : Higher Education, Research, Opportunities, Funding

A Study On Measures To Promote Research In Higher Education Sector

Dr. Seema Girdhar, Associate Professor Gnim

Kanika Rajput, B.Com Student Gnim

Kashish Rajput, B.Com Student Gnim

INTRODUCTION

An investment in knowledge pays the best interest. Higher education is an important aspect in learner's life as it gives learners to learn more about anything and to pursue in that field. However, there are some challenges/problems in Higher Education that we are facing and it needs to be discussed. The higher education sector in India is progressing and transforming gradually. As higher education is considered the last stage of academic learning, and the studies done after the successful competition of secondary education. Higher education is an important aspect for learner's as it not only gives students/learners to learn more about any particular topic or any specialization, but also makes understand student the practical knowledge. As our higher education needs are extensive and dynamic, beset by a number of challenges like population explosion, unemployment, brain-drain, the need of the hour is to drastically recreate our higher education sector throughinnovation and excellence – both in academics and research. In this context, there is a need to develop more strategies, make more plans and take necessary measures for strengthen research and further research quality at our higher education sector. A determined and focused blueprint needs to be developed to achieve the best highest possible standard in research and teaching learning in order to keep pace with changing global trends.

RESEARCH METHODOLOGY

Research an important tool which helps in contributing to the existing store of knowledge. Research methodology is a way to systematically solve the research problem. It is the science of studying how a research is done. The researcher has explained the methods and steps adopted for achieving the purpose of the study and to arrive at a meaningful conclusion. The descriptive Research Design has been adopted by emphasizing Government initiative for promoting research in higher education. Data are the base providing information which helps in research for the study. Data collection

comprises of secondary data for the study. The secondary data was collected from related journals, publications and from web-sites and few popular search engines.

OBJECTIVES

- To understand the measures adopted to promote research.
- Benefits of measures adopted to promote research

Top ten measures that need to be taken to enhance research and promote research quality at our higher education sectors are discussed here.

Funding for research

- ☐ Research funding is defined as a grant obtained for conducting scientific research generally through a competitive process. To apply for grants and securing research funding is an essential part of conducting research.
- ☐ The most important requirement is having an interest in the particular subject, thorough knowledge of the subject, and finding out the gap in the knowledge.
- ☐ The second requirement is to know whether your research can be completed with internal resources or requires external funding.
- ☐ The next step is finding out the funding agencies which provide funds for your subject, preparing research grant and submitting theresearch grant on time.
- ☐ Many local, national, and international funding bodies can provide grants necessary for research. The priorities for different funding agencies on type of research may vary and this needs to be kept in mind while planning a grant proposal.
- ☐ National level funding agencies
  DST – Department of Science and TechnologyDBT –
  Department of Biotechnology

  UGC – University Grants Commission

  SERB – Science and Engineering Research Board
- ☐ International Level Funding agencies which are to be approachedfor research grants
  WTO – World Trade Organization UNO –
  United Nations OrganizationWHO – World
  Health Organization World Bank

Infrastructure for research

- ☐ Development of research infrastructure enhances our research and improves research quality drastically. It is possible by identifying and establishing research centers within

those institutes that are capable of undertaking high quality research.

- ☐ Research infrastructures are the services, facilities and resources used during research. Research infrastructures can be both physical and digital. This can include, for example: major pieces of equipment or collections of equipment;libraries, both physical and virtual etc. Such infrastructures areprimarily used for research; they can also have a wider purpose, such as in education or public service. Research infrastructures also allow researchers around the world to share data far more quickly than in the past.
- ☐ Besides adequate, trained manpower, there should be centers equipped with sophisticated instruments required to conduct high-end research, databases that are required to undertake systematic literature reviews, meta-analyses, access to literature through databases like Scopus, Medline etc.
- ☐ For survival of research infrastructures they should be more sustainable. Infrastructure must attract support of financialcommunity. It should meet a number of criteria to be sustainable :
    1. They must be open
    2. They must collaborate
    3. They must be diverse
    4. They must be adaptable
    5. Make use of best technology available
    6. Support principles of Open Sciences

Incentives for Research

Research incentives are rewards offered to people in exchangefor their participation in a study. Most often, these incentives are financial rewards that demonstrate appreciation for participants':

- ☐ Time
- ☐ Effort
- ☐ Insight
- ☐ Value brought to the study

Good research needs to be encouraged through suitable incentives, making its use in appointments and promotions of teachers is debatable since introduction of API (Academic Performance Indicators), assessment for teachers by UGC in 2010has come under criticism since it is thought to have resulted into automation of research output and teachers led to a rat race for accumulating API points in pursuit of their promotion. There is a lot of debate on whether there should be financial incentives to teachers, giving recognition to the teachers in their academics. Quality of research is more important over quantity of research. Experts must evaluate the field of quality of research based on their experience by using journal metrics like impact factor and citation index.

Manpower for Research

Adequate, qualified, trained, well-oriented and specialized manpower is needed in right numbers to run research centers to carry out research in identified thrust areas. For developing such manpower in the field of research, methodology needs to be incorporated to UG and PG curriculum at college as well as university level so as to develop a research culture and equip a research temperament and among our students and scholars. At school level, students should be curious to promote creativity, critical, innovative and analytical thinking in later course of their life so as to emerge as ace researchers. Specialized training to the selected man power depends upon prioritized thrust areas of research identified by experts.

Integrity in Research

Research integrity means conducting research in a way which allows others to have trust and confidence in the methods used and the findings that result from this. Conducting research with integrity also means meeting the professional standards expected of our researchers.

Research Integrity applies to the whole research lifecycle, from preparation and submission of grant and project proposals to the publication and dissemination of findings. For research to be of the highest standard, it must be robust and free from outside influences.

Key elements of research integrity include:

- Honesty
- Rigor
- Transparency and open communication
- Care and respect of all participants
- Accountability

These elements should be present at all stages of research. Research ethics is a key criterion of research integrity.

Young researchers need to be imparted adequate education about related issues like plagiarism, duplication, outsourced publishing etc. at an appropriate level of training. Research integrity has the potential to increase the quality of research in the research ecosystem, thereby increasing its overall effectiveness and impact into the future.

Translational research

Transactional research seeks to produce more meaningful, applicable results that directly benefit human health. The goal of translational research is to translate basic science discoveries more quickly and efficiently. It is observed that evidence generated through various research hardly translates into policy and whatever little translates into policy is hardly implemented in actual practice. It makes the whole exercise and results into confining of research dissertations.

There is a need for greater coordination between researchers and policymakers for incorporating research findings and recommendations into our administrative policies.

Success of translational training programs must therefore be flexible enough to accommodate the needs of individual institutions and individual trainees within the institutions but that it must also be rigorous enough to document that the program is meeting its short-, intermediate-, and long-term objectives and that its trainees are meeting pre-established competency requirements.

- Encourages and promotes multidisciplinary collaboration among laboratory and clinical researchers.
- Incorporates the desires of the general public, with communities being engaged to determine their needs for health innovation.
- Identifies and supports the adoption of best medical and health practices.

Policies for Research

Research Policy articles examines empirically and theoretically interaction between innovation, technology or research, on the one hand and social political and organizational processes on the other. Need of comprehensive, goal-oriented and focused research policies at institutional, regional/state levels as well as national level for enhancing research and promoting research quality in tune with fast changing global trends. Policies are important in research as they can identify critical problems, research the benefits and harms of policy solutions, estimate the costs and consequences of policy proposals, and actively participate in the policy process to aid real-time decision making. Such policies should be evidence based and practiced and implemented in a time-bound manner.

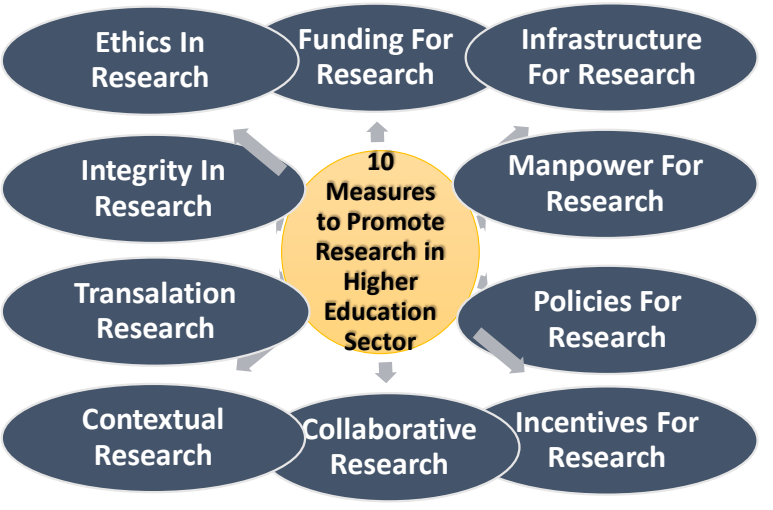
.Ethics in Research

Research ethics matter for scientific integrity, human rights and dignity, and collaboration between science and society. These principles make sure that participation in studies is voluntary, informed, and safe for research subjects. Defying research ethics will also lower the credibility of your research because it's hard for others to trust your data if your methods are morally questionable. Even if a research idea is valuable to society, it doesn't justify violating the human rights or dignity of your study participants. Prime importance needs to be accorded to the issues like confidentiality, privacy, beneficence, autonomy and justice without which no credible and substantive research is ever possible**.**

Five principles for research ethics are as follows:

1. **Discuss intellectual property frankly**
2. **Be conscious of multiple roles**
3. **Follow informed-consent rules**
4. **Respect confidentiality and privacy**
5. **Tap into ethics resources**

Awareness about these components must be created from the very beginning of the research. An institutional ethics committee needs to be vigilant, proactive about any such malpractices in research and be strict in ensuring ethics in research. Without integrity and ethics, no substantial gains can be made in achieving high standards of quality in research.



Contextual, Need – Based Research

Contextual Research helps in addressing guiding the needs of the society. The nations which are developed, universities maintain research fairs and establish research shops, so that community /society members can visit there & register their problems, according to the research projects which are being prepared & find solutions according to their actual problems. Likewise, timely and regular communication about research outputs plays an important role for greater transparency of research activities. Research institutions must think about these best practices apart from establishing entrepreneurship & innovation incubation cells within their research centers so as to harness the spirit of entrepreneurship through research. These cells help to startup to gather money for incubating innovative ventures.

Collaborative Research

It is a form of cooperation between various disciplines; we can say that one discipline is dependent on the other discipline. It is considered that the quality of inter – disciplinary depends by the respective disciplines in the cooperative process.

Similarly if one discipline is dominant then the quality of other discipline will be poor. If the influence is balanced the quality will be high.

Benefits of Government initiatives to promote Research in Higher Education

The Government is committed to provide justified access to quality education to all sections of the society and the vision of the Ministry is to realize Indian's human resource potential to its fullest in the education sector with equity and involvement. The Ministry Human Resource Development is implementing several schemes aimed at increase literacy and basic education of the youth, expanding access to all levels of education, including higher and technical education.

Several initiatives are currently being undertaken in this direction, such as in elementary education, the Right of Children to Free and Compulsory Education (RTE) Act, 2009 and Sarva Shiksha Abhiyan (SSA) programme aims for improvements in school infrastructure, curricular and assessment reforms, identification of learning indicators, improved teaching and learning resulting in better learning outcomes. Rashtriya Madhyamik Shiksha Abhiyan (RMSA), ICT in Schools, Centrally Sponsored Scheme on Teacher Education (CSSTE), Shaala Siddhi, Rashtriya Avishkar Abhiyan are being implemented to improve the quality of secondary education. Recently, the Department of School Education and Literacy has prepared the Samagra Shiksha- an Integral Scheme for School Education as a Centrally Sponsored Scheme and it is being implemented

throughout the country with effect from the year 2018-19. In higher education also, various schemes, namely, Rashtriya Uchchatar Shiksha Abhiyan (RUSA), Global Initiative for Academics Network (GIAN), Impacting Research, Innovation & Technology (IMPRINT), Technical Education Quality Improvement Programme (TEQIP), Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT), Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM), National Digital Library, campus connect programme, Uchhatar Avishkar Abhiyan, Unnat Bharat Abhiyan are being implemented to improve the quality of higher education. A number of initiatives are also undertaken by UGC and AICTE for quality improvement in higher and technical education.

Conclusion

Higher Education in India needs to be emphasized in a good way. The matter is that it should not be limited to only getting a degree and getting a job. Institutes providing higher education should ensure that focusing on practical and skill-based knowledge are quite important in the field. If this can be achieved then we won't be having corporate slaves, rather than we would be having great leaders and productive candidates who would be delivering their best in their respective fields**.**

Bibliography

Baum, Sandy, Jennifer Ma, Matea Pender, and Meredith Welch. 2016. Trends in Student Aid 2016. New York: College Board.

Bulman, George, and Caroline Hoxby. 2015. "The Returns to the Federal Tax Credits for Higher Education." Tax Policy and the Economy 29:13–88.

Darling-Hammond, L. (2019). Implications for educational practice of the science of learning and development. Applied Developmental Science. (Accessed on 22.02.2020, Available at: https:// www.tandfonline.com/doi/full/10.1080/10888691.2018.1537791).

Dynarski, Susan, and Judith Scott-Clayton. 2013. "Financial Aid Policy: Lessons from Research." The Future of Children 23 (1): 67–91.

GoI (2013). The Science and Technology Innovation Policy. Department of Science and Technology. Ministry of Science and Technology, Government of India, New Delhi.

Goldin, Claudia, and Lawrence F. Katz. 2008. The Race between Education and Technology. Cambridge, MA: Belknap Press.

Gordon, Robert J. 2016. The Rise and fall of American Growth: The US Standard of Living since the Civil War. Princeton, NJ: Princeton University Press.

Ma, Jennifer, Matea Pender, and Meredith Welch. 2016. Education Pays 2016: The Benefits of Higher Education for Individuals and Society. New York: College Board.

McPherson, Michael, and Sandy Baum. 2017. “The Federal-State Higher Education Partnership: Rethinking the Relationship.” Washington, DC: Urban Institute.

NCES (National Center for Education Statistics). 2016. Digest of Education Statistics 2016. Washington, DC: US Department of Education, Institute of Education Sciences, NCES

Parashar A.K., and Parashar, R. (2012). Innovations and curriculum development for engineering education and research in India. Procedia – Social and Behavioural Sciences, 56: 685-90.

UGC (2019). Improving the quality of research by faculty and creation of new knowledge and 12 Reimagining Indian Universities strategies for improving research culture in colleges and universities. Report of the committee constituted by UGC. July, 2019.

UNESCO (1986). Interdisciplinarity in General Education: A Study by Louis d’Hainaut following an International Symposium on Interdisciplinary in General Education held at UNESCO Headquarters.www. unesdoc.unesco.org

GREEN MARKETING NEED OF AN HOUR

Dr. Seema Girdhar
Associate Professor
GNIM

Tanisha
B.Com IV
Student

Shivansh
B.Com IV
Student

ABSTRACT

Concerns have been expressed by manufacturers and customers about the environmental impact of products during recent decades. Consumers and manufacturers have directed their attention toward environment friendly products that are presumed to be "green" or environment friendly like low power consuming (energy-efficient) electrical appliances, organic foods, lead free paints, recyclable paper, and phosphate free detergents. Indian marketers are also realizing the importance of the Green Marketing Concept. Although a variety of research on green marketing has been conducted across the globe; little academic research on consumer behavior has been carried out in India. This research provides a brief review of consumer behavior towards green products and practices. This paper highlights the consumers' awareness towards green marketing practices and products. A study was conducted on secondary source of data. High level of awareness about green marketing practices and products was found among the consumers. Research has given good insights for consumer behavior towards green products.

Key Words : Green, Product, Consumer, Awareness

GREEN MARKETING NEED OF AN HOUR

Dr. Seema Girdhar
Associate Professor
GNIM

Tanisha
B.Com IV
Student

Shivansh
B.Com IV
Student

INTRODUCTION

Thus, a wide range of activities are covered by green marketing, including altering the product, changing the production process and packaging, as well as altering advertising or eliminating any activity that has a detrimental influence on the environment. The need for businesses to create and sell themselves as environmentally responsible has never been greater because the Earth now faces more environmental problems than ever before. Due to growing consumer awareness and concerns, green marketing is becoming a well-liked advertising technique. When working with clients, vendors, dealers, and employees, firms are urged to use ethical and environmentally friendly practices. This is known as "green" or "ecological" marketing. Businesses must continually evaluate the most appealing and recent marketing trends. By regularly investigating the shifts in customer behavior in the marketplace, marketing trends can be discovered. Businesses can adapt what they are offering to customers by noticing changes in consumer behavior. Today's consumers are more concerned with environmental degradation and the damaging effects of the products and services they utilize. Climate change that is already being seen, global warming, and rising air and water pollution could all be contributing factors to this worry. Thus, employing green marketing gives businesses a chance to satisfy customers' needs and allay their environmental worries while simultaneously gaining a competitive edge and a loyal customer base. Environmental marketing is another name for green marketing. or ecological marketing. According to the American Marketing Association, green marketing refers to the promotion of items that are thought to be ecologically safe. Thus, a broad variety of activities are covered by green marketing, including changing the product, the production process, and the packaging, as well as altering advertising or stopping any activity that has a detrimental influence on the environment. The need for businesses to create and sell themselves as environmentally responsible has never been greater because the Earth now faces more environmental problems than ever before. Due to growing consumer awareness and concerns, green marketing is becoming a well-liked advertising technique.

Thus, a wide range of activities are covered by green marketing, including altering the product, changing the production process and packaging, as well as altering advertising or eliminating any activity that has a detrimental influence on the environment. The need for businesses to create and sell themselves as environmentally responsible has never been greater because the Earth now faces more environmental problems than ever before. Due to growing consumer awareness and concerns, green marketing is becoming a well-liked advertising technique. When working with clients, vendors, dealers, and employees, firms are urged to use ethical and environmentally

friendly practices. This is known as "green" or "ecological" marketing. Businesses have been promoting themselves as environmentally friendly ones.

Even the public sector and state governments are now paying close attention to environmental problems such pollution, water poisoning, and global warming and have begun taking action to stop environmental pollution. In a recent study titled "Consumer Greendex" by the National Geographic Society and the international polling company Globescan, consumers in developing nations like India, Brazil, and China scored higher than consumers in industrialised nations overall. According to Howeet al. (2010), consumers in India, Russia, and the US showed the biggest increases in environmentally friendly behaviour. A company must be dedicated to operating in an environmentally friendly manner in order to succeed in green marketing. However, depending on various definitions of green marketing, some typical traits of goods usually recognized as green, including the goods, are as follows:

1. Energy-efficient in both production and usage.
2. Water-efficient (both during manufacture and in usage).
3. Minimal emissions (minimal harmful emissions)
4. Healthful and/or secure items.
5. Recyclable or made of recyclable materials
6. Long-lasting and durable.
7. Biodegradable.
8. Renewable.
9. Recycled goods.
10. Certification by a third party to public or transportation standards (such as organic or certified wood)
11. Made locally.

Since their use will cut energy consumption and consumers can save a significant amount of money on power over time, several consumer durable businesses are now promoting their products with the Energy Star label.

WHY GREEN MARKETING?

Most of the companies are venturing into green marketing because of the following reasons:

Opportunity

In India, around 25% of the consumers prefer environmental-friendly products, and around 28% may be considered health conscious. Green marketers have diverse and fairly sizeable segments to cater to. The Surf Excel detergent which saves water (advertised with the message—"do bucket paani roz bachana") and the energy-saving LG consumers durables are examples of green marketing. We also have green buildings which are efficient in their use of energy, water and construction materials, and which reduce the impact on human health and the environment through better design, construction, operation, maintenance and waste disposal. Godrej Green business Center, has gained tremendous impetus over the last few years. From 20,000 sq ft in 2003.

Social-Responsibility

Many companies have started realizing that they must behave in an environment- friendly fashion. They believe both in achieving environmental objectives as well as profit related objectives. The HSBC became the world's first bank to go carbon-neutral last year. Other examples include Coca-Cola, which has invested in various recycling activities. Walt Disney World in Florida, US, has an extensive waste management program and infrastructure in place. Even digital marketing agencies like WebCitz choose to take up eco-friendly approaches to their business practices.

Governmental-Pressure

Various regulations are framed by the government to protect consumers and the society at large. The Indian government too has developed a framework of legislations to reduce the production of harmful goods and by products. These reduce the industry's production and consumers' consumption of harmful goods, including those detrimental to the environment; for example, the ban of plastic bags in Mumbai, prohibition of smoking in public areas, etc.

Competitive-Pressure

Many companies take up green marketing to maintain their competitive edge. The green marketing initiatives by niche companies such as Body Shop and Green & Black have prompted many mainline competitors to follow suit.

Cost-Reduction

Reduction of harmful waste may lead to substantial cost savings. Sometimes, many firms develop symbiotic relationship whereby the waste generated by one company is used by another as a cost-effective raw material. For example, the fly ash generated by thermal power plants, which would otherwise contributed to a gigantic quantum of solid waste, is used to manufacture fly ash bricks for construction purposes.

RESEARCH METHODOLOGY

Research is the skill of looking for fresh information in any field and includes problem definition and problem re-definition. Through investigation and interpretation, it aids in revealing the hidden truth. Research is a way to systematically address the research topic and add to the body of information already in existence. It is the science of researching how a study is carried out. The researcher has described the procedures and approaches used to fulfill the objectives of the study and arrive at a relevant conclusion.

Sampling Plan

The current analysis is focused on the broad information about Green Marketing.

Approach to Research

Exploratory research and descriptive research are the two main forms of study. The current study has used an exploratory research approach.

Types of Data

Data serve as the foundation for the investigation by supplying information. The two main forms of data are primary and secondary. For the present study secondary data is used for gathering information on the topic for the investigation. The secondary data is gathered from relevant journals, books, websites, and a few well-known search engines.

LITERATURE REVIEW

Topic	Name	Year	Conclusion
A Study of Consumer Awarenes s for Green Marketing	Ms. Anuradha Gaikwad Ms. Deepa Ingavale	February 2011	Researcher has concluded that businesses may stand out from their rivals and attract customers who are looking for environmentally friendly goods and services by promoting eco- friendly products and practices. Customers who are aware of eco-friendly items and who prefer them are not willing to purchase pricey eco-friendly

			goods
Green Marketing "It's Impact on Global Market"	Pragati Singh Dr. Anjani Kumar	5 May 2022	Researcher has analyzed that by conserving natural resources and using alternative energy sources to produce goods and services, green marketing helps to safeguard the environment for coming generations.
Green Marketing : A Study of Consumer Perception and Preferences in India	Mayank Bhatia and Amit Jain	2013	Researcher states that the level of consumer knowledge of green products was found to be high, but consumers were notaware of the green activities carried out by various government and non-government organizations, indicating the need for more efforts by organizations in this area. Newspapers should be used more often to tell customers about green practices and products since they continue to be the primary source of information for the majority of respondents.
A Research Paper on Green Marketing	Suman Kundu	Feb, 2019	There are strong signs that environmental issues will gain prominence over the next few years, necessitating the creative Business solutions, which represent the enlightened self- interest of commercial firms figuring out new methods to incorporate technology and conduct transactions withgreater care for previously unpriced environmental products and services, hold specialpotential in the short term. One component of the solution is the promotion of responsible consumption and green marketing. A tool for preserving the environment for coming

			generations is green marketing. The green market is a new one that is emerging as a result of rising environmental protection awareness. Customers are willing to spend more for a greener lifestyle because they want to associate themselves with businesses that are environmentally friendly.

BENEFITS OF GREEN MARKETING

Today's consumers are becoming more and more conscious about the environment and are also becoming socially responsible. Therefore, more companies are responsible to consumers' aspirations for environmentally less damaging or neutral products. Many companies want to have an early-mover advantage as they have to eventually move towards becoming green. Some of the advantages of green marketing are,

• It ensures sustained long-term growth along with profitability.

• It saves money in the long run, thought initially the cost is more.

• It helps companies market their products and services keeping the environment aspects in mind. It helps in accessing the new markets and enjoying competitive advantage.

• Most of the employees also feel proud and responsible to be working for an environmentally responsible company.

EVOLUTION OF GREEN MARKETING

The green marketing came in to existence over a period of time and it has three phases. The first phase was termed as “Ecological” marketing”. During this period all marketing activities were concerned to help environment problems and provide remedies for environmental problems. Second phase was termed as "Environmental marketing” and this phase focus on use of clean technology and designing and innovation of new products, which take care of pollution and waste issues. Third phase was termed as "Sustainable green marketing”. It came into existence in the late 1990s and early 2000.

GREEN MARKETING PRACTICES IN INDIA

In the shoe industry, Nike is the first brand to promote itself as environmentally friendly. It promotes its Air Jordan footwear as being environmentally friendly and using fewer toxic glue adhesives. In addition, Kansai Nerolac promotes itself as a green business. Nerolac has made efforts to get dangerous heavy metals out of their paints. Lead or other similar heavy metals are not added throughout the manufacturing process. One of the manufacturers that focuses on making environmentally friendly IT equipment is Dell. They use a marketing technique called "Go green with Dell" to promote these items. Eco-hotels in India like Orchid, Rodas, and Rain Tree also engage in green advertising. IBM also introduced Project Big Green in May 2007 to assist clients worldwide.

PROBLEMS OF GREEN MARKETING

Many organizations want to turn green, as an increasing number of consumers' ant to associate themselves with environmental-friendly products. Alongside, one also witnesses confusion among the consumers regarding the products. In particular, one often finds distrust regarding the credibility of green products. Therefore, to ensure consumer confidence, marketers of green products need to be much more transparent, and refrain from breaching any law or standards relating to products or business practices.

CONCLUSION

The principle that businesses must satisfy customer needs and wants while maintaining the integrity of the environment is the cornerstone of green marketing. Although this latter concern has mostly gone unresolved throughout documented human history, this does not necessarily mean that it will not be important in the future. In fact, there are many indications that environmental issues will gain importance in the years to come, prompting an original and creative reassessment of many organisations' current marketing activities. There are three broad areas in which environmental issues might be resolved: commercial (economic and technological), legal, and ethical. If the human population of the world is to be sustained over the long term, there will likely need to be a considerable shift in their ethical behaviour. Barring a crisis, these changes are probably not going to happen anytime soon. Legislation is a potent tool for bringing about social change because of its speed and efficacy of implementation, which give it a major edge over moral persuasion even though its results are not always as desired. In the short term, business solutions, which represent the enlightened self-interest of commercial companies developing new ways to incorporate technology and conduct transactions with greater care for hitherto unpriced environmental products and services, show particular promise. The encouragement of responsible consumption and green marketing is a part of the solution. Green marketing is a method for protecting the environment for future generations. It enhances the environment's security. The growing awareness of environmental protection is creating a new industry called the green one. If businesses wish to succeed in this market, they must implement a green strategy into every aspect of their operations. Customers are prepared to pay more for a greener lifestyle because they want

to be associated with companies that share their values. Green marketing therefore functions as both a marketing tactic and a means of preserving the environment.

Bibliography/References

- Alsmadi, S. (2007). Green Marketing and the Concern over the Environment: Measuring Environmental Consciousness of Jordanian Consumers. Journal of Promotion Management, 13(34).
- Baumann, H., Boons, F., Bragd, A. (2002). "Mapping the green product development field: engineering, policy and business perspectives", Journal of Cleaner Production, Vol. 10, pp. 409
- Bolton, R.N. (1998). "A dynamic model of the duration of the customer's relationship with a continuous service provider: the role of satisfaction", Marketing Science, Vol. 17 No.1, pp. 45
- Cadotte, Ernest R., Robert B. Woodruff and Roger L. Jenkins (1987). "Expectations and Norms in Models of Consumer Satisfaction," Journal of Marketing Research, 24 (August), 305 Journal of Marketing Research, 19 (November), 491
- Chan Hing Kai., He Hongwei, & Wang William, Y. C. (2012). Green marketing and its impact on supply chain management in industrial markets. Industrial Marketing Management, 41(4), 557-562.
- Davis, J. J. (1995). Consumer response to corporate environmental advertising. Journal of Consumer Marketing, 11(2), 25-37.
- Day, Ralph L. (1977). "Towards a Process Model of Consumer Satisfaction," Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction. H. Keith Hunt, ed. Cambridge, MA: Marketing Science Institute, 153.
- Donaldson, R. H. (2005), Green brands. NZ Marketing Magazine, 24(8), 14–17.
- Dono, J., Janine, W., & Ben, R. (2010). The relationship between environmental activism, proenvironmental behaviour and social identity. Journal of Environmental Psychology, 30(2), 178-186.
- Elkington, J. (1994). Toward the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development. California Management Review, 36(2), 90-100.
- Eriksson, C. (2004). Can green consumerism replace environmental regulation? A differentiatedproducts example. Resource and Energy Economics, 26(3), 281-293.
- Gadenne, D., Sharma, B., Kerr, D., & Smith, T. (2011). The influence of consumers' environmental beliefs and attitudes on energy saving behaviours. Energy Policy, 39(12), 7684-7694. © 2022 IJNRD | Volume 7, Issue 5 May 2022 | ISSN: 2456-4184 | IJNRD.ORG IJNRD2205005 International Journal of Novel Research and Development (www.ijnrd.org) 60
- Hay, B., Mark A., & Lichter. (2000). Strategies of Green Marketing, Retrieved from http://it.stlawu.edu/~advertiz/enviro/index.htm

- Henion, K. E., & Kinnear, T. C. (1976). Ecological Marketing, American Marketing Association. Chicago.
- Kotler, Philip, Keller, K.L., Koshy, A., &Jha, M. (2012) Marketing Management- A South Asian Perspective. New Delhi: Pearson Education, pp- 77-80.

Green Bonds- Unlocking for Sustainable Future

By Dr. Mamta Shah, Faculty-GNIM

Muskan, Student-GNIM,

Bhavya, Student-GNIM

Abstract-

Green Finance is any structured financial activity that's been created to ensure a better environment outcome. Green finance is blossoming. Globally Green bond market could be $2036 trillion by 2023.

The present paper is going to analyse Green finance market for sustainable future.

Meaning

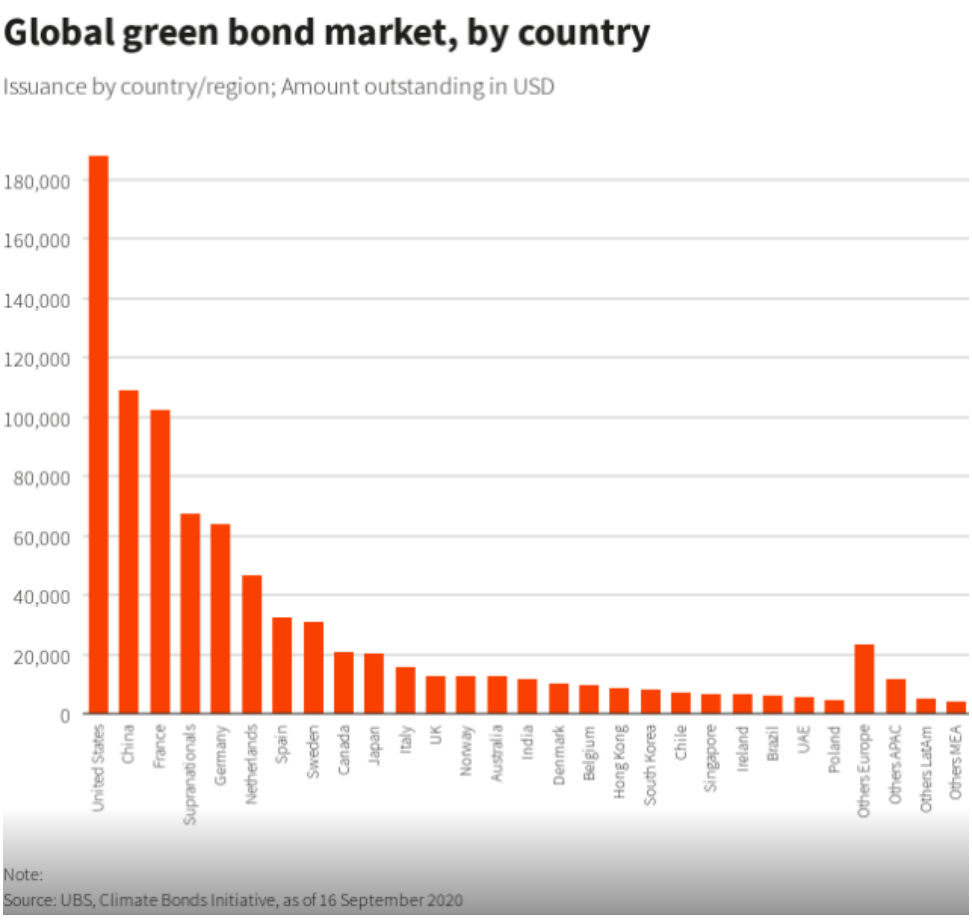
Green finance is any structured financial activity – a product or service – that's been created to ensure a better environmental outcome. It includes an array of loans, debt mechanisms and investments that are used to encourage the development of green projects or minimize the impact on the climate of more regular projects, Or a combination of both.

Green financing plays an important role in delivering several of its Sustainable Development Goals. The financing could be used for many ways for sustainable future.Clean sources of energy can be brought to fruition through the right combination of planning consent, strategic priorities and availability of capital. Such projects could be given preferential treatment to make them a more attractive option than, for example, fossil-fuel derived energy infrastructure.

Green finance includes following projects under its umberella--

- Renewable Energy
- Pollution Prevention and control
- Biodiversity Conservation
- Circular economy initiatives
- Sustainable use of Resources and land

Green Bonds- One common green finance instrument is the green bond. There is a code of conduct what constitute a green bond. qualify, a bond must adhere to criteria on the use of proceeds, have a process for project evaluation and selection, ensure proper management of any proceeds, and offer detailed reporting. The US, China and France are the three biggest issuers of green bonds. Presently, the European Central bank holds around 20% of all euro denominated green debt even though it only started buying corporate bonds as recently as 2016, which indicates that the bank sees this as a way to further its own green agenda.



The total size of the Indian green, social and sustainability market as of December 2021 stood at USD19.5 billion by 75 issuers in 3 currencies. Of these, green bonds led the way accounting for. USD18.3 billion followed by sustainability bonds and social bonds at USD600 million and USD500 million respectively.
The Indian green, social and sustainability (GSS) debt issuance increased more than six-fold, nearly 585% to reach USD7.5 billion in 2021 following a pandemic induced decline in issuance in 2020.

According to a report by Climate Bonds Initiative, the cumulative volume has almost doubled in the last two years to represent USD19.5bn in value.

Currently, most GSS bonds and loans targeted offshore investors, but the domestic market also saw relatively large deals.

The total size of the Indian GSS market as of December 2021 stood at USD19.5 billions by 75 issuers

in 3 currencies. Of these, green bonds led the way accounting for USD18.3 billion followed by sustainability bonds and social bonds at USD600 million and USD500 million respectively.

With USD19.5bn in cumulative issuance, India is the 19th largest GSS market globally and sixth in the APAC region, behind China, Japan, South Korea, Australia, and Singapore, as per the report.

How do we define GSS debt?

GSS debt consists of green, social and sustainability bonds. Green bonds work like regular bonds, but with one key difference– the money raised from investors is used exclusively to finance projects that have a positive environment impact, such as renewable energy, green buildings, energy efficiency projects and so on.

Social bonds are bonds that fund projects that have a positive social impact like causes from access to education to affordable transportation, healthcare, among others.
Meanwhile, sustainability bonds are issues where proceeds are used to finance or refinance a combination of green and social projects or activities.

Corporates lead

At USD14.6 billion, nearly three-quarters of the cumulative labelled bond volume in India originates from the private sector amounting USD14.6bn originates from the private sector amounting USD14.6bn. While financial corporates issued USD1.1bn, non financial corporates added USD6b both records amounts for a calendar year since the market's inception in 2015.Meanwhile the issuance by government-backed entities stands at USD billion. Corporate have retained a relatively consistent presence since 2016, when their share began to grow significantly.
Green deals remain most popular

According to Climate Bonds Initiative, the green theme has the largest share of the Indian GSS market at 89%. Green issuance has grown steadily to USD18.3 billion cumulative With 2021 being the most successful year yet for green bonds in the country. This implies that green deals are still the most popular in the Indian market for raising sustainable debt. The average size of green labelled bonds has been relatively uniform since 2015, with around half of the total green amount that is USD9.5 billion out of USD18.3 billion comprising benchmark-size deals. Moreover, 2021 was the most diverse year in terms of the number of categories financed by green bonds proceeds. which was led by renewable energy followed by low-carbon buildings and water management.
Policy support

Since late 2020, policy and regulatory initiatives have been formalised. The ministry of finace set up a sustainable Finance task force to develop four pillars of action outlined in its Sustainable Finance Roadmap ,Indian Taxonomy of sustainable activities, Reporting and disclosure, Financial policy and regulation, Ecosystem development.

As per report actions under each pillar may be further prioritised in keeping with the announcements made by the government with respects to 2030 targets set for the country set for the country at the COP26.

RBI has also joined the Greening the Financial System (NGFS) and the MOF represents India as a founding members at the International Platform for Sustainable Finance (IPSF).

Indian market

The Indian GSS debt market is gaining momentum and is expected to gather pace in 2022 supported by a few key themes. The announcement of sovereign green bonds made in the Union Budget of 2022 is expected to encourage more issuance from public and private sector entities in the domestic green bond markets with an almost immediate impact.

Furthermore the action of the Ministry of Finance's Sustainable Finance Task Force are likely to strengthen the domestic market further. Currently most GSS deals originating from India have been in the offshore market. While the large scale renewable energy segment is expected to dominate for at least the next three to five years, solar rooftop and EVs will remain the next best development prospects and are expected to benefit from future green bonds.

References

- **https://treasury.worldbank.org/en/about/unit/treasury/ibrd/ibrd-green-bonds**
- **https://www.oecd.org/environment/cc/Green%20bonds%20PP%20%5Bf3%5D%20%5Blr%5D.pdf**
- **https://www.climatebonds.net/market/explaining-green-bonds**
- https://www.ifc.org/greenbonds

"SUSTANTAINABLE DEVELOPMENT IN WEB ANALYTICS"

Ajay Gour, Student(MCA), ajgour18@gmail.com
Dr. Shipra Jain, Faculty GNIM, jainshipra11@gmail.com

ABSTRACT

This paper presents a study on Web Analytics. A huge number of businesses around the world that has a Web presence and some of them conduct all or the majority of their business transactions online. That created the need to have tracking procedures in place to technical writing paper and measure the different activities that are happening on the web, like user behaviour on a particular website, the influence of new features on a website, the effect of a marketing campaign on website traffic, and many more like monitoring the website traffic for any anomalies or attacks.

The paper begins by providing an overview of web analytics and its relevance to marketing. It provides an in-depth exploration of the uses of web analytics, showcasing the transformative impact on marketing and business.

The focus of this paper will be on the Data Collection process, and that comes for 3 main reasons. First, we can conclude from the Web Analytics Process that there are several stake holders involved. We can argue that steps 1 and 2 (defining goals and building KPIs) are tightly related to business functions and therefore not really in the scope of our expertise as computer scientists. Second, step 4 (data analysis) is a big field on its own, therefore we will not go into the methods of data analysis And lastly, step 5 (implementing changes) will always be case specific, thus also will not be covered in this technical writing paper. That leaves the data collection step where we will go into detail to know more about the different methods of data collection in the context of Web Analytics.

Keywords: Web analytics, Web Tracking, Web Logs, Google, Data Collection.

INTRODUCTION

Web analytics is the process of analysing the behaviour of visitors to a website. This involves tracking, reviewing and technical writing papering data to measure web activity, including the use of a website and its components, such as web pages, images and videos. Data collected through web analytics may include traffic sources, referring sites, page views, paths taken and conversion rates. The compiled data often forms a part of customer relationship management analytics (CRM analytics) to facilitate and streamline better business decisions. Web analytics enables a business to retain customers, attract more visitors and increase the dollar volume each customer spends.

Analytics can help in the following ways:

- Determine the likelihood that a given customer will repurchase a product after purchasing it in the past.
- Personalise the site to customers who visit it repeatedly.
- Monitor the amount of money individual customers or specific groups of customers spend.
- Observe the geographic regions from which the most and the least customers visit the site and purchase specific products.
- Predict which products customers are most and least likely to buy in the future.

Fig 1

Literature Review

To create this technical writing paper we used a literature review approach, searching for papers using Google Scholar on keywords like Web Analytics and Web Tracking. We considered some papers based on the titles, and after reading the abstract and conclusion for these papers and comparing the results based on the relevance to the topic and the scope of the papers we selected 5 papers to be used for this technical writing paper and presentation. In addition, we were granted access from a software company which choose to stay anonymous, to their Google Analytics account that is used for the purpose of monitoring their website. And from that account we were able to provide some screenshots to the Google Analytics software. In addition, we used Google to search the web for extra clarification and definitions in some cases. Therefore this technical writing paper is entirely based on these references

and doesn't try to introduce any novel ideas. The last section that talks about future trends in analytics is based on personal observations and opinions of industry trends and experts.

Method or Working Process

1. Web analytics process

Fig 2

The web analytics process involves the following steps:

1.1 Setting goals

The first step in the web analytics process is for businesses to determine goals and the end results they are trying to achieve. These goals can include increased sales, customer satisfaction and brand awareness. Business goals can be both quantitative and qualitative.

1.2 Collecting data

The second step in web analytics is the collection and storage of data.

Businesses can collect data directly from a website or web analytics tool, such as Google Analytics. The data mainly comes from Hypertext Transfer Protocol requests -- including data at The network and application levels -- and can be combined with external data to interpret web usage. For example, a user's Internet Protocol address is typically associated with many factors, including geographic location and click through rates.

1.3 Processing data

The next stage of the web analytics funnel involves businesses processing the collected data into actionable information.

1.4 Identifying key performance indicators (KPIs)

In web analytics, a KPI is a quantifiable measure to monitor and analyse user behaviour on a website. Examples include bounce rates, unique users, user sessions and on-site search queries.

1.5 Developing a strategy

This stage involves implementing insights to formulate strategies that align with an organisation's goals. For example, search queries conducted on-site can help an organisation develop a content strategy based on what users are searching for on its website.

1.6 Experimenting and testing

Businesses need to experiment with different strategies in order to find the one that yields the best results. For example, A/B testing is a simple strategy to help learn how an audience responds to different content. The process involves creating two or more versions of content and then displaying it to different audience segments to reveal which version of the content performs better.

2. DATA COLLECTION

In this section, we will look at the main ways of capturing behavioural data from Websites to be used in Web Analytics. As mentioned earlier, the focus of this report will be on the data collection process in Web Analytics because it is the most related to us as computer scientists. In addition, other parts of the process in Figure can be studied as separate topics on their own like data analysis. According to there are 4 main ways of capturing data for the purpose of Web Analytics. They are: Web Logs data, JavaScript Tagging, Web Beacons, and Packet Sniffing. We will see what the advantages of each approach are and how each of them works.

2.1 Web Logs

In Web Logs method of collecting website data, the server that hosts the website registers user requests in a log file. There are several file formats for log files, one example is the Extended Log File Format. It is considered the commonest file format for Web Logs. Extend Log File Format records several info for each request like the IP of the computer that requested the 5 information, date or time at which the transaction was completed by the user, the time taken for the completion of the transaction, the amount of bytes transferred, the records whether a cache hit occurred and the referrer

to the page which is usually possible to obtain as part of the HTTP protocol. There are several advantages to using the Web Logs method to collect Website data. First, the website owner owns the data as opposed to some other methods, like JavaScript tagging, where the data is owned by a 3rd party. Second, Web Logs are available backwards, which enables the website owner to analyse history data and past campaigns. Third, Web Logs save web crawler behaviour to better understand how search engines work and rank the site, web crawlers are used by search engines to index websites and show them as search results later. Web Logs are collected when a customer enters a URL in a browser, the request comes to one of the Web Servers on which the site is hosted, the web server then creates an entry in the log file and then the requested page goes back to the customer, this process is shown in figure.

2.2 JavaScript Tagging

Another method of data collection in web Analytics is using JavaScript Tagging. And that works by inserting a small JavaScript code, in every page of a website. Then every time a visitor opens a page, this JavaScript code is activated and the visitor information and actions are saved in a separate file. Log File Data Collection Visualization. Source: The advantages of this methods are that it counts every visit to a website, unless the user closes the page before the script is loaded, while log files can be affected by cached pages by the proxy. Also, the JavaScript code is not read by the search engine crawlers, which generates high amounts of traffic and are not representative of customers'behaviour, while in Log Files search engine crawlers can be mistaken for actual users of the site. Additionally, usually the analysis resources of JavaScript Tagging data are outside the company which owns the website. That can be a good thing when companies don't want to invest in infrastructure for data collection and analysis, and they are fine with having their data hosted on a 3rd party servers. The sequence in which JavaScript Tagging works, starts when the customer types a URL in a browser, then this request comes to one of the Web Servers where the website is hosted. The Web Server then sends back the requested page to the user along with a snippet of JavaScript code appended. As the page loads, it executes the JavaScript code which captures details about the visitor session and cookies, and sends it back to the data collection server. Google Analytics Tracking Code. JavaScript Tagging Data Collection Visualization. Source: And in some cases upon receipt of the first set of data, the server sends back additional code to the browser to set additional cookies or collect more data.

2.3 Web Beacons

The third method of data collection in Web Analytics is by using Web Beacons. In this method, a "tracking pixel" is used to measure banner impressions and click through. So this method is mainly

used with online advertising, especially when using banner ads. As banner ads are usually images, one pixel of the banner image is utilized to be the tracking pixel. The benefit and common usage of Web Beacons is in tracking customer behaviour across different websites. Because the same server is collecting the data, reading the cookies and doing the tracking, it is possible to track the same visitor across multiple sites or different visitors to the same site. And therefore it is mainly used to know how are banner ads performing across multiple websites. As Figure shows, the sequence in which Web Beacons work is first when a user types a URL in a browser, the request comes to one of the web servers. Then the web server sends back the page along with a GET request for a 1x1 pixel image from a 3rd party server. As the page loads, it executes the call for the 1x1 pixel image and thus sending data about the page view back to the third-party server. Then the third-party server sends the image back to the browser along with a code that can read cookies and capture anonymous visitor data.

2.4 Packet Sniffing

The last method of data collection in Web Analytics that we discuss in this report is Packet Sniffing. In this method, packets go through a packet sniffer that collects the packet's attributes 8. Web Beacon Data Collection Visualization, notice tracking across 2 different websites. Source. A packet sniffer is a software or hardware that resides between the user's device and the Web Server. And used to read the packets that are passing between the two. The advantage of packet sniffing is that there is no need to tag pages like the case with some of the previous methods, because all the information pass through the packet sniffer. Packet sniffing s often used with multivariate testing. When a user types a URL in browser, the request is routed to a web server but it passes through a software or hardware based packet sniffer that collects the attributes of the request. The packet sniffer then sends the request to the web server where the request is sent back to the customer but it also passes through the packet sniffer. The packet sniffer captures information about the page going back to the user, it store that data and sends the page to the user's browser. Some packet sniffers append a JavaScript tag that can send more data about the visitor back to the packet sniffer. The previous steps are shown in Figure.

3. Categories of Web Analytics

3.1 Off-Site Analytics

The term off-site web analytics refers to the practice of monitoring visitor activity outside of an organisation's website to measure potential audience. Off-site web analytics provides an industrywide analysis that gives insight into how a business is performing in comparison to competitors. It refers to the type of analytics that focuses on data collected from across the web, such as social media, search engines and forums.

3.2 On-Site Analytics

The term *On-site web analytics* refers to a narrower focus that uses analytics to track the activity of visitors to a specific site to see how the site is performing. The data gathered is usually more relevant to a site's owner and can include details on site engagement, such as what content is most popular. Two technological approaches to on-site web analytics include log file analysis and page tagging.

4. Examples of web Analytics tools include the following:

4.1 Google Analytics

Google Analytics is a web analytics platform that monitors website traffic,
Behaviours and conversions. The platform tracks page views, unique visitors, bounce rates,
Referral Uniform Resource Locators, average time on-site, page abandonment, new vs. returning
Visitors and demographic data.

4.2 Optimizely

Optimizely is a customer experience and A/B testing platform that helps businesses test and optimise their online experiences and marketing efforts, including conversion rate optimization.

4.3 Kissmetrics

Kissmetrics is a customer analytics platform that gathers website data and presents it in an easy-to-read format. The platform also serves as a customer intelligence tool, as it enables businesses to dive deeper into customer behaviour and use this information to enhance their website and marketing campaigns.

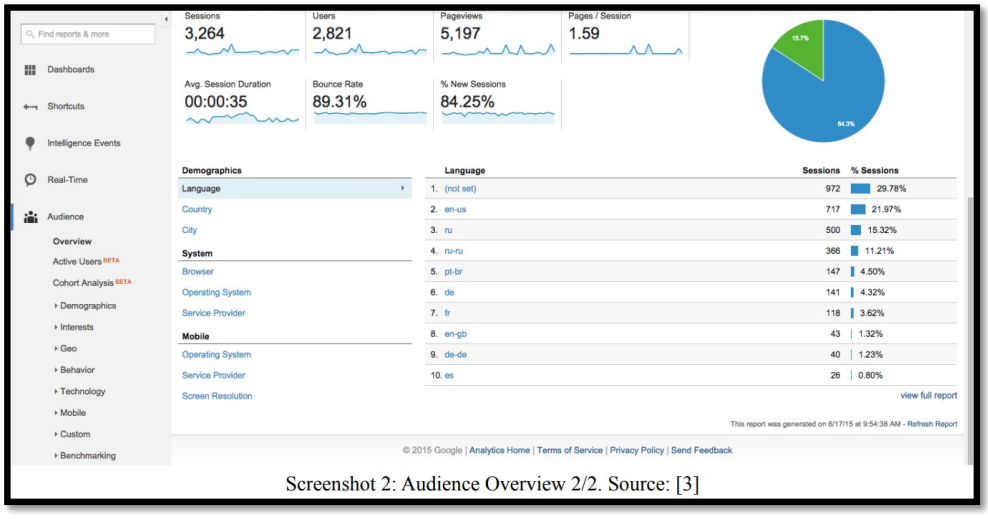
4.4 Crazy Egg

Crazy Egg is a tool that tracks where customers click on a page. This information can help organisations understand how visitors interact with content and why they leave the site. The tool tracks visitors, heat maps and user session recordings.

Results

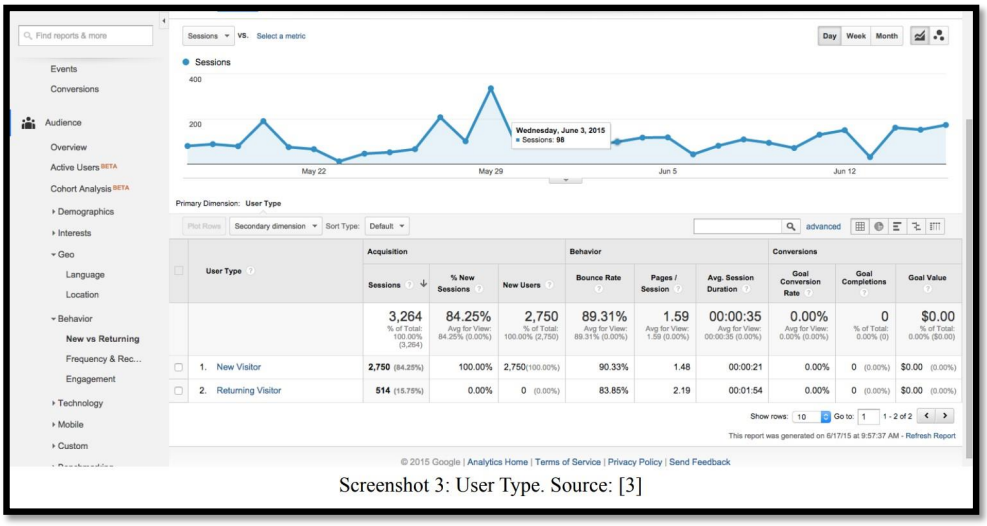
Screenshot 1: Audience Overview 1/2. Source: [3]

Fig 3



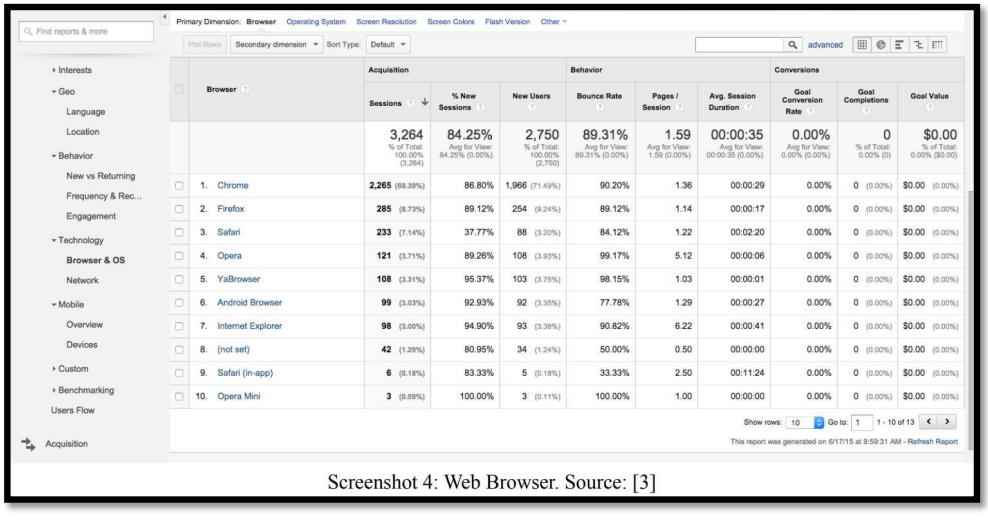
Screenshot 2: Audience Overview 2/2. Source: [3]

Fig 4



Screenshot 3: User Type. Source: [3]

Fig 5



Screenshot 4: Web Browser. Source: [3]

Fig 6

Conclusion

Web analytics is a very powerful tool that one must use to improve their online business. Almost all the huge companies use web analytics to understand engagement and get insights on customer behaviour.

References

1. Anthony Ferrini (Acquiremarketing.com, USA), Jakki J. Mohr (University of Montana, USA). Uses, Limitations, and Trends in Web Analytics. In Handbook of Research on Web Log Analysis, Chapter VII, pages 122 - 140, 2009
2. Daniel Waisberg and Avinash Kaushik. Web Analytics 2.0: Empowering Customer Centricity. In SEMJ.org, volume2, issue 1, 2009.
3. Google Analytics. http://www.google.com/analytics/. June 23, 2015
4. IstemiEkinAkkus, Ruichuan Chen, Paul Francis (all from MPI-SWS), Michaela Hardt (Twitter Inc.), and Johannes Gehrke (Cornell University). Non-tracking Web Analytics. In CCS '12 Proceedings of the 2012 ACM conference on Computer and communications security, pages 687-698, 2012
5. Ivo Rehberger, interview. Packet Sniffing for Web Analytics. In http://metaanalytics.org/webanalytics/packetsniffing-for-web-analytics-amazing-interview-to-ivorehberger-from-nextwell/, June 23, 2015
6. Kenny, Rebecca, Pierce, Justin and Pye, Graeme 2012. Ethical considerations and guidelines in web analytics and digital marketing : a retail case study. In AiCE2012 : Proceedings of the 6th Australian Institute of Computer Ethics conference, Australian Institute of Computer Ethics, Melbourne, Vic., pages 5-12, 2012.
7. NiklasSchmücker, Berlin University of Technology. Web Tracking. In SNET2 Seminar Paper - Summer Term, 2011
8. https://en.wikipedia.org/wiki/Internet#World_Wide_Web. July 18, 2015 [9] Xing, Guo, Fitzgerald, and Xu. Google Analytics based Temporal-Geospatial Analysis for Web Management: A Case Study of a K-12 Online Resource Website. In International Journal of Information Science and Management, Vol. 13, No. 1, pages 87-106, 2015

E-commerce Website (It's Study & Development)

Prof. Ekata Gupta
ekata.gupta78@gmail.com
Professor GNIM

Ms. Namrata Chhabra
namrata.c2702@gmail.com
Student GNIM

Abstract:

E-commerce websites have become an integral part of modern-day businesses, providing an efficient and cost-effective way to reach a global audience. E-commerce is the term for online shopping. E-commerce is the purchasing and selling of goods and services, as well as the transfer of money or data, through a network, mostly the internet. E-commerce may represent a paradigm change that affects both marketers and consumers. E-commerce is more or less merely a way to spice up the standard company practises. It is causing a complete transformation of the established business model.

Around the world, this huge shift in corporate strategy is seeing incredible development, and India is no exception. A high rate of internet usage has contributed to the expansion of e-commerce, and start-ups in particular are increasingly leveraging this choice as a distinctive business strategy. This paper presents a technical analysis of the development process of an e-commerce website, highlighting the key components and technologies involved in building a successful online store. The paper discusses the importance of security, user experience, and search engine optimization in the development of e-commerce websites. Furthermore, the paper identifies the challenges faced by developers during the development process and provides recommendations for overcoming these challenges.

1. Introduction:

E-commerce is the practise of doing transactions through computer networks. Selling products and services online is the primary objective of an e-commerce website. Online stores that sell electronics might fit this description.

When the buyer connects directly online—typically through the internet—to the seller's computer. Anyone who is seated in front of a computer may use all the features of the internet to buy or sell goods. By selecting from a website's (ECommerce site) list of available goods, the online shopping system facilitates online purchases of goods, services, and goods. Those who don't have time to travel to the store will benefit most from the go-cart. A crucial element used in e-commerce to assist customers make online purchases is the go-cart.

Electronic payment or cash on delivery are both accepted for the buy and sale transaction. The user can access the eCommerce website by logging in.
One go-cart will be established automatically, and as soon as a user selects an item, the cart will grow. The user has the option to remove the selected item from the cart if he decides it is not beneficial for him. Crystal Reports has the ability to generate reports in a

variety of formats, including bar graphs, pie charts, and table-style charts, among others. The suggested approach aids in creating an online store where things may be purchased or sold utilising an internet connection. eCommerce has made it easier to transact than conventional commerce, which is conducted physically and requires people to go to different places to find things.

E-commerce websites have revolutionized the way businesses operate, providing them with a platform to sell their products and services online. However, the development of a successful e-commerce website requires careful planning, implementation, and testing. This paper provides a technical analysis of the development process of an e-commerce website, highlighting the key components and technologies involved in building a successful online store.

2. Literature survey:

Businesses that effectively apply business-to-customer (B2C) e-commerce reap several advantages. Effective employing B2C e-Commerce may help businesses gain significant cost savings, boost revenue, and offer quicker delivery, lower cost of administration, and better customer service. Due to its novelty and explosive expansion, e-Commerce therefore has the potential to be a significant topic of research. Multiple research studies on the adoption of e-commerce show that the term "implementation" has been contested and is unclear to academics. B2B and B2C work together to develop e-commerce, which assists customers in satisfying their needs.

3. Key Components of E-commerce Websites:

3.1. User Interface: The user interface is a crucial component of an e-commerce website as it determines the overall user experience. An intuitive and user-friendly interface can significantly improve the conversion rate of an online store. The interface should be easy to navigate, visually appealing, and responsive across different devices.

3.2. Shopping Cart: The shopping cart is another critical component of an e-commerce website. It allows users to add items to their cart and proceed to checkout. The shopping cart should be easy to use, secure, and provide users with a clear view of their order details.

3.3. Payment Gateway: The payment gateway is a vital component of an e-commerce website as it enables users to make online payments securely. The payment gateway should be integrated with reliable payment processors and offer multiple payment options to users.

3.4. Security: Security is a top priority for e-commerce websites as they deal with sensitive user information such as credit card details. The website should be secured with SSL/TLS encryption, firewalls, and other security measures to protect user data.

3.5. Search Engine Optimization (SEO): SEO is essential for e-commerce websites as it helps them rank higher in search engine results pages (SERPs). The website should be optimized for keywords related to the products and services offered by the business.

4. System Design:

A method of modifying the code, modules in HTML, CSS3, JavaScript, and BootStraps enabling designs, interfaces, and information for a system that fulfils the basic requirements is referred to as e-commerce website design.

System Module Description:

- Coding (HTML, CSS3, JavaScript, BootStraps)
- Seller
- Customer
- Management
- Delivery

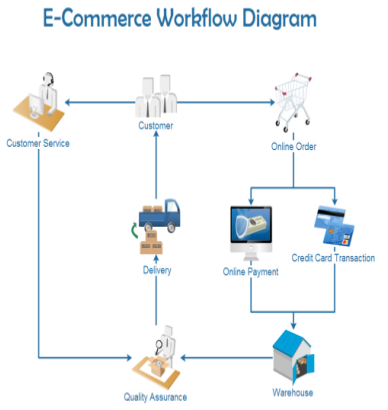


Fig 1: E-Commerce Workflow Diagram

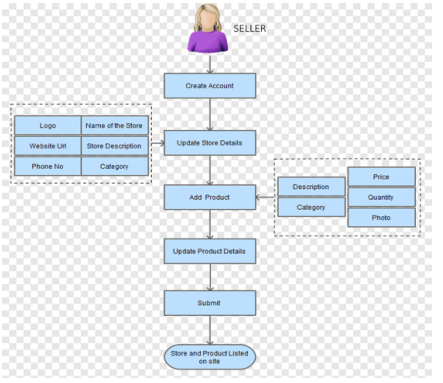


Fig 2: Seller in E-Commerce

4.1.Coding:

4.1.1. HTML: HTML is Hypertext mark-up language. Via styling sheets, an emerging technology, might replace many of the HTML tables that are now used to control how a webpage is laid up. A site designer could use different cells to separate a webpage's header, body content, and sidebar. Furthermore, the web designer might establish different characteristics for each link button in the header and sidebar by placing each button in an own cell. Then, within the page's body, the web designer might divide the text and visual components into several cells to control spacing and other properties separately.

4.1.2. JavaScripts: JavaScript is a powerful client-side scripting language. JavaScript is employed mainly for enhancing the interaction of a user with the net page. In other words, you can make your web content livelier and more interactive, with the assistance of JavaScript. JavaScript is additionally being employed widely in game development and Mobile application development.

4.1.3. CSS3: CSS may be a formatting language want to add styling to your page. This can be done by having the CSS document linked into your html page. This page then has selectors and properties which affect the tags inside your html document.CSS was introduced in 1996. It had been created to prevent people from having to repeat plenty of code. For instance, if someone wanted to alter the paragraph text, they'd should have intercourse every single time they wanted to alter the properties. CSS has since become more adapted to having more features, for instance we will now use the tools and alter the background to an enormous array of colors.

4.1.4. BootStrap: Bootstrap is a web framework that aims to make the development of educational websites simpler. The main reason for including it in an online project is so that the project could take advantage of Bootstrap's colour, background effect, mobility size, font, and layout options. Thus, the main determinant is whether or not the responsible programmers find such options appealing. All HTML components have basic style declarations once Bootstrap is introduced to a project. Prose, tables, and form components all have the same appearance as a result across web browsers. Additionally, developers may take advantage of the CSS classes offered by Bootstrap to modify the appearance and structure of their tools and contents.

4.2.Database:

Database & Information Systems could be a database employed in a way of life, A database could be a collection of processed information associated with a selected subject or purpose. Allow us to consider an enterprise, like delivery agents, that features a great deal of knowledge kept for long periods of your time in a very computer. This data might include information about passengers, locations, flights, airlines, and personnel, for instance. Typical relationships that may be represented include bookings, location (which passengers to which location?), and order (which

order to which location?). These forms of data stored more or less permanently in a very computer is termed a database.

4.3.Customer:

Customer features a wider choice not from his town or country but also around the globe unless there are import restrictions. Customized or personalized product and repair. for example, if some lady wants a bra of actual size, her size are often measured through internet and stored and he or she are supplied bra of her requirement. In case of purchase, one isn't required to travel from store to store to determine the products to gather their details, prices etc. Sitting reception, he gets all the desired information which too in no time without spending much time. There is absolute flexibility of your time, place and distance is not any hurdle; one can open the positioning any time day or night to urge details, there's no problem of shops/stores opening/closing hours. Websites are often opened any time. In physical sales place and distance is additionally a controversy which is not any problem in ecommerce because one can see sites everywhere the planet without moving out of the house. Goods are available at cheaper price because there are lot of economies of space, rent, interest to the vendor further, he manages with much lesser number of outlets and price of promoting is reduced. A part of these savings is passed on to consumers and so, he gets the products cheaper than from conventional shops/departmental stores, grocers etc. It helps to globalize retail trading. One should buy things without geographical boundaries.

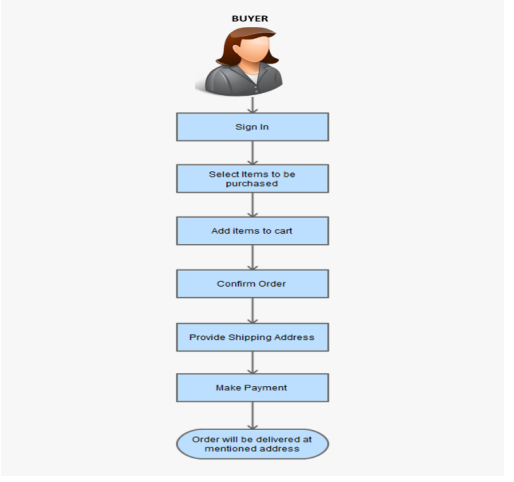


Fig 3: Buyer in E-Commerce

4.4. Management:

One of the more important themes that permeate this paper is that the incontrovertible fact that knowledge management is synonymous with change: adaptation and evolution. It's assumed that at the start the system operates on principles extracted from human experts that represent their view of the population of the potential customers. It also incorporates variety of theoretical laws that are proposed as high-level abstractions of the economic reality. One among these theories claims that it's almost impossible to make an accurate model of commerce (and therefore also e-commerce) reality based only on theory and knowledge extracted from human experts.

The system should be adjusted to the cater to real-life customers, who may behave differently than the idea predicted. Additionally, because the time goes by, clients' interests and desires change because of their aging moreover as because of the changes within the environment (e.g. bell bottom jeans were popular once). To be ready to successfully add the constantly changing world, the system should be adaptive. Since knowledge management could be a process of continually adjusting knowledge through its application and thru collection of additional data and extracting knowledge from it and incorporating it into the system, with the goal to constantly improve the prevailing model(s) of reality and effectiveness of the operation of the system, it's knowledge management that's the premise for system adaptivity.

4.5. Delivery:

Delivery demands of the e-commerce field, where all sellers and delivery partners require considerable infrastructure that is functional and efficient. networks of transport and logistics that integrate cutting-edge technology, multimodal transport operations, and adherence to commercial regulations. International logistics and transportation services are still restricted in several ways. These concerns both the domestic regulatory environment as well as plug access, including restrictions on operating in an extremely country, the requirement to work with a domestic supplier, restrictions associated with foreign equity in transportation services, restrictions on cabotage operations, and domestic monopolies. For locally based small firms, a more open environment may promote effective access to worldwide networks. Competition between service suppliers can reduce prices and lift the standard of services offered. A facilitative regulatory environment can rapidly increase these trends and makes the business case for operating in smaller or more remote markets that way more appealing.

5. Payment Gateway:

Payment is a crucial step in the commercial process, and electronic payments are a crucial component of electronic trade. Since traditional payment systems are not yet capable of meeting these objectives, new payment systems have been developed as a result of the growth of internet commerce. Online prompts people to seek for new payment systems, namely peer-to-peer payment systems that let people make payments using their emails. By acknowledging these requirements for all parties involved.

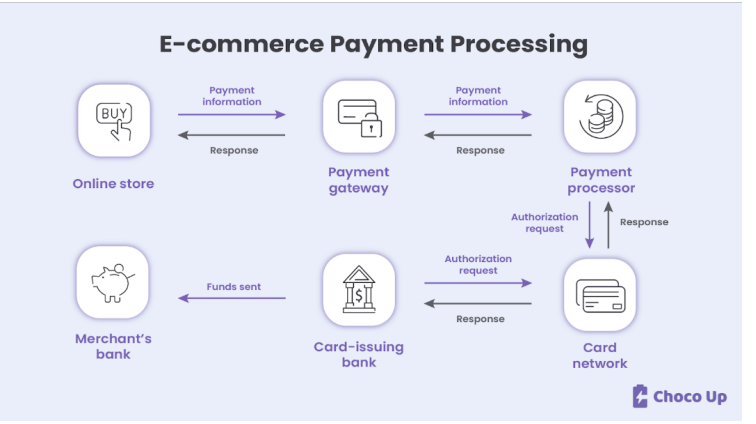


Fig 4: Payment in E-Commerce

6. Conclusion:

E-commerce websites have revolutionized the way businesses operate, providing opportunities for global reach, reduced costs, and increased customer engagement. They have become a vital platform for businesses of all sizes, enabling them to expand their market presence and compete effectively in the digital landscape. The convenience and accessibility offered by e-commerce websites have transformed consumer behaviour. Online shopping has become increasingly popular due to its convenience, wider product selection, and 24/7 availability. Consumers can compare prices, read reviews, and make informed decisions from the comfort of their homes.

In summary, e-commerce websites have revolutionized the way businesses and consumers interact, providing numerous benefits for both parties. However, it is important for businesses to continuously adapt to changing technologies and consumer preferences to remain competitive in the dynamic e-commerce landscape. By prioritizing trust, security, and user experience, businesses can maximize the potential of e-commerce websites to drive growth and success in the digital era.

References:

[1] Gupta, A. (2014, January). E-Commerce: Role of E-Commerce in Today's Business. International Journal of Computing and Corporate Research, 4(1).

[2] Rina, D. (2016, March-April). Challenges and Future Scope of E-commerce in India. International Journal of Emerging Trends & Technology in Computer Science, 5(2), 232-235.

[3] Raghunath, A., & Panga, M. D. (2013). Problem and Prospects of E-Commerce. International Journal of Research and Development - A Management Review, 2(1), 59-68.

[4] Shankar, S. (2016, May). Retrieved from http://economictimes.indiatimes.com/small-biz/sme-sector/b2b-e-commerce-market-6-times-larger-than-b2c-sme-lenders/articleshow/52499816.cm.

[5] Patrick Nelson, (2013, June 21), How 3D Printing Will Revolutionize E-Commerce, E-commerce times. Retrieved from http://www.ecommercetimes.com/story/78298.html.

[6] Ray, S. (2011). Emerging Trend of E-Commerce in India: Some Crucial Issues, Prospects and Challenges. Computer Engineering and Intelligent Systems, 18-36.

[7] Mishra, S. V., & Kotkar, D. S. (2015, February). A Study on Current Status of E-Commerce in India: A Comparative Analysis of Flipkart and Amazon. International Journal of Advance Research in Computer Science and Management Studies, 3(2), 133-137.

HEALTH CARE MANAGEMENT , DIGITIZATION AND ITS SUSTAINABLE DEVELOPMENT

By Lt Col Ravindra S

Guided by : Dr Archana Deshpande, Asst Prof

Abstract

Digital Health Care brings not only advantages but also increasing of social-economic gap between developed and poor countries. Revenue could gain only some number of countries, which will get the more attractive position at global market of trans border online patient-doctor communications. Telecommunications technologies and the Internet offer a revolution in management of global healthcare systems and sustainable development. This paper explores emergent telecommunications infrastructures and their consequences for the future of healthcare management using a scenario methodology. A world systems view from evolutionary economics provides a unique perspective on sustainable development. System performance on the dimensions of universal access, equitable resource allocation and consumer participation are evaluated in light of ideological, political and cultural considerations of governance. Alternative scenarios vary according to market dynamics led by healthcare institutions (push) or by consumer demand (pull), and according to system control mechanisms that may be technologically embedded, institutional or behavioural. The scenario analysis suggests that telecommunications technologies and the Internet may contribute significantly to improve global healthcare system performance, to manage ideological diversity and to reduce the wide inequities that separate the industrialized nations from the developing world.

Introduction

The cumulative fortune of the 200 wealthiest individuals was estimated at more than 1000 billion dollars1 in 1999 compared to 146 billion dollars, the combined revenues of the 43 least developed nations. It is also estimated by the United Nations Development Project (2000) that basic services including healthcare could be offered throughout the developing world with an additional annual investment of 80 billion dollars. Studies show that the inequalities that characterize the quality of life in the developing world in contrast to the industrialized nations are broadening, and this is particularly true in access to information and telecommunications technologies increasingly important to the performance of economic and social infrastructures for education, healthcare and social services (ITU, 1998, 1999). Costs associated with

healthcare services continue to rise, but the origin of the problem in the developing world appears to be more closely associated with organizational and ideological considerations than

with availability of financial resources alone. According to Sen (1999), economic analyses demonstrate that life expectancy, a commonly accepted indicator of national healthcare system performance, is only indirectly correlated with gross national product through variables related to equitable wealth distribution and investment in public health services. Sen also points out that healthcare services are generally labour intensive, and this production factor is less expensive in developing countries. The Cuban case illustrates very effectively Sen's arguments. The World Health Organization (2000) ranks the general performance of the U.S. healthcare system 37th and the Cuban system 39th of 191 member countries; while total healthcare expenditure per capita is estimated at $3724 and $109 respectively. It seems clear that information and telecommunications technologies, including the Internet, may change the configuration and modify the definition of healthcare system efficiency and effectiveness throughout the world. Certainly rapid access to medical information and expert consultation represents a very significant advantage, particularly in the developing countries. However, distribution of technological resources and the dynamics of information flows are not symmetrical, posing a particular challenge to the design of healthcare systems for sustainable development. For example, in 1998, the 48 least developed countries received less than .4 per cent of all foreign direct investment (UNDP, 2000). This context requires an integrated world-systems perspective (Goldfrank, 2000; Wallerstein, 2000) on the healthcare sector consistent with evolutionary economic theory (Nelson and Winter, 1982; Nelson and Sampat, 2001).

The objective of this paper is to analyse healthcare management for sustainable development in the sector: of Telecommunications

Literature Review

In the outcome document of the Rio+20 Conference, in 2012, entitled "The future we want", and again in "Transforming our world: the 2030 Agenda for Sustainable Development", in 2015, United Nations Member States decided that the HighLevel Political Forum on Sustainable Development would be informed by the Global Sustainable Development Report. In the Ministerial Declaration of the 2016 Forum, Member States decided that the report would be produced quadrennially by an independent group of scientists appointed by the United

Nations Secretary-General and comprising 15 experts representing a variety of backgrounds, scientific disciplines and institutions, with geographical and gender balance. [Global sustainable report 2019]

3

The 2030 Agenda for Sustainable Development1 highlights that the spread of information and communications technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies. The outcome document of the high-level meeting of the United Nations General Assembly on the overall review of the implementation of the outcomes of the World Summit on Information Society (New York, 15–16 December 2015) highlighted the technology-enabled breakthroughs in government in the provision of health care, with greater numbers of people having access to services and data that might previously have been out of reach or unaffordable.2 The participating ministers and heads of delegation committed themselves to harnessing the potential of information and communications technologies to achieve the 2030 Agenda for Sustainable Development, noting that they could accelerate progress across the health- related Sustainable Development Goals. Stressing the critical role played by the private sector,3 civil society and technical communities in information and communication technologies, the United Nations General Assembly in resolution 73/218 (2019) "encourages strengthened and continuing cooperation between and among stakeholders from both developed and developing countries", and encourages WHO, within its respective mandate and strategic plan, to contribute to the outcomes of the World Summit on the Information Society and emphasize the importance of allocating adequate resources in this regard. With the recognition that information and communications technologies present new opportunities and challenges for the achievement of all 17 Sustainable Development Goals, there is a growing consensus in the global health community that the strategic and innovative use of digital and cutting-edge information and communications technologies will be an essential enabling factor towards ensuring that 1 billion more people benefit from universal [Global strategy on Digital health 2020-25 by WHO]

The implementation of the concept of sustainable development in the establishment of "Green Hospital"is attracting growing interest. The health sector and, in particular, a hospital may affect the environmentand the economy in the a) maximization of energy consumption b) waste of natural resources c) dif□cultyin waste management due to their rapidly increasing volume

d) construction of non-friendly for people andenvironment buildings e) growing demand for funds to cover operating expenses. Moreover, it seems that the strategic planning of a Green Hospital can cause signi□cant changes to: a) Energy saving – Green develop-ment – Environment protection; b) Building reconstruction; c) Improvement of provided services to

citizens;d) Saving of □nancial resources. Therefore, efforts should be made to save energy and money in the hospitalsthrough sustainable development projects. Finally, the Green Hospital has the potential to provide improvedtherapeutic results for patients and more pleasant and comfortable working environment for employees. [Sustainable development in health care by Maria geraliri and Dimitra in IJRQH 2015].

Telecommunication and digitization in health care management

Applications of telecommunications technologies and the Internet to the management of healthcare include the practice of telehealth and telemedicine. Telehealth is very broadly defined to include health services, education and research supported by information technology, while telemedicine refers more specifically to medical care and procedures offered across a geographical distance and involving two or more actors in collaboration, often in interdisciplinary teams (Industry Canada, 2001). Through these diverse applications, information and telecommunications technologies affect the entire healthcare system, including consumers, physicians and professionals. However, use of these technologies in healthcare management raises numerous legal, ethical, and political considerations, particularly in a context of national development where such innovations have often been associated with deepening domestic inequalities between social elites and the poor in the developing countries as well as the disparity in quality of life separating the developing and the industrialized world. Such deepening inequalities are sometimes even more pronounced in the industrialized countries where certain groups experience a quality of life inferior to that in the developing countries. Throughout the world it is estimated that one child in six lives in poverty defined as a household with less than 50 per cent of the median household income in their country of residence (Roach, 2000; UNICEF, 2000; Mehrotra, et al., 2000) One in three women has been subjected to physical or psychological abuse by her male companion or spouse (WHO, 2000). According to Sen (1999), a black man residing in New York, San Francisco, or Washington, D. C. has a shorter life expectancy than a man living in India or anywhere.

Thus to understand the dynamics of the model it is appropriate to formulate a broader world systems perspective on sustainable development (Wallerstein, 2000) rather than to objectify medicine and development as dividing practices described by Foucault (Foucault, 1982; Cullen et al., 1997). Future scenarios describing global healthcare management systems incorporate the objectives of sustainable development (Galopin et al., 1997, p.2): • The elimination of

poverty, malnutrition and famine throughout the world. • Universal access to education and healthcare services. • Improvement of material quality of life and reduction of disparities between the poorest and the wealthiest social strata. • Protection of the natural environment and climate, renewal of critical biological resources, and pollution control. • Prevention of international armed conflict. • Protection of the family, local community and human values of global solidarity. • Management and control of global population growth. Consistent with evolutionary economic theory (Nelson and Winter, 1982; Nelson and Sampat, 2001), the transformation process of development is defined within its social and institutional context. This transformation emerges through the "co-evolution of physical and social technologies" (Nelson and Sampat, 2001), where social technologies include institutions and their network configurations. New venture capital markets are also critical (Verspagen, 2000), as are collaboration and partnership at the national and international levels for the creation of global healthcare management systems (Kickenbusch, 2000; Edeger, 2000; Godlee et al., 2000). In most developing countries, traditional technologies continue to be of strategic importance in satisfying the basic needs of the population (Bhalla et James, 1988; James, 1988), while technological innovations are integrated to the extent that they are coherent with the scale and culture of local economic activities. This process is extremely important to a process of development under rationalities differing from the Western techno-economic modernity (Avgerou, 2000; Corea, 2000; Kothari and Mehta, 1988). The concept of technological blending recognizes the value of local culture in the translation of new technologies (Atkinson et al., 2000), and the diversity of paths leading to technological development or modernization. Decentralization of healthcare management to the local level serves as a vehicle for technology blending and for system responsiveness to local needs through specific social organization and political culture. Local context thus offers the framework for evaluation of responsiveness motivated by accountability for quality of care as well as efficiency of resource management. The processes of consumer participation and empowerment in healthcare planning and decision-making are also founded upon local definition of accountability and access to

healthcare data for analysis of local priorities. Exercise of local authority is affected by behavioural aspects of managerial culture through coherence of formal and informal roles, extent of delegation and consultation, leadership style, and integration of individual and collective behavior patterns (Atkinson et al., 2000). Thus healthcare management performance is a complex construct integrating multiple levels of system analysis as well as technological

and behavioural components (Donaldson, 1999; National Research Council, 2000). model of healthcare management system performance suggested by the World Health Organization (2000) suggests three performance objectives : (1) universal access to quality healthcare services, (2) equitable distribution and control of financial resources, (3) and system responsiveness through patient participation, ethical practice and sharing of responsibility. Achievement of these objectives is evaluated in light of the characteristics of information and telecommunications technologies including functional integration and inter-operability, interactive interfaces and user orientation (Harris, 1995). This evaluation framework facilitates integration of future scenarios describing healthcare management system evolution.

The Future of Global Healthcare Management system, scenarios

Information and telecommunications technologies offer many clear opportunities for healthcare management in the developing world. It is estimated that 18 million people die each year of contagious diseases, and 30 million children die each day of preventable causes. A significant proportion of these deaths is due to inadequate preventive healthcare. These rates of mortality could be reduced through rapid availability of appropriate medical information and access to consultation with specialized healthcare professionals. The Internet could also contribute to healthcare management system infrastructures and the equitable allocation and control of human, financial and technological resources. Such infrastructures also play a critical role in public education concerning issues of health and hygiene as well as training of medical and other healthcare professionals (ITU, 1999). Medical and other healthcare research and public health monitoring also depend upon effective medical data collection and database management. Telecommunications technologies and the Internet could improve the accuracy and extent of data collection relative to public health around the world such as statistics concerning birthrates. It is estimated for example that as many as 40 million births go unreported each year (WHO, 2000). Such data are essential to understanding and managing public health. Barriers to Internet access in developing countries vary according to their cultural

and economic specificities but generally costs of computing equipment and software as well as institutional and technological infrastructures are higher per capita than in industrialized countries. The 23 most developed countries possess 62 per cent of telephone lines serving only 15 per cent of the world's population (McClelland, 1998). Culture and language also pose obstacles to the development of diverse local content accessible in languages other than English

(Renaud and Torrès, 1996; ITU, 1999). Even though non-English speakers will soon represent the majority of Internet users, Internet domain name registrars have only recently begun to consider the use of non-English top-level domain names (Yamada, 2000). According to many observers, the Internet remains an ethnocentric social construction whose governance is still essentially controlled by U.S. policies, models, and culture. For example, medical gateways such as Medline reflect American medical culture and are often available only in English, while Francophone gateways are designed following the American model and may compromise the cultural integrity of the doctor-patient relationship within the French healthcare management system (Eveillard, 2000). Thus the Internet creates a new context in which legal and ethical considerations modify the doctor-patient relationship and the definition of professional and medical responsibilities beyond national boundaries (Martin, 2000; Kuszler, 1999; Terry, 1999). Of particular significance is the specialized role of the medical information professional. For example, programming analysts and network administrators share a technological culture and they may have substantial influence on construction and configuration of healthcare management systems (Gaunt and Roger-France, 1996).

Globalisation of Telecommunications Infrastructures and Control Processes Shaping Healthcare Management Systems

Telecommunications infrastructures and the Internet contribute to control mechanisms of he althcare management systems through network structures and transaction services offered directly on the Internet (Stead et al., 2000). Technological advances extend the classic concepts of markets or clans and hierarchies in economics and organizational theory (Williamson, 1975). Clan control is expressed through norms and standards emergent in behaviour on the Internet. Examples of clan or behavioural control include voluntary codes of ethics governing cyberbehaviour, norms for presentation of Web content, and criteria for consumer evaluation of electronic information. On the other hand, network technologies and the Internet give rise to institutional hierarchies of control embedded within the technologies themselves.

Technological control mechanisms may effectively regulate access to healthcare services and information, and ensure system security, confidentiality and integrity. While these infrastructures may in some cases replace traditional institutional networks, they may also extend or complement existing structures. Intranets within such traditional institutions may also serve as vehicles for clan or behavioural control processes. Furthermore, professional or

institutional intranets may function in parallel to the Internet to offer hierarchical control while at the same time making the system accessible to an extended community for consumer information and control. Availability of software applications and medical database management infrastructures on the Internet favour universal access and equity with respect to healthcare services beyond national boundaries. Global infrastructures also contribute to international research governance and public health monitoring with the participation of developing countries, and they serve as structural quality control mechanisms through network protocols and affiliation. At the same time they facilitate emergence and diffusion of behavioural controls at local levels of the institutional network.

Conclusion

The objective of this review was to present a critical framework for scenario description of the future global healthcare management system development considering global, national, and local levels of analysis. System performance is defined in terms of (1) universal access to quality healthcare services, (2) equitable distribution and control of financial resources, (3) and system responsiveness through patient participation, ethical practice and sharing of responsibility. The review has shown how telecommunications and the Internet with other information technologies contribute to interactive, integrated, and user-oriented services as well as equitable resource distribution depending upon forms of control and market ideologies. Information is the foundation of future healthcare management systems including data driven medical practice, global public health watch and research governance integrating priorities of the developing world.

Traditional institutions are becoming more integrated in technological healthcare markets and network infrastructures where professionals and consumers may be able to participate in a community model of healthcare,5 or where the digital divide may yet deepen the inequalities between the privileged and the poor in the new world economy.

References

[1] Atkinson, S., R. Rolim Medeiros, P. Lima Oliveira, R. Dias de Almeida, 2000, “Going Down to the Local: Incorporating Social Organisation and Political Culture into Assessments of Decentralised Health Care”, Social Science &Medicine , 51, 619-636.

[2]Avgerou, C., 2000, “Recognising Alternative Rationalities in the Deployment of Information Systems”, Electronic Journal on Information Systems in Developing Countries, 3: http://www.unimas.my/fit/roger/EJISDC/vol3/vol3.htm

[3]Beck, L., B. Lobitz, B. Wood, 2000, “Remote Sensing and Human Health: New Sensors and New Opportunities”, Emerging Infectious Diseases, 6(3), 217-226. http://www.cdc.gov/ncidod/eid/vol6no3/pdf/beck.pdf

[4]Benatar, S., P. Singer, 2000, “A New Look at International Research Ethics”, British Medical Journal, 321, 824-826.

[5]Bhalla A.C., James, D., 1988, New Technologies and Development : Experiences in Technology Blending, Boulder, Colorado : Lynne Rienner.

[6]Brennan, P., I. Strombom, 1998, “Improving Health Care By Understanding PatientPreferences : The Role of Computer Technology”, Journal of the American Medical Informatics Association, 5(3), 257-262.

[7]Burchill, C., L. Roos, P. Fergusson, L. Jebamani, K. Turner, S. Dueck, 2000, “Organizing the Present, Looking to the Future: An Online Knowledge Repository to Facilitate Collaboration”, Journal of Medical Internet Research, 2(2). http://www.jmir.org/2000/2/e10/index.htm

[8]Chartron, G., J.-M. Salaün, 2000, “ La reconstruction de l’économie politique des publications scientifiques », Bulletin des bibliothèques de France, 45(2), 32-42.

[9]The Internet, Global Healthcare Management Systems, and Sustainable Development: Future Scenarios by Ann seror , EJIS , May 2001

[10]Health management for sustainable development by Andrei and Julia , 2018 second world conference in small trends, and sustainability.

Waste Management for achieving SDG

BY

Tanisha Sachdeve(student, B.com(H))

Kashish (student, B.com (H))

Dr. MamtaShah (Faculty)

Abstract

Humans generate a lot of waste, much of which now affects the air we breathe, the water we drink, and land on which we live. According to the United Nations, about 11.2 billion tonnes of solid waste is collected worldwide, almost all of which comes from humans alone. Therefore, there is not only need to manage this waste but also come up with strategies that will manage such waste sustainably. Present paper is going to analyse this strategy.

Introduction

Production and consumption lead to large quantities of waste. An important element in work on eco-cycles is therefore sustainable waste management. Articles that circulate in society contain large quantities of different materials. Many are energy-demanding to produce and contain substances that exist in limited quantities. It is therefore necessary that we manage joint resources in a long-term manner to achieve sustainable cycles in society. Many articles additionally contain substances that are toxic or hazardous and should not be released into the environment. This necessitates phasing out the most harmful substances and handling correctly those substances that continue to be used.

Meaning

Waste management refers to the practice of collecting, transporting, processing or disposing of, managing and monitoring various waste materials. It is important to observe sustainability in this aspect so that every bit of waste can be managed in an efficient manner rather than just dumping it all in landfills. Sustainable waste management refers to the collection, transportation, valorization and disposal of the various types of waste, in a manner that does not jeopardize the environment, human health or future generations. It includes any activity involved in the organization of waste management, from production to the final treatment.

Strategy for waste management

Waste management strategy is aimed at bringing about a society with non-toxic and resource efficient cycles. This includes prevention of waste, changed patterns of consumption, more efficient production methods and waste management with a greater focus on recycling. The natural cycle

strategy looks at materials and products throughout their lifecycle in order to provide as complete n picture as possible of their environmental impact.

Consumption of energy for a product also has to be weighed into the assessment. Countries should consider it necessary for the volume of waste to decrease if wants to achieve sustainable management of waste. Producers must already take account of a products environmental impact in a lifecycle perspective when it is manufactured. Design and material selection, as well as energy consumption in manufacturing and use must be taken into account. In addition, sustainable cycles can only be achieved if a greater proportion of waste can be reused and recycled. This saves both materials and energy, while also reducing the use of hazardous chemicals and environmental problems in waste management. Waste can be both a resource and an environmental problem. Waste management that works poorly involves considerable wastage of valuable material and can lead to environmental and health problems. In cases where waste management does not work, this can lead to problems related to sanitation and health, as well as soil and water pollution.

The aim as far as possible is to make use of the resources contained in waste. At the same time, it is important to reduce adverse effects in the form of emissions of methane gas from landfills and carbon dioxide from combustion, as well as emissions of heavy metals and organic environmental pollutants. There is a hierarchy for how waste is to be managed in EU legislation. This primarily means that we have to try to produce as little and as non-hazardous waste as possible. Material recycling is prioritised over energy recycling for waste that nevertheless arises, where this is environmentally justified. The waste ultimately has to be disposed of by land filling. There are no obvious answers as to what method is preferable for all types of waste in choosing material recovery and incineration. Several analysts generally support material recovery that lets materials and nutrients enter a cycle. Countries should consider the waste hierarchy to represent a good starting point for achieving sustainable waste management.

An all-embracing perspective on the area of waste is required to attain sustainable waste management. Various measures that reduce the volumes of waste and control waste streams according to the hierarchy for different methods of treatment are required. The key is to increase the material recovery of waste. Recycled raw material saves energy compared with the use of new raw material, in addition to which material recycling often leads to lower emissions than other methods of treatment. When producers start to recover material a valuable link also arises to environmentally oriented product development in order to improve the efficiency of manufacturing. Several measures have been taken to promote biological treatment, in part to reduce greenhouse gas emissions from landfills and be able to make use of the plant nutrients contained in food waste. The ban on landfilling organic waste and the targets for increased biological treatment of food waste and for waste from the food industry have been most effective.

Objectives of waste management

1. To analyse Prevention and minimisation and environmentally sound management of hazardous wastes
2. To check Policy measures for the prevention and minimisation of hazardous wastes

It is said that volume and hazardousness of waste can only be influenced to a limited degree by measures taken at the waste stage. Measures to reduce the hazardousness and volume of waste should be primarily taken as part of work on products and chemicals. An important condition to be met to enable the risks to be reduced at the waste stage is that the actors concerned are aware which substances can be hazardous to the environment and health and which of these hazardous substances are contained in the articles they manufacture, handle or buy.

The sharply increased turnover of consumer goods with broader ranges of similar products and products with a shorter life, are important factors for example in the problems associated with electronic waste that contains hazardous chemical substances. Clothing is another example of articles with a short life, large quantities going to general waste management. The most effective way of reducing chemical risks is to take action at the start of a chain of production and handling, as all later stages, including the waste stage, are affected. The flow of information in production and handling chains is, however, often inadequate, and there are several factors underlying this. The chains of production and trade for articles are often long and can pass through several different countries. There are trading companies here that are not manufacturers of either chemicals or articles and only market and trade in articles. There is a need to put efforts to reduce the hazardousness of waste by limiting the use of substances of very high concern leads to products that affect human health or the environment in a less harmful way throughout their lifecycle.
Another instrument is the product choice rule in the Environmental Code which states that anyone who undertakes or intends to undertake an activity has to avoid using chemical products or biotechnical organisms that may be feared to pose risks to human health or the environment, if they can be replaced by such products or organisms as may be assumed to be less hazardous. The same requirement applies to goods that contain or are treated with a chemical product or biotechnical organism.

Measures required

A large and growing waste stream consists of waste from electrical and electronic products. The turnover of new products is rapid. Some of the products, for example computers and television sets, become hazardous waste when they are discarded, and control of the route this waste takes is often deficient or difficult to implement. An important measure would be to make sure at the time of manufacturing that as little hazardous material as possible is used and additionally to make the products, which are easy to dismantle.
In addition, to this there is a requirement to inculcate effords to reduce the hazardousness of waste through its efforts to reduce the use of hazardous chemicals internationally. This is discussed in more detail in the section on chemicals.
Transfer of environmentally sound technologies and know-how on clean technologies and low-waste

production Waste management and recycling is the largest field in the environmental technology sector. This is also where the largest increases in turnover and exports are to be found. Initiatives to treat, recycle, reuse and dispose of wastes at the source of generation and regulatory mechanisms (Polluter-pays principle) considerable effords to apply to all activity that has an impact on the environment or human health. Among these is the requirement that a person who pursues an activity or takes a measure has to be economical with raw materials and energy and utilise the opportunities for reuse and recycling. Renewable energy sources are primarily to be used.

Producer responsibility for products that become hazardous waste at the waste stage applies to electrical and electronic products, cars and batteries. The purpose of collecting electrical waste is to prevent hazardous substances ending up in the wrong place. Producer responsibility is formulated so that those who manufacture electronics or import electronics into Sweden bear responsibility for collection and disposal. Importers and manufacturers have to ensure that there is collection in all municipalities for those electrical products that are usually used in households. They have to bear the cost of recycling and treatment, while the municipality is responsible for the manning of recycling centres. The producers have to manufacture products that contain less environmentally hazardous components and that are easier to recycle and treat. A producer has to take an end-of-life vehicle without payment, has to make it easy for people wishing to hand over end-of-life vehicles to the producer to do so and is obliged to ensure that the car is disposed of by an authorised vehicle scrapper. The car producer is responsible for the satisfactory working of the system to reuse and recycle cars. This responsibility includes reporting, guidance and fulfilling the reuse and recycling targets.

Chemicals Agency is another example of a system for gathering information on hazardous substances in articles. Recovery, reuse and recycling of hazardous wastes and their transformation into useful material In 2006 around 33% of the total volume of hazardous waste arising was treated by material recovery. The predominant types of waste include contaminated soils used as construction material after treatment, batteries sent for recovery of metals, discarded equipment sent for remelting, for example in copper smelt works and waste from incineration used as construction material. Another good example of the transformation of hazardous waste into a useful product is the regeneration of waste oil to obtain new base oil. Under the EU waste directive, waste oil is primarily to be regenerated if it is possible to do so according to the waste hierarchy in consideration of technical, economic and organisational constraints.

Environmentally sound waste disposal and treatment

Waste can be both a resource and an environmental problem. Waste management that works poorly signifies great wastage of valuable material and can also lead to environmental and health problems. The aim as far as possible is to make use of the resources contained in waste. At the same time, it is important to reduce adverse effects in the form of emissions of methane gas from landfills and carbon dioxide from combustion, as well emissions of heavy metals and organic environmental toxins. There is a hierarchy for the management of waste. This primarily means that we have to try to produce as little and as non-hazardous waste as possible. Material recycling is prioritised over energy recycling for waste that nevertheless arises, where this is environmentally justified. The waste ultimately has to be disposed of by land filling. There are no obvious answers as to what

method is preferable for all types of waste in the choice between material recycling and incineration. Several analysts generally support material recovery that causes materials and nutrients to enter a cycle.
An important element in efforts to deal with waste is a clear consumer perspective. It must be simple for households to separate and hand over their waste so that the proportion of waste that is recycled is increased. Information on the purpose and benefit of household participation is also important. An overarching change that is required if we are to approach ecological management of waste is a reduction in the volume of waste and its hazardousness. This cannot be attained just through measures at the waste stage and is largely dependent on a change in the production and consumption of articles. Volumes of waste today are increasing in line with economic growth. A fundamental requirement to enable the goal of sustainable cycles to be achieved is more resource-efficient production and consumption that breaks this relationship. Companies that design and manufacture products have great responsibility for reviewing the environmental impact of their products throughout their lifecycles, using more recovered material and thinking about the future recycling of their products. Consumers also have an important role to play in the choice of products and how to use them.

Producer responsibility

Producer responsibility exists for several products (packaging, waste paper, cars, tyres, batteries and electrical and electronic products). The purpose of producer responsibility is to reduce the quantity of waste, increase recycling and achieve more environmentally sound product development. In addition to this there are what are known as voluntary commitments on producer responsibility in three product groups (office paper, agricultural plastic and building and demolition waste).

Producer responsibility has been successful insofar as materials recovery has increased. The targets for recycling of packaging are met in all cases except for metal packaging. The significance producer responsibility has had in reducing the hazardousness of waste is described in the section on hazardous waste. The results of producer responsibility for electrical and electronic products and cars are also described there. Producer responsibility for packaging has not meant a decrease in the total quantities of packaging. On the other hand, the quantity of packaging per kg of article has decreased, partly as a result of lighter packaging materials.

Conclusion

Sustainability is a word that we increasingly come across in all aspects of life. We probably all have an overall understanding that it is about the avoidance of the depletion of natural resources in order to maintain an ecological balance. In business, we may see it more specifically as the idea that goods and services should be produced in ways that do not use resources that cannot be replaced and that do not damage the environment. Sustainability is a broad subject and can be broken down into many different sections that all affect our lives on a day to day basis. We can positively contribute to each of these areas to help sustain the world for future generations. Also, by positively contributing, your businesses will be seen more favourably by customers as they can see you are showing care and commitment towards the environment.

References

https://royalsocietypublishing.org/doi/10.1098/rsos.160764

https://royalsocietypublishing.org/doi/10.1098/rsos.160764

https://smartnet.niua.org/sites/default/files/webform/SWM-A%20%20Policy%20Agenda.pdf

https://www.nswai.org/docs/Sustainable%20Solid%20Waste%20Management%20in%20India_Final.pdf

"A Comparative Analysis of Flutter and React Native for Cross-Platform Mobile App Development"

Ankit Bansal, Student (MCA), bansalankit8447@gmail.com

Nitin Batra, Student (MCA), batranitin118@gmail.com

Nilesh Kumar Dokania, Assistant Professor (Guru Nanak Institute of Management), nileshvansh@gmail.com

ABSTRACT

The advent of cross-platform mobile app development frameworks has revolutionized the software development landscape, offering developers the ability to create applications that run seamlessly on multiple platforms. Flutter and React Native are two leading frameworks that have gained substantial popularity due to their efficiency, ease of use, and robust community support. This research paper presents a comprehensive comparative analysis of Flutter and React Native, aiming to assist developers and decision-makers in choosing the most suitable framework for their specific requirements.

The research methodology involves evaluating various factors such as performance, development speed, code reusability, user interface (UI) capabilities, third-party library support, and community engagement. The paper explores the underlying architecture, programming languages, development tools, and ecosystem of both frameworks. Additionally, real-world case studies and performance benchmarks are considered to assess the practicality and viability of each framework.

The findings of this research paper provide an in-depth understanding of the strengths and limitations of Flutter and React Native, enabling developers to make informed decisions when selecting a cross-platform framework for mobile app development. The analysis aims to contribute to the growing body of knowledge in the field of cross-platform development and assist in the advancement of mobile app development practices.

1. INTRODUCTION

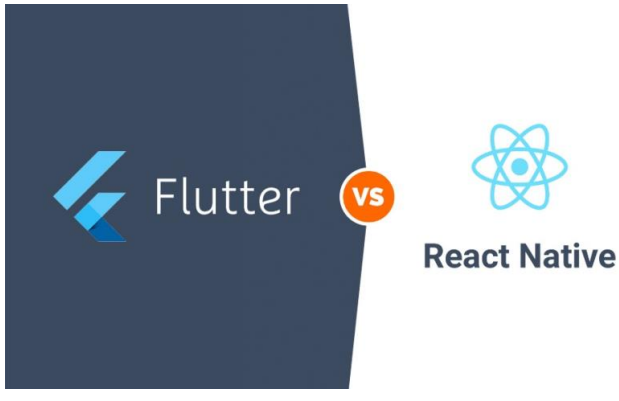


Figure 1 Flutter vs React Native

1.1. Background and significance of cross platform mobile app development:

In the ever-evolving world of mobile technology, the demand for efficient and cost-effective mobile app development continues to grow. Traditionally, developers faced the challenge of building separate applications for different platforms, such as IOS and Android, requiring significant resources, time, and expertise. However, the emergence of cross-platform mobile app development frameworks has

revolutionized the industry by enabling the creation of applications that can run seamlessly on multiple platforms using a single codebase.

The significance of cross-platform mobile app development can be understood from several perspectives:

- Cost Efficiency: Developing separate applications for different platforms involves higher development and maintenance costs. Cross-platform development significantly reduces costs by allowing developers to write and maintain a single codebase that can be deployed on multiple platforms, thereby minimizing the need for separate development teams and resources.
- Time-to-Market: In today's fast-paced digital landscape, businesses strive to launch their applications quickly to gain a competitive edge. Cross-platform development accelerates the development process as it eliminates the need to write platform-specific code from scratch. Developers can reuse a significant portion of the code base, resulting in faster development and reduced time-to-market.
- Code Reusability: Cross-platform frameworks enable maximum code reuse across different platforms. Developers can write a single codebase using popular programming languages, libraries, and frameworks. This reusability not only saves development time but also ensures consistency in the application's functionality and user experience across platforms.
- Reach and User Base: By targeting multiple platforms with a single codebase, cross-platform apps can reach a wider audience. Businesses can cater to users of various platforms, including IOS and Android, without compromising on the user experience or functionality.
- Maintenance and Updates: Maintaining and updating separate codebases for each platform can be a daunting task. Cross-platform development simplifies the maintenance process as bug fixes, updates, and feature enhancements need to be implemented only once, reducing maintenance efforts and ensuring uniformity across platforms.
- Developer Productivity: Cross-platform frameworks often provide robust development tools, libraries, and community support, enhancing developer productivity. These frameworks offer features such as hot reload, which enables real-time code changes and instant updates, allowing developers to iterate quickly and improve the application efficiently.
- Flexibility and Adaptability: Cross-platform frameworks offer flexibility in terms of integrating with various technologies and platforms. They provide access to native APIs, allowing developers to tap into platform-specific functionalities when needed. This flexibility ensures that developers can leverage the strengths of each platform while maintaining code reusability.

1.2. Overview of Flutter and React Native Frameworks:

Flutter, developed by Google, is an open-source UI toolkit that allows developers to create visually appealing and high-performance applications for multiple platforms using a single codebase. On the other hand, React Native, developed by Facebook, provides a similar cross-platform development approach but utilizes JavaScript and React to build mobile applications.

React Native, on the other hand, leverages the popular React framework and JavaScript to build cross-platform applications. With a large and active community, React Native offers extensive third-party library support, making it easier for developers to access pre-built components and enhance application functionality. React Native's "write once, run anywhere" approach allows developers to reuse a significant portion of their code base across different platforms, minimizing development efforts and accelerating time-to-market.

1.3. Objective of this research paper:

The purpose of this research paper is to provide a comprehensive comparative analysis of Flutter and React Native, considering various aspects such as performance, development speed, code reusability, UI capabilities, third-party library support, and community engagement. By understanding the strengths and limitations of each framework, developers and decision-makers can make informed choices based on their project requirements.

2. Architecture

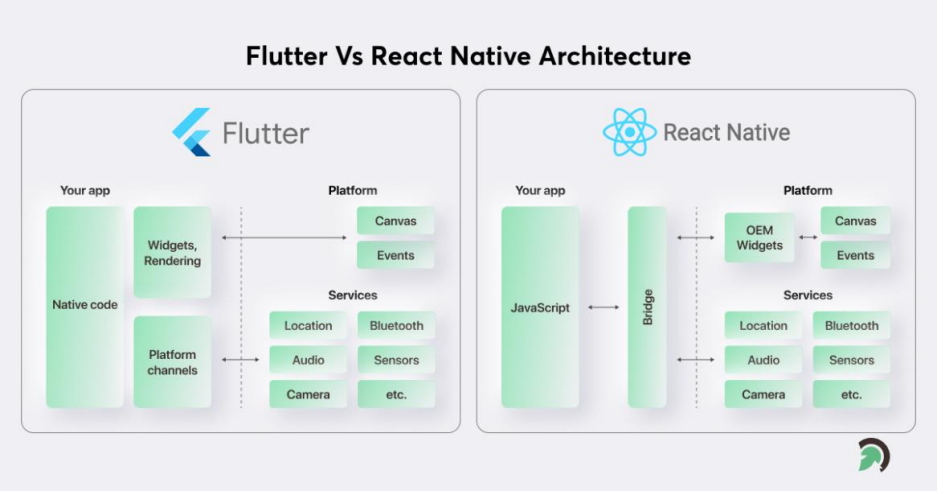


Figure 2 Architecture of Flutter vs. React Native

2.1.Architecture of Flutter

Flutter follows a unique architecture called the "Flutter Framework Architecture" that combines the Dart programming language, a reactive framework, and a set of customizable widgets. The architecture is designed to facilitate efficient rendering, smooth animations, and fast performance on multiple platforms.

The key components of Flutter's architecture are as follows:

- Flutter Engine: At the core of Flutter is the C/C++ rendering engine that interacts with the host operating system and handles tasks such as rendering, gesture recognition, and input events.
- Dart Platform: Flutter utilizes the Dart programming language, which is compiled to native code, to build applications. Dart offers a just-in-time (JIT) compilation during development and ahead-of-time (AOT) compilation for production releases, optimizing performance.
- Flutter Framework: The Flutter framework provides a comprehensive set of libraries, tools, and APIs for building user interfaces and managing application logic. It includes widgets for rendering UI elements and handling user interactions.
- Widgets: Flutter follows a reactive programming model, where everything is a widget. Widgets are the building blocks of Flutter applications and represent UI elements such as buttons, text fields, and containers. Widgets can be stateless (unchangeable) or stateful (changeable).
- Hot Reload: One of Flutter's notable features is its Hot Reload capability, allowing developers to quickly see the changes made to the code without restarting the application. This feature enables fast iteration and enhances developer productivity.

2.2.Architecture Overview of React Native:

React Native follows a different architecture, combining JavaScript, the React library, and native platform components to create cross-platform applications. It utilizes a bridge that enables communication between JavaScript and native platform APIs.

The main components of React Native's architecture are as follows:

- JavaScript Thread: React Native applications are primarily written in JavaScript, which runs on a separate JavaScript thread. This thread handles the logic and user interface rendering.

- React Library: React Native builds upon the React library, which provides a declarative approach to building user interfaces. React components are used to define the structure and behavior of UI elements.
- Bridge: React Native employs a bridge that enables communication between the JavaScript thread and the native platform APIs. This allows React Native to access device functionalities and native UI components.
- Native UI Components: React Native leverages native UI components provided by the platform (e.g., UI Kit for IOS, Android Views for Android). These components are rendered using native APIs, providing a native-like experience to the users.
- Virtual DOM: React Native uses a virtual representation of the user interface called the Virtual DOM. It compares the changes made to the Virtual DOM with the actual UI, and only updates the necessary components, optimizing performance.
- By understanding the architectural differences between Flutter and React Native, developers can gain insights into how these frameworks handle rendering, performance optimization, and interaction with native platform components. This knowledge can aid in making informed decisions and efficiently developing cross-platform applications.

3. Performance

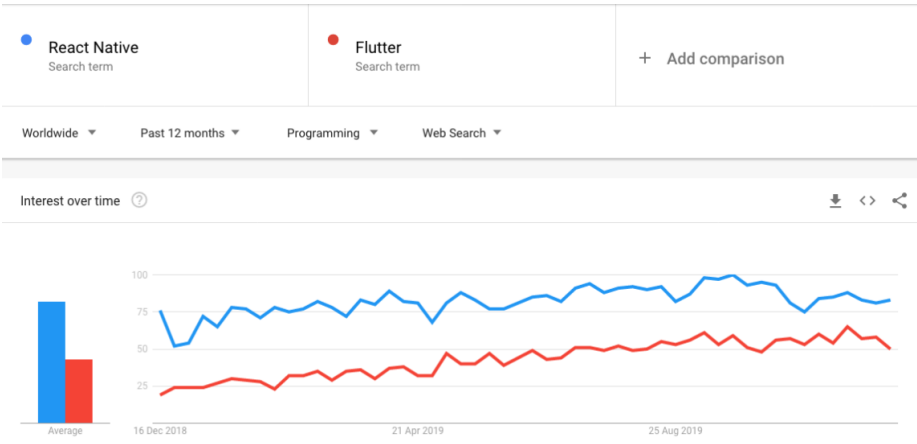


Figure 3 Performance

When comparing the performance of Flutter and React Native, it's important to note that performance can vary depending on the specific use case, device hardware, and optimization techniques employed. While there have been various benchmarks and comparisons conducted by developers and third-party organizations, it's crucial to interpret the results with consideration for the specific context in which the tests were conducted. Here are some general observations based on available benchmarks.

4. Benchmarks and Comparisons:

Flutter has demonstrated excellent rendering performance and smooth animations due to its use of Skia, a high-performance graphics engine. It has shown impressive startup times, thanks to its compilation to native code, resulting in faster app launch times. Flutter's hot reload feature contributes to a smoother development experience by allowing real-time code changes without restarting the app. In terms of UI responsiveness, Flutter's reactive framework has shown good performance, achieving 60 frames per second (fps) for fluid animations. React Native's performance can vary depending on the complexity of the UI and the efficiency of

the code. React Native apps leveraging native platform components can benefit from platform-specific performance optimizations. React Native's startup times may be slightly longer compared to Flutter due to the need for the JavaScript Bridge and initial JavaScript bundle loading. React Native also offers a fast refresh feature, which allows for real-time code changes, but it may not be as fast or seamless as Flutter's hot reload. It's worth noting that specific benchmark results can differ based on the test scenarios and hardware configurations used. Additionally, the performance of both frameworks has evolved over time with updates and optimizations. To gain a better understanding of the performance characteristics in your specific use case, it's recommended to conduct your own performance testing and profiling. This will allow you to evaluate how each framework performs with your application's codebase, UI complexity, and targeted platforms. Consider leveraging tools like Flutter's Dev. Tools or React Native Performance Monitor to analyze and optimize the performance of your application.
Remember that while performance is a crucial factor, other considerations like development productivity, community support, ecosystem maturity, and platform-specific requirements should also be weighed when choosing between Flutter and React Native.

4.1.Rendering Speed and efficiency:

Rendering speed and efficiency are important factors to consider when comparing Flutter and React Native for mobile app development. Here's an overview of their rendering capabilities:

Flutter uses its own rendering engine called Skia, which enables it to achieve high-performance rendering. Flutter renders UI directly to the screen, bypassing native components, resulting in efficient and fast rendering. Flutter's rendering engine employs a process called "layout" to efficiently calculate the position and size of UI elements, optimizing performance. Flutter's rendering pipeline is designed to minimize unnecessary UI updates, reducing the computational load and enhancing efficiency. Flutter's reactive framework allows for optimized UI updates, ensuring efficient rendering and smooth animations. Flutter's compiled nature (to native code) helps improve rendering speed and efficiency compared to interpreted JavaScript frameworks like React Native.

React Native utilizes native platform components for rendering UI, leveraging the platform's native rendering capabilities. React Native relies on the JavaScript Bridge to communicate between JavaScript and native components, which may introduce slight overhead and affect rendering performance. React Native leverages the Virtual DOM concept, where UI updates are compared against the virtual representation of the UI before rendering, helping optimize rendering efficiency. React Native may experience performance differences based on the complexity of the UI and the efficiency of the code written. Performance can be further optimized in React Native by implementing platform-specific UI components or utilizing native modules for computationally intensive tasks. While Flutter generally boasts fast and efficient rendering due to its direct rendering approach, React Native's rendering performance can be influenced by factors such as the efficiency of the JavaScript code, complexity of UI, and reliance on native components. It's important to note that performance can vary depending on the specific app, use case, and targeted platforms. Conducting performance tests and profiling with your specific apps codebase and UI complexity is recommended to evaluate rendering speed and efficiency for your particular scenario. Additionally, consider factors like developer productivity, ecosystem maturity, and community support alongside rendering capabilities when choosing between Flutter and React Native for your mobile app development needs.

4.2.Memory usage and Optimization techniques: Memory usage and optimization techniques play a crucial role in mobile app development, as they directly impact the app's performance and user experience. Here's an overview of memory usage and optimization techniques in Flutter and React Native:

Flutter's architecture and rendering engine are designed to be memory-efficient, aiming to minimize memory usage. Flutter's framework uses a declarative UI approach, where the entire UI is rebuilt only when necessary, reducing unnecessary memory allocation. Flutter employs a garbage collector that automatically de-allocates memory when objects are no longer referenced, helping manage memory efficiently.

Flutter allows developers to fine-tune memory usage by optimizing the size and lifespan of objects, utilizing efficient data structures, and managing resources effectively.

React Native's memory usage can vary depending on factors such as the complexity of the UI, usage of third-party libraries, and the efficiency of JavaScript code. React Native uses the JavaScript Virtual Machine (JS VM) to execute JavaScript code, which may have memory overhead compared to compiled languages like Flutter. Care should be taken to avoid memory leaks in React Native by properly managing references, disposing of unnecessary resources, and handling subscriptions or event listeners appropriately.

Optimization Techniques in Flutter:

Flutter provides various optimization techniques to manage memory usage effectively, such as:

- Widgets recycling: Reusing existing widgets instead of creating new ones, reducing memory allocation and improving performance.
- Asset optimization: Compressing and optimizing assets like images and fonts to reduce their memory footprint.
- Code splitting: Dividing code into smaller, manageable chunks and loading them on demand, reducing memory usage.
- Minification and obfuscation: Minimizing the size of compiled code and obfuscating it to reduce memory overhead.

Optimization Techniques in React Native:

React Native offers several optimization techniques to manage memory usage, including:

- Bundle splitting: Breaking down the JavaScript bundle into smaller chunks and loading them on demand, reducing initial memory consumption.
- Image optimization: Compressing and resizing images to reduce memory usage while maintaining visual quality.
- Reducing unnecessary renders: Implementing should Component Update or React.memo to avoid unnecessary re-renders and optimize performance.

Both Flutter and React Native allow developers to employ general memory optimization best practices, such as minimizing object creation, using efficient algorithms, and managing resources effectively. It's important to note that memory usage and optimization techniques can depend on the specific app's requirements, complexity, and implementation. Profiling and performance testing with your specific app is recommended to identify and address any memory-related issues.

Considering factors like memory efficiency, optimization techniques, and performance trade-offs alongside other criteria can help you make an informed decision when selecting between Flutter and React Native for your mobile app development needs.

5. Development experience

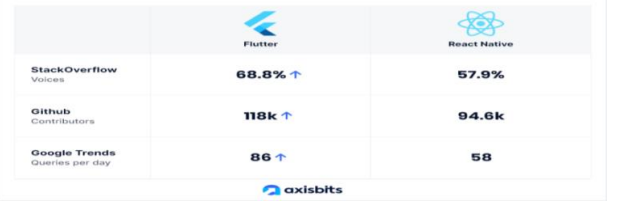


Figure 4 Development experience

Languages:

Flutter: Flutter uses Dart as its primary programming language. Dart is an object-oriented language with a syntax similar to Java or JavaScript. It is easy to learn for developers familiar with other programming languages.

React Native: React Native utilizes JavaScript as its programming language. JavaScript is a widely used language in web development, making it familiar to many developers.

Familiarity:

Flutter: Flutter has gained popularity in recent years, and while it may have a learning curve for developers new to Dart and Flutter's reactive UI approach, it offers a well-documented and growing ecosystem. Developers with experience in object-oriented languages can adapt relatively quickly.

React Native: React Native leverages the familiarity of JavaScript, a widely adopted language in web development. Developers already proficient in JavaScript can transition to React Native more easily.

Code Reusability:

Flutter: Flutter emphasizes code reusability. With Flutter, developers can write a single codebase that can be deployed on multiple platforms, including iOS, Android, and web. This enables significant code sharing and reduces the effort needed to maintain separate codebases for different platforms.

React Native: React Native also promotes code reusability to some extent. While the majority of the code base can be shared between platforms, there may be platform-specific components or modules that require separate implementations.

Testing:

Flutter: Flutter provides a robust testing framework called Flutter Testing, which includes unit testing, widget testing, and integration testing capabilities. It offers a rich set of testing APIs and tools for comprehensive app testing.

React Native: React Native provides testing options such as Jest, which is a popular JavaScript testing framework. Developers can write tests using Jest to cover the JavaScript code, and native platform-specific testing frameworks can be used for platform-specific components.

Debugging Capabilities:

Flutter: Flutter offers a powerful set of debugging tools, including the Flutter DevTools. DevTools provides features like inspecting the widget tree, analyzing performance, debugging UI issues, and more. Flutter's hot reload feature enables developers to quickly see the impact of code changes in real-time during the debugging process.

React Native: React Native leverages debugging tools provided by JavaScript environments. Developers can use browser developer tools or debugging tools integrated with IDEs to debug JavaScript code. For platform-specific issues, debugging tools specific to each platform can be used.

Both Flutter and React Native have dedicated communities that actively contribute to their respective ecosystems, providing resources, libraries, and support. Ultimately, the choice between Flutter and React Native should consider factors such as developers' familiarity with programming languages, the need for code reusability, available testing frameworks, and debugging preferences.

6. Community support

Community support and ecosystem are crucial considerations when choosing between Flutter and React Native for mobile app development. Let's explore the community support and ecosystem of both frameworks.

Flutter Community Support and Ecosystem:

Flutter has a rapidly growing and enthusiastic community of developers, with active participation on platforms like Stack Overflow, Reddit, and Discord. The Flutter community is known for its helpfulness and responsiveness. It benefits from the support of Google, which actively maintains and promotes the framework.

Google's investment in Flutter has resulted in a strong ecosystem and regular updates, including new features and improvements. The Flutter ecosystem includes a wide range of packages and libraries available on the Dart Pub repository. These packages cover various functionalities like networking, database integration, state management, UI components, and more. Flutter also has a rich collection of official documentation, tutorials, videos, and sample apps, providing resources for learning and problem-solving.

React Native Community Support and Ecosystem:

React Native boasts a large and active community of developers, thanks to its association with React, a popular JavaScript library for web development. The React Native community is well-established and has a strong presence on platforms like Stack Overflow, GitHub, and various forums. React Native is backed by Facebook, which continues to invest in its development and maintenance. Facebook's support ensures a steady stream of updates, bug fixes, and performance improvements. The React Native ecosystem is extensive, with a vast number of open-source packages available through the npm package manager. These packages cover diverse functionalities, enabling developers to leverage existing solutions and enhance development efficiency. React Native benefits from the extensive JavaScript ecosystem, including libraries, tools, and resources that are widely used in web development. This allows for potential code sharing between web and mobile projects using JavaScript.

Both Flutter and React Native have active communities, but their focus and backgrounds differ. Flutter has a growing community with a strong emphasis on creating cross-platform mobile apps, while React Native benefits from its association with the popular React ecosystem and the extensive JavaScript community. When considering community support and ecosystem, it's important to evaluate factors such as the availability of libraries/packages for your specific app requirements, the responsiveness of the community to questions and issues, and the quality and comprehensiveness of the available documentation and learning resources. Ultimately, your decision may depend on your familiarity with the respective communities and ecosystems, the specific needs of your project, and the availability of resources and support that align with your requirements.

7. Conclusion

In conclusion, choosing between Flutter and React Native depends on several factors, including project requirements, development expertise, performance needs, ecosystem support, and time constraints. Here are some key points to consider: Flutter offers high performance, thanks to its direct rendering engine and reactive UI framework. It allows for simultaneous development for multiple platforms with a single codebase, maximizing code reusability and reducing development efforts. Flutter's hot reload feature enables faster development iterations and facilitates a quicker time-to-market. The Flutter community is growing rapidly, backed by Google's support, and provides a range of resources and packages for development. React Native leverages the familiarity of JavaScript, making it a popular choice for web developers transitioning to mobile app development. It has a larger ecosystem due to its association with the broader JavaScript community, offering a wide range of libraries and tools. React Native allows for cross-platform development, although there may be some platform-specific considerations. Facebook's support and a well-established community provide reliable resources and support for developers. When making a decision, it's important to evaluate the specific needs of your project. If performance is a critical factor and you require a high-performing app with complex UI and animations, Flutter may be the preferable choice. On the other hand, if you have a team with strong JavaScript expertise or if you need to leverage existing JavaScript libraries, React Native may be more suitable. Consider the availability of resources, development experience, time constraints, and long-term goals. Additionally, it can be helpful to prototype or conduct small-scale experiments with both frameworks to assess their suitability for your specific project. Ultimately, there is no definitive answer as to which framework is better, as the "best" choice depends on the unique requirements and circumstances of each project.

REFRENCES:

- https://flutter.dev/
- https://github.com/flutter/flutter
- https://www.youtube.com/c/flutterdev
- https://flutter.dev/community
- https://reactnative.dev/
- https://github.com/facebook/react-native
- https://www.youtube.com/c/ReactNative
- https://reactnative.dev/community
- https://www.toptal.com/flutter/flutter-vs-react-native
- https://www.codecademy.com/resources/blog/flutter-vs-react-native
- https://www.raywenderlich.com/10165458-flutter-vs-react-native-a-comparison-guide
- https://blog.logrocket.com/flutter-vs-react-native/
- https://www.simplilearn.com/tutorials/reactjs-tutorial/flutter-vs-react-native
- https://www.interviewbit.com/blog/flutter-vs-react-native/
- https://www.browserstack.com/guide/flutter-vs-react-native
- https://procoders.tech/blog/react-native-vs-flutter/

Internet of Things(IoT) its application and challenges

Prof.Shubra Saggar
shubhrasaggar@gmail.com
Professor GNIM

Ms. Purvi Aggarwal
purviaggarwal2000@gmail.com
Student GNIM

Ms. Simran Nayal
simrannayal18@gmail.com
Student GNIM

Abstracts

With the Internet of Things (IoT) gradually evolving as the subsequent phase of the evolution of the Internet, it becomes crucial to recognize the various potential domains for application of IoT, and the research challenges that are associated with these applications. Ranging from smart cities, to health care, smart agriculture, logistics and retail, to even smart living and smart environments IoT is expected to infiltrate into virtually all aspects of daily life. Even though the current IoT enabling technologies have greatly improved in the recent years, there are still numerous problems that require attention. Since the IoT concept ensues from heterogeneous technologies, many research challenges are bound to arise. The fact that IoT is so expansive and affects practically all areas of our lives, makes it a significant research topic for studies in various related fields such as information technology and computer science. Thus, IoT is paving the way for new dimensions of research to be carried out. This paper presents the recent development of IoT technologies and discusses future applications and research challenges.

1. *Introduction*

The Internet can be described as the communication network that connects individuals to information while The Internet of Things (IoT) is an interconnected system of distinctively address able physical items with various degrees of processing, sensing, and actuation capabilities that share the capability to interoperate and communicate through the Internet as their joint platform. Thus, the main objective of the Internet of Things is to make it possible for objects to be connected with other objects, individuals, at any time or anywhere using any network, path or service. The Internet of Things (IoT) is gradually being regarded as the subsequent phase in the Internet evolution. IoT will make it possible for ordinary devices to be linked to the internet in order to achieve countless disparate goals. Currently, an estimated number or equivalent to 140% over the next 4 years, will be driven by edge computing services (the processing of data away from the cloud and closer to the source); increasing both deployment scalability and security.

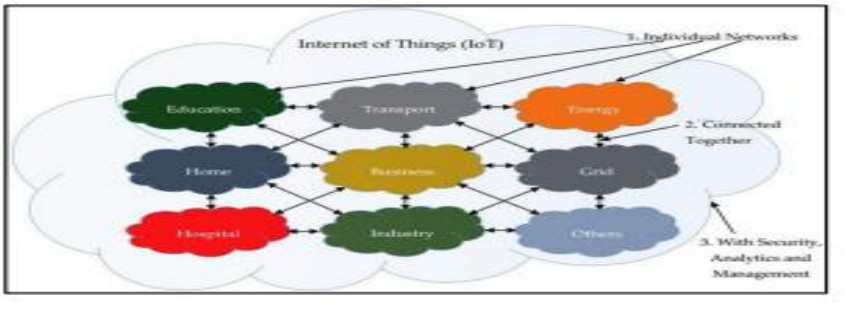


Fig. 1: use of IoT in different fields

2. *POTENTIAL APPLICATION DOMAINS OF IOT*

Potential applications of the internet of Things are not only numerous but also quite diverse as they permeate into virtually all aspects of daily life of individuals, institutions, and society. According to the applications of IoT cover broad areas including manufacturing or the industrial sector, health sector, agriculture, smart cities, security and emergencies among many others

2.1 Smart Cities

The IoT plays a crucial role in improving the smartness of cities and enhancing general infrastructure. Some of IoT application areas in creating smart cities include; intelligent transportation systems, smart building, traffic congestion waste management[9], smart lighting, smart parking, and urban maps.

This may include different functionalities such as; monitoring available parking spaces within the city, monitoring vibrations as well as material conditions of bridges and buildings, putting in place sound monitoring devices in sensitive parts of cities, as well as monitoring the levels of pedestrians and vehicles. Artificial Intelligence (AI) enabled IoT can be utilized to monitor, control and reduce traffic congestions in Smart Cities.

Moreover, IoT allows installation of intelligent and weather adaptive street lighting and detection waste and waste containers by keeping tabs of trash collection schedules. Intelligent highways can provide warning messages and important information, such as access to diversions depending on the climatic conditions or unexpected occurrences like traffic jams and accidents.

Fig.2 Smart Cities

2.2 Healthcare

Most healthcare systems in many countries are inefficient, slow and inevitably prone to error. This can easily be changed since the healthcare sector relies on numerous activities and devices that can be automated and enhanced through technology. Additional technology that can facilitate various operations like report sharing to multiple individuals and locations, record keeping and dispensing medications would go a long way in changing the healthcare sector .

A lot of benefits that IoT application offers in the healthcare sector is most categorized into tracking of patients, staff, and objects, identifying, as well as authenticating, individuals, and the automatic gathering of data and sensing. Hospital workflow can be significantly improved once patients flow is tracked. Additionally, authentication and identification

reduce incidents that may be harmful to patients, record maintenance and fewer cases of mismatching infants.

In addition, automatic data collection and transmission is vital in process automation, reduction of form processing timelines, automated procedure auditing as well as medical inventory management. Sensor devices allow functions centred on patients, particularly, in diagnosing conditions and availing real-time information about patients' health indicators.

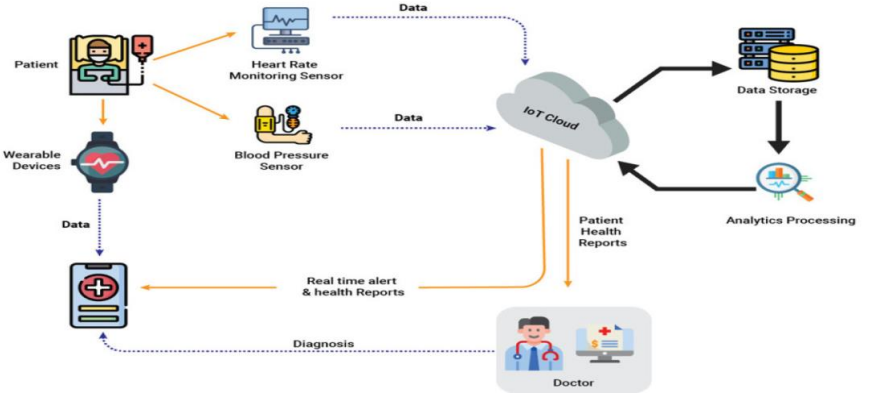


Fig.3 Healthcare

2.3 Smart Agriculture and Water Management

The IoT has the capacity to strengthen and enhance the agriculture sector through examining soil moisture and in the case of vineyards, monitoring the trunk diameter. IoT would allow to control and preserve the quantity of vitamins found in agricultural products, and regulate microclimate conditions in order to make the most of the production of vegetables and fruits and their quality.

Furthermore, studying weather conditions allows forecasting of ice information, drought, wind changes, rain or snow, thus controlling temperature and humidity levels to prevent fungus as well as other microbial contaminants. When it comes to cattle, IoT can assist in identifying animals that graze in open locations, detecting detrimental gases from animal excrements in farms, as well as controlling growth conditions in offspring to enhance chances of health and survival and so on.

Moreover, through IoT application in agriculture, a lot of wastage and spoilage can be avoided through proper monitoring techniques and management of the entire agriculture field. It also leads to better electricity and water control.

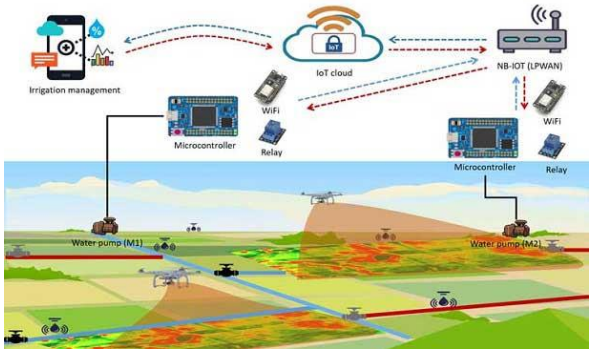


Fig.4 Smart Agriculture and Water Management

2.4 Retail and Logistics

Executing the IoT in Supply Chain or retail Management has many benefits. Some include; observing storage conditions throughout the supply chain, product tracking to enable trace ability purposes, payment processing depending on the location or activity period in public transport, theme parks, gyms, and others. Inside the retail premises, IoT can be applied to various applications such as direction in the shop based on a preselected list, fast payment processes like automatically checking out with the aid of biometrics, detecting potential allergen products and controlling the rotation of products on shelves and warehouses in order to automate restocking procedures .

The IoT elements mostly used in this setting include; wireless sensor networks and radio frequency identification. In retail, there is a current use of SAP (Systems Applications and Products), while in logistics numerous examples include quality consignment conditions, item location, detecting storage incompatibility issues, fleet tracking among others.
In the industry domain, IoT helps in detecting levels of gas and leakages within the industry and its environs, keeping track of toxic gases as well as the oxygen levels within the confines of chemical plants to ensure the safety of goods and workers and observing levels of oil, gases and water in cisterns and storage tanks. Application of IoT also assists in maintenance and repair because systems can be put in place to predict equipment malfunctions and at the same automatically schedule periodic maintenance services before there is a failure in the equipment. This can be achieved through the installation of sensors inside equipment or machinery to monitor their functionality and occasionally send reports.

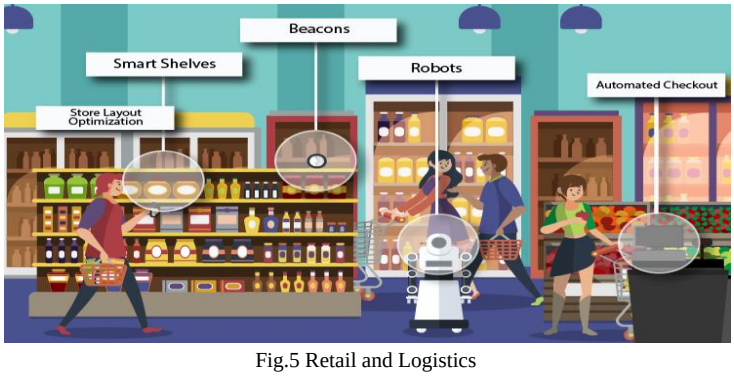


Fig.5 Retail and Logistics

2.5 Smart Living

IoT can be applied in remote control devices whereby one can remotely switch appliances on and off hence preventing accidents as well as saving energy [1, 3] .Other smart home appliances include refrigerators fitted with LCD (Liquid Crystal Display) screens, enabling one to know what is available inside, what has over stayed and is almost expiring as well as what needs to be restocked. This information can also be linked to a smartphone application enabling one to access it when outside the house and therefore buy what is needed.

Furthermore, washing machines can allow one to remotely monitor laundry. In addition, a wide range of kitchen devices can be interfaced through a smartphone, hence making it possible to adjust temperature, like in the case of an oven. Some ovens which have a self-cleaning feature can be easily monitored as well. In terms of safety in the home, IoT can be applied through alarm systems and cameras can be installed to monitor and detect window or door openings hence preventing intruders .

Fig.6 Smart Living

2.6 Smart Environment

The environment has a vital role within all aspects of life, from people, to animals, birds and also plants, are all affected by an unhealthy environment in one way or another. There have been numerous efforts to create a healthy environment in terms of eliminating pollution and reducing wastage of resources, but the existence of industries, as well as transportations wastes coupled with reckless and harmful human actions are common place elements which consistently damage the environment.

Consequently, the environment requires smart and innovative ways to help in monitoring and managing waste, which provide a significant amount of data that forces governments to put in place systems that will protect the environment. Smart environment strategies integration with IoT technology should be created for sensing, tracking and assessment of objects of the environment that offer potential benefits in achieving a sustainable life and a green world. The IoT technology allows observing and managing of air quality through data collection from remote sensors across cities and providing round the clock geographic coverage to accomplish better ways of managing traffic jams in major cities. Additionally, IoT technology can be applied in measuring pollution levels in water and consequently enlighten decisions on water usage.

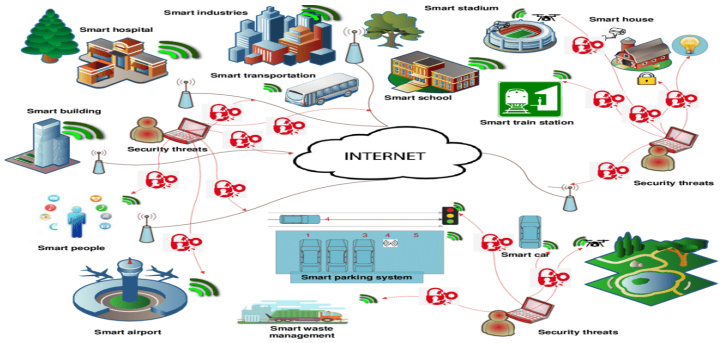


Fig.7 Smart Environment

3. *RESEARCH CHALLENGES*

For all the above potential applications of IoT, there has to be proper feasibility into the different domains to ascertain the success of some applications and their functionality. As with any other form of technology or innovation, IoT has its challenges and implications that must be sorted out to enable mass adoption. Even though the current IoT enabling technologies have greatly improved in the recent years, there are still numerous problems that require attention, hence paving the way for new dimensions of research to be carried out.

3.1 Privacy and Security

Owing to the fact that IoT has become a vital element as regards the future of the internet with its increased usage, it necessitates a need to adequately address security and trust functions. Researchers are aware of the weaknesses which presently exist in many IoT devices. Furthermore, the foundation of IoT is laid on the existing wireless sensor networks (WSN), IoT thus architecturally inherits the same privacy and security issues WSN possesses.

Various attacks and weaknesses on IoT systems prove that there is indeed a need for wide ranging security designs which will protect data and systems from end to end. Many attacks generally exploit weaknesses in specific devices thereby gaining access into their systems and consequently making secure devices vulnerable. This security gap further motivates comprehensive security solutions that consist of research that is efficient in applied cryptography for data and system security, non-cryptographic security techniques as well as frameworks that assist developers to come up with safe systems on devices that are heterogeneous.

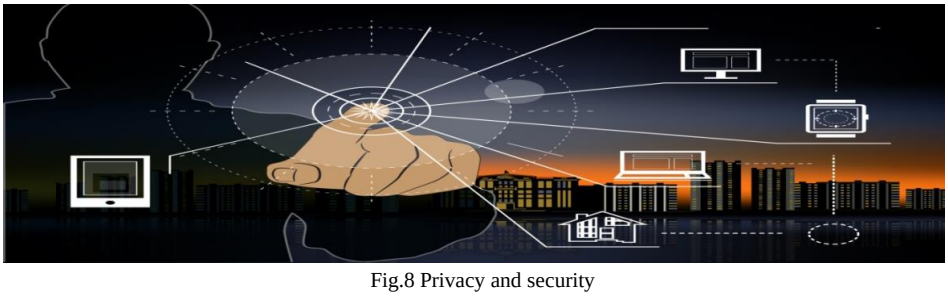


Fig.8 Privacy and security

3.2 Processing, Analysis and Management of Data

The procedure for processing, analysis and data management is tremendously challenging because of the heterogeneous nature of IoT, and the large scale of data collected, particularly in this era of Big Data. Currently, most systems utilize centralized systems in offloading data and carrying out computationally intensive tasks on an international cloud platform. Nevertheless, there is a constant concern about conventional cloud architectures not being effective in terms of transferring the massive volumes of data that are produced and consumed by IoT enabled devices and to be able further support the accompanying computational load and simultaneously meet timing constraints.

Most systems are therefore relying on current solutions such as mobile cloud computing and fog computing which are both based on edge processing, to mitigate this challenge. Another research direction as regards data management is applying Information Centric Networking (ICN) in the IoT. Since these information centric systems offer support in the efficient content retrieval and access to services, they appear to be quite valuable not just in accessing but also transferring as well as managing generated content and its transmission.

This solution, however, brings about various challenges such as; how to extend the ICN paradigm competently over the fixed network edge, how to take in IoTs static and mobile devices as well as how to apportion the functionality of ICN on resource constrained devices.

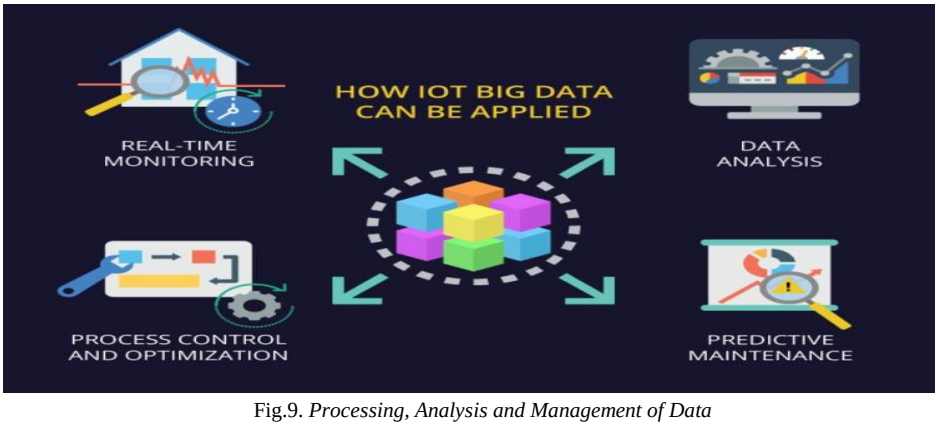


Fig.9. *Processing, Analysis and Management of Data*

3.3. Monitoring and Sensing

Even if technologies concerned with monitoring and sensing have made tremendous progress, they are constantly evolving particularly focusing on the energy efficiency and form aspect. Sensors and tags are normally expected to be active constantly in order to obtain instantaneous data, this aspect makes it essential for energy efficiency especially in lifetime extension. Simultaneously, new advances in nanotechnology/biotechnology and miniaturization have allowed the development of actuators and sensors at the Nanoscale.

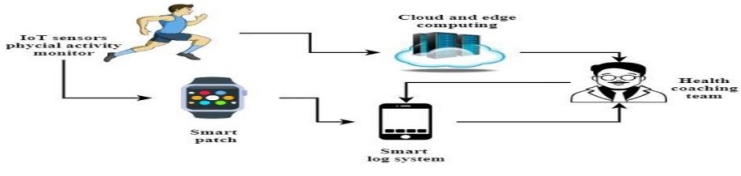


Fig.10. Monitoring and Sensing

3.4. M2M (Machine to Machine) Communication and Communication Protocols

While there are already existing IoT oriented communication protocols like Constrained Application Protocol (CoAP) and Message Queuing Telemetry Transport (MQTT), there is still no standard for an open IoT. Although all objects require connectivity, it is not necessary for every object to be made internet capable since they only need to have a certain capability to place their data on a particular gateway. Additionally, there are a lot of options in terms of suitable wireless technologies such as LoRa, IEEE 802.15.4, and Bluetooth even though it is not clear whether these available wireless technologies have the needed capacity to continue covering the extensive range of IoT connectivity henceforth.

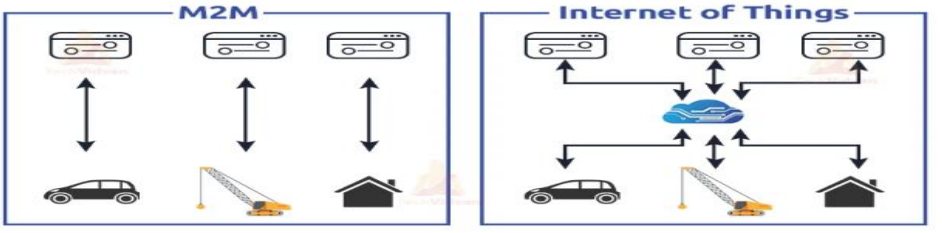


Fig.11 *M2M (Machine to Machine) Communication and Communication Protocols*

4. CONCLUSION

The IoT can best be described as a CAS (Complex Adaptive System) that will continue to evolve hence requiring new and innovative forms of software engineering, systems engineering, project management, as well as numerous other disciplines to develop it further and manage it the coming years. The application areas of IoT are quite diverse to enable it to serve different users, who in turn have different needs. The technology serves three categories of users, individuals, the society or communities and institutions. As discussed in the application section of this research paper, the IoT has without a doubt a massive capability to be a tremendously transformative force, which will, and to some extent does already, positively impact millions of lives worldwide. According to, this has become even more evident, as different governments around the world have shown an interest in the IoT concept by providing more funding in the field that is meant to facilitate further research. A good example is the Chinese Government. Countless research groups have been, and continue to be, initiated from different parts of the world, and their main objective is to follow through IoT related researches. As more and more research studies are conducted, new dimensions to the IoT processes, technologies involved and the objects that can be connected continue to emerge, further paving way for much more application functionalities of IoT. The fact that IoT is so expansive and affects practically all areas of our lives, makes it a significant research topic for studies in various related fields such as information technology and computer science. The paper highlights various potential application domains of the internet of things and the related research challenges.

REFERENCES

[1] M. H. Miraz, M. Ali, P. S. Excell, and R. Picking, “A Review on Internet of Things (IoT), Internet of Everything (IoE) and Internet of Nano Things (IoNT)”, in 2015 Internet Technologies and Applications (ITA), pp. 219– 224, Sep. 2015, DOI: 10.1109/ITechA.2015.7317398.

[2] P. J. Ryan and R. B. Watson, “Research Challenges for the Internet of Things: What Role Can OR Play?,” Systems, vol. 5, no. 1, pp. 1–34, 2017.

[3] M. Miraz, M. Ali, P. Excell, and R. Picking, “Internet of Nano-Things, Things and Everything: Future Growth Trends”, Future Internet, vol. 10, no. 8, p. 68, 2018, DOI: 10.3390/fi10080068.
[4] E. Borgia, D. G. Gomes, B. Lagesse, R. Lea, and D. Puccinelli, “Special issue on" Internet of Things: Research challenges and Solutions".,” Computer Communications, vol. 89, no. 90, pp. 1–4, 2016.
[5] K. K. Patel, S. M. Patel, et al., “Internet of things IOT: definition, characteristics, architecture, enabling technologies, application future challenges,” International journal of engineering science and computing, vol. 6, no. 5, pp. 6122–6131, 2016.
[6] S. V. Zanjal and G. R. Talmale, “Medicine reminder and monitoring system for secure health using IOT,” Procedia Computer Science, vol. 78, pp. 471–476, 2016.
[7] R. Jain, “A Congestion Control System Based on VANET for Small Length Roads”, Annals of Emerging Technologies in Computing (AETiC), vol. 2, no. 1, pp. 17–21, 2018, DOI: 10.33166/AETiC.2018.01.003.
[8] S. Soomro, M. H. Miraz, A. Prasanth, M. Abdullah, “Artificial Intelligence Enabled IoT: Traffic Congestion Reduction in Smart Cities,” IET 2018 Smart Cities Symposium, pp. 81–86, 2018, DOI: 10.1049/cp.2018.1381.
[9] Mahmud, S. H., Assan, L. and Islam, R. 2018. “Potentials of Internet of Things (IoT) in Malaysian Construction Industry”, Annals of Emerging Technologies in Computing (AETiC), Print ISSN: 2516-0281, Online ISSN: 2516-029X, pp. 44-52, Vol. 2, No. 1, International Association of Educators and Researchers (IAER), DOI: 10.33166/AETiC.2018.04.004.
[10] Mano, Y., Faical B. S., Nakamura L., Gomes, P. G. Libralon, R. Meneguete, G. Filho, G. Giancristofaro, G. Pessin, B. Krishnamachari, and Jo Ueyama. 2015. Exploiting IoT technologies for enhancing Health Smart Homes through patient identification and emotion recognition. Computer Communications, 89.90, (178-190). DOI: 10.1016/j.comcom.2016.03.010.

DATA VISUALISATION USING DIFFERENT TOOLS

Prof. Ekata Gupta
ekata.gupta78@gmail.com
Professor GNIM

Mr. Varun Vats
varunvats.kd2@gmail.com
Student GNIM
Mr.Aman Suneja
Aman.suneja.2001@gmail.com
Student GNIM

Abstract

A massive amount of knowledge is present in a gigantic amount of data. If we use this information decently, we can make practical judgments in future. Data visualization techniques are more powerful than textual representation. The obsolete techniques of data visualization system had some problems. Data science uses two different languages for data visualization i.e. Python and R programming. There are many non-programming tools also to visualize data. This paper includes the different visualization techniques using different tools. R includes phenomenal visualization tools like ggplot2, leaflet, lattice, etc. to defeat the grievance of large volume of data. Python also have different libraries for data visualization like Bokeh, Seaborn, Matplotlib, etc. There are many GUI based tool with no coding but with the most latest, shielded, and powerful data visualization accessories. Method and process of visual report of data are significant to recover specific knowledge from the large-scale dataset.

1. Introduction

Data visualization portray the phenomenon information in graphical representation. Data visualization acquiesce us to identify sampling, leaning and interrelation. The human understanding prepares perceived visual data 60,000 times responsive than text. In fact, visible information estimates for 90 % of the instruction spread to the brain. In today's industries there is a tremendous quantity of knowledge generated from both indoor as well as outdoor of thecompany. Visualizing the knowledge give the sense of it all. Humans are attracted to specific purpose or simplified complexities because of which in today's world data visualization is becoming important. Scanning different worksheets, spreadsheets, or reports are ordinary and wearisome at the best whereas observing charts and graphs is often easier on the eyes. As the data is getting massive, bigger and wider with the time span, it's appropriate to say that the data visualization will independently grow, evolve and be of outstanding worth. Data visualization have many benefits. Its first benefit is to the decision makers as it allows them to grasp advanced information, nonetheless there are many more benefits of data visualization. The massive information is barely represented by the correct visualization method. Through visualization process, vast information is attainable in real time. Gigantic amount of data will recognize the higher information through interaction with the method of visualization. The story of big data will be told by the data visualization method. Visualization helps to dispatch the data in universal manner which allows the viewers to recognize the information immediately. In this paper, different data visualization techniques are demonstrated with the most dynamic computer language with the variations of tools. It also contains non-programming tools as well which can help a non-programmer to choose the most suitable tool for him/her at the time of visualizing.

2. Data visualization

Data visualization is the appearance of data in graphical pattern regarding any character which makes it

manageable and represented. It further demonstrates the connection between the data. To visualize the data, we not only use lines, graphs, histogram, and pie charts, we use numerous representation techniques like heat map, fever charts, plots, etc. When organizations demand for connection between the data, they use graphs, bars, charts, etc. to do it with which they can use many different colors, phrases and figures. Data visualization is more interactive to build the relationship between the data.

Now organizations collect immense amount of data that would be very difficult for a human being to read. Researchers have found that the human retina can send data to the brain at a velocity of 10 megabits per second approx. Data visualization uses computer operations to fit raw data into graphical illustrations which helps the human to catch volumes of data in seconds. Decision makers must be capable to collect, estimate, operate on data. Data visualization providesa way to:

- Analyze large amount of data
- Point the trend
- Notice the similarities and the connections
- Represent the information to people

The human brain is capable to experience visual knowledge. Because of this ability humans are able to spot hints of risk and recognize human appearances. Data visualization use this abilityby offering data in visible form so that humans can immediately predict the data. The most difficult thing in visualizing the data is to decide the most suitable method. Sometimes uncomplicated tool like pie chart or histogram can illustrate the data but with increasing differenttypes of data sets, new and modern methods will be more relevant.

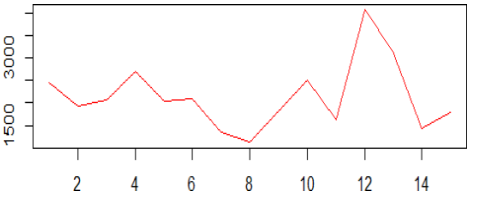
3. Visualizing data with R

R provides some best libraries for data visualization which also handles simultaneous data. Rvisualization libraries include; ggplot2, leaflet, lattice, etc. that the most used libraries. For visualizing, the data is imported by read function. After that, the data is cleaned and models are made to analyze it. For better analyses, data is visualized using different libraries of R.

3.1. Line/Bar Chart

Bar plots are created to show the relationship between the totals and individual accumulations. Line chart are created while investigating a trend over a time span. It also fits plots where relevant variations in quantities are analyzed. In fig.1 (a) Line Chart and (b) Bar Chart. Below code is applied to 'titanic' dataset to get the visualization.

```
plot(titanic$age,type="l",col="red") #for line chartbarplot(titanic$age)     #for bar chart
```



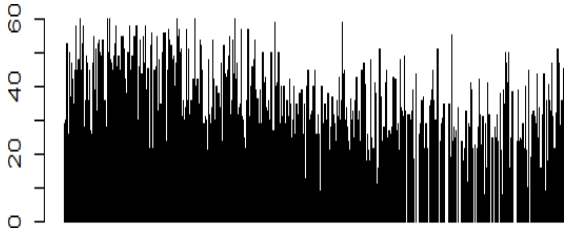


Fig.1 (a) Line Chart (b) Bar Chart

3.2.Box Plot

Box plot notes 5 numbers. Numbers starts with zero, 25% for first quarter, 50% is the average, 75% for third quarter and 100% as the last point. Using the ~ sign , it can reflect to what degree the measure is over multiple divisions [6]. The following code uses Temperature dataset for visualizing. In Fig.2 a. Box plot with one outlier, b. Box plot with two outliers, c. Multiple Box plot and d. Different Box plots for each month. The following code is for the visualization:

boxplot(temp$year) boxplot(temp$day) boxplot(temp~weather, col="green")
boxplot(temp~month, data=airquality,col="orange",border="brown")

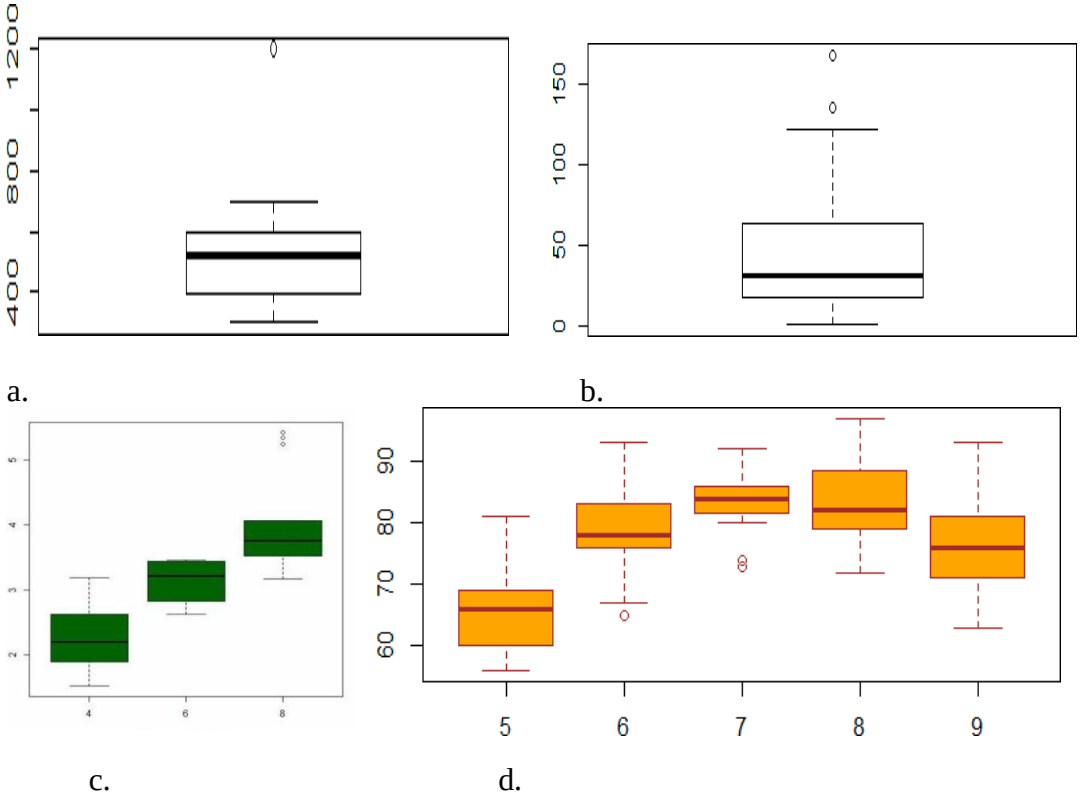
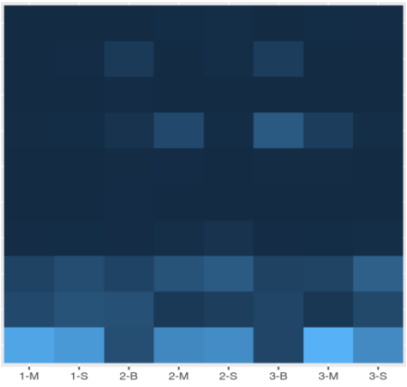


Fig.2 (a) Box plot with an outlier, (b) Box plot with 2 outliers, (c) Multiple box plot, (d) Different boxplot for each month

3.3.Heat Map

It is the data visualization with the help of two axis i.e. XY where the values in a matrix are represented as colors [6]. The following code is for heat map which are shown in Fig.3 (a) Heatmap for dataset 'mine' (b) Heatmap for increase in price

heatmap(as.matrix(mine))
heatmap(dates, values, legendtitle = "Price")



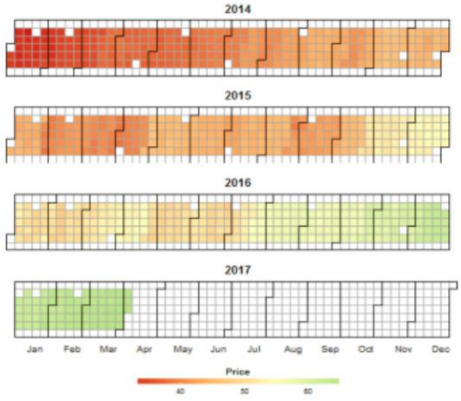
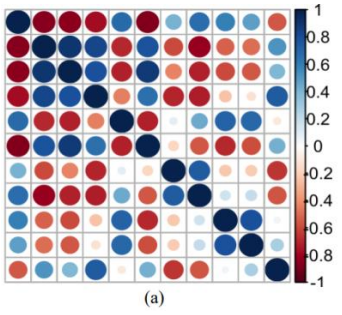


Fig.3 (a) Heat map for 'mine' dataset (b) Heat map for different years

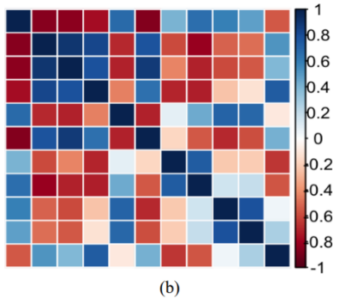
3.4. Correlogram

Correlogram let us visualize the data in correlation matrices [7]. This type of visualization is done by using "corrplot" library. There are seven methods in correlogram that can be used : circle, pie, color, square, ellipse, number, shade. The following code shows the different types of methods in correlogram.

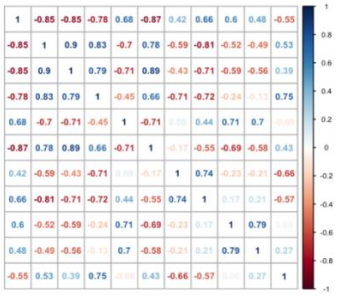
```
corrplot(M, method="circle")
corrplot(M, method="pie")
corrplot(M, method="number")
corrplot(M, method="color")
```



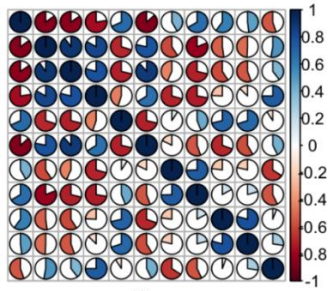
(a)



(b)



(c)



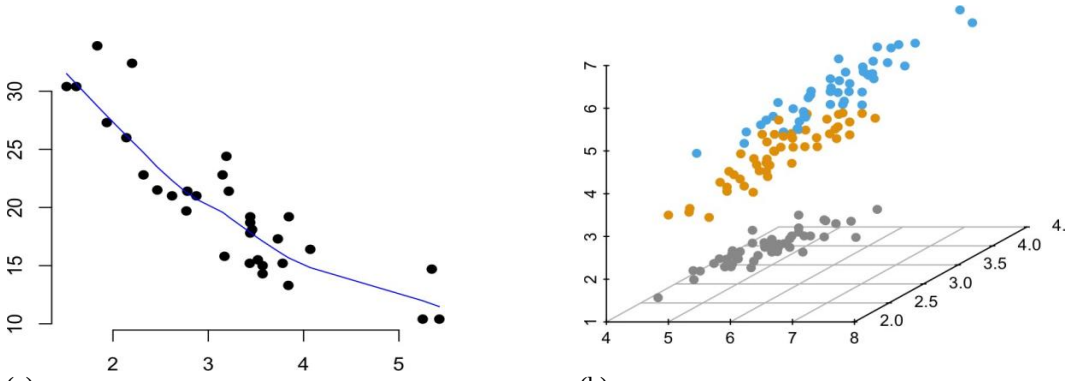
(d)

Fig.4 (a) Circle method, (b) Color method, (c) Number method, (d) Pie method

3.5. Scatter Plot

Scatter plot uses “car” library of R. It is created using plot() function. It is mostly used for unadulterated data which help us to visualize the data efficiently. The following code is for plotting scatter plot show in Fig.5.

```
plot(x, y, pch = 19, frame = FALSE) lines(lowess(x, y), col = "blue")
colors <- c("grey", "blue", "yellow")
scatterplot3d(x, y, z, pch = 16, color = colors[grps], grid = TRUE, box = FALSE)
```



(a) (b)

Fig.5 (a) Scatter Plot with regression line (b) 3D scatter plot

4. Visualizing data with python

Python is used for visualizing as it is reliable. Python has different libraries for different types of data. Independently every library has their own naïve characteristics. Depending on the situation and condition, different library can be used. Some of the libraries perform visualization depending on other library. Most popular libraries for visualization are : seaborn, bokeh, altair, ggplot, matplotlib [8] .

4.1. Bokeh

Bokeh provides high level interactive charts and plots [10] . Bokeh outputs can be accessed in various mediums like notebook, html and server. Bokeh assist combining numerous factors of complex plots, which is similar to an associated planning [10]. It has two visualization interface i.e. Models and Plotting. Bokeh library contains various visualization methods like boxplot, scatter plot, single line, scattermarks, histogram, etc. The following code shows two of the methods.

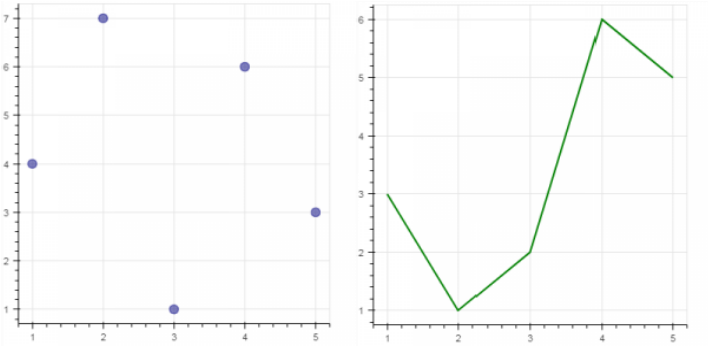
4.1.1. Scatter marks

```
from bokeh.plotting import figure, output_notebook, showp = figure(plot_width = 400, plot_height = 400)
p.circle([1, 2, 3, 4, 5], [4, 7, 1, 6, 3],
size = 10, color = "navy", alpha = 0.5)
```

4.1.2. Single line

```
from bokeh.plotting import figure, output_notebook, show p = figure(plot_width = 400, plot_height = 400)
p.line([1, 2, 3, 4, 5], [3, 1, 2, 6, 5],
```

line_width = 2, color = "green")



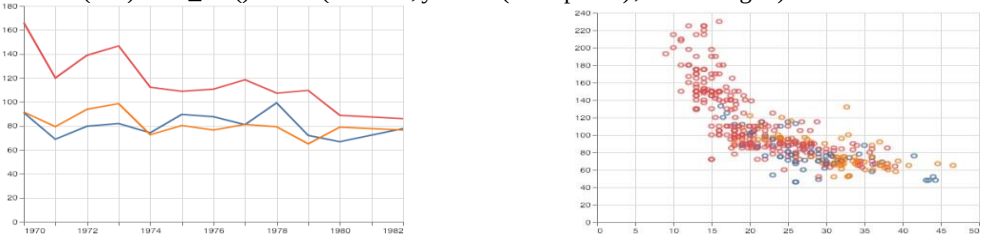
(a) (b)

Fig.6. (a) Scatter Marks (b) Single Line

4.2. Altair

It is used for exploratory visualization that features a declarative API which allows the data scientists to focus on the data more than the incidental details. Declarative mean plotting any chart by proclaiming links between data columns to the encoding channels [9]. To present the data, the most important pieces are: data, marks and encodings. It is planted on Vega and Vega-Lite grammars. The vega package has many datasets in it. The following is for the outputs present in Fig.7.

alt.Chart(cars).mark_point().encode(x='Miles_per_Gallon', y='Horsepower', color='Origin')
alt.Chart(cars).mark_line().encode(x='Year', y='mean(Horsepower)', color='Origin')



(a) (b)

Fig.7. (a) Visualization using line mark (b) Visualization using point mark

4.3. Ggplot

It has all functions of ggplot2 of R [8] . It is used to plot graphics for the data. plt = ggplot(wyoming_permit_dat, aes(x = 'date', y = 'Total'))
plt + geom_point() + geom_line(color = 'red', alpha = 0.50, size = 2.5))

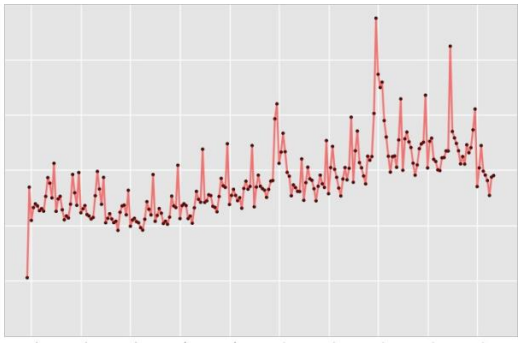
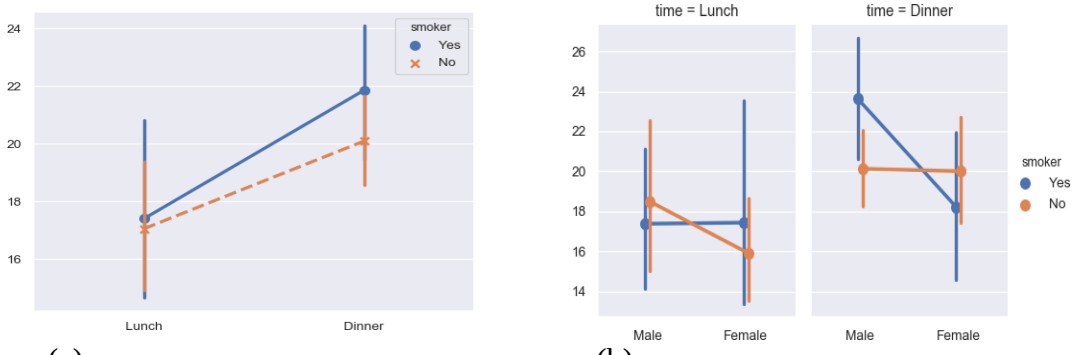


Fig.8 Time Series Graph using GGPLOT

4.4. Seaborn

It is used to make statistical graphics in python. This library is integrated with pandas data structures.It have built-in themes, tools, functions for univariate and bivariate datsets, regression models, matrices, time series, etc. Its aim is to explore and experience data. It produces a quality of diagrams. The following code is for the visualization shown in Fig.9.

```
ax = sns.pointplot(x="time", y="total_bill", hue="smoker",data=tips, markers=["o", "x"], linestyles=["-","--"])
g = sns.catplot(x="sex", y="total_bill", hue="smoker", col="time", data=tips, kind="point", dodge=True,height=4, aspect=.7);
```



(a) (b)

Fig.9 (a) Point plot (b) Cat plot

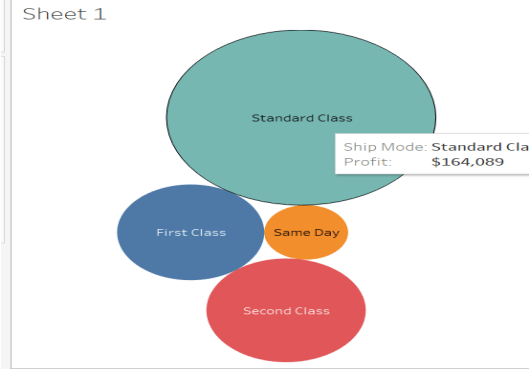
5. Visualizing data using tableau

It is the most safe and easy non-coding tool to visualize the data. It can produce different chart for different types of environment like mobile, web, slide, etc. there is cloud-host service also frothose who wants the server resolution. It comes in private and corporate both adjustments.
Tableau offers 5 products:

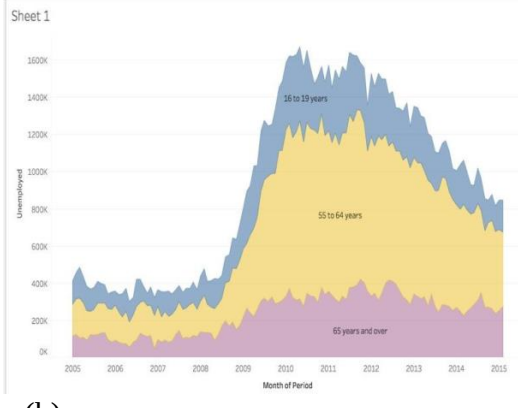
- Tableau Desktop - It is used to create dashboards and stories locally. This product can be used personally or professionally with limited data sources and no connectivity to tableau server. Its personal license if for $999 and professional license is for $1999.
- Tableau Public - It is a massive, public, non commercial Tableau server through which we can publish all the data publically. Its license is free.
- Tableau Online – It is used to create dashboards and stories on the cloud. It has liveconnections. Its license is for $500 per year.
- Tableau Reader – It is used to view dashboards and sheets locally. We can't modifyworkbooks or connect to the server. It is freely available.
- Tableau Server – It is used to connect to data sources and share dashboards. Users can directly connect to the dashboards via browser. It has core license.

LinkedIn, Amazon, Ferrari, Adobe, Walmart, etc. are the most popular users of tableau. Tableausofficial website contains tutorial videos for the beginners. These videos help the beginners to understand and use tableau easily.
We can create many different types of visualization using tableau. Some of the examples are:

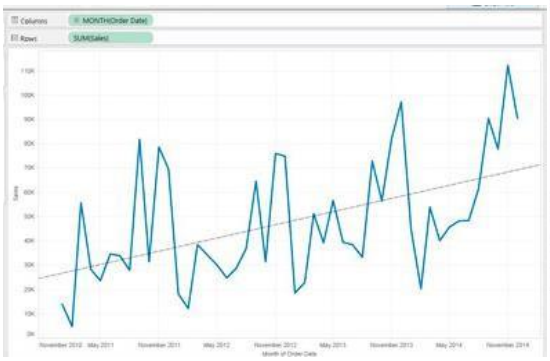
- Bubble Cloud
- Area Chart
- Trend Line
- Dashboard



(a)



(b)



(c)

(d)

Fig.11 (a) Bubble Cloud, (b) Area Chart, (c) Trend Line, (d) Dashboard

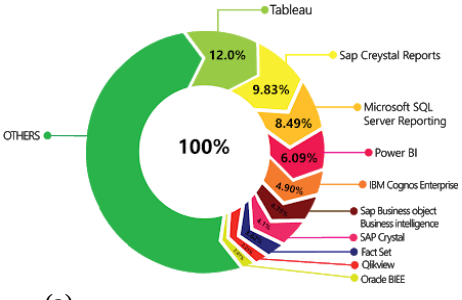
6. Microsoft power bi

It is a cloud-based business analytics service from Microsoft empower anyone to visualize the data. It is a very fast and effective tool to visualize. As it is a product of Microsoft, it is more safe and reliable than any other tool. It is very easy to use as it comes with a drag and drop interface. Itis also consistent with multiple sources, like MS Excel, SQL Server, and cloud-based data repositories. It is capable to analyze and explore data on thesis as well as on cloud. It provides thestrength to collaborate and share customized dashboards and reports, easily and securely. It consists of various components like:

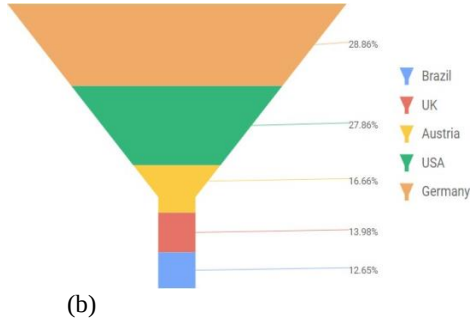
1) Power BI Desktop
2) Power BI Service
3) Power BI Mobile Apps
4) Power BI Gateway
5) Power BI Embedded
6) Power BI Report Server
7) Power BI Visuals Marketplace

The component depends on the project and environment of work. Power BI Desktop is the basicone which we can use for practice. Some of the examples of visualization are:-

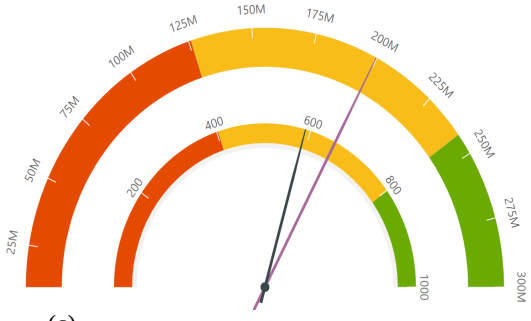
a. Doughnut Charts
b. Funnel Charts
c. Gauge Charts
d. Kpi



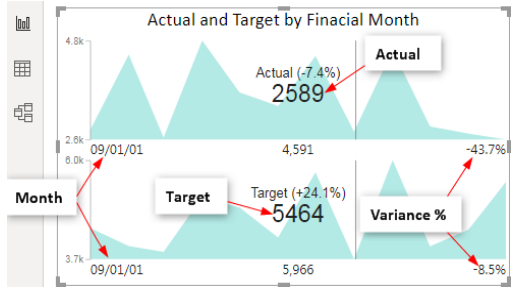
(a)



(b)



(c)



(d)

Fig.12 (a) Doughnut Charts, (b)Funnel Charts, (c) Gauge Chart, (d) Kpi

7. Conclusion

Over the last 25 years, visualization patterns have advanced because of which modularization and segregation of complexity has boosted. The complication performing ahead will be to explore new treatments that extend this learning while maintaining conditions in parallelization, processor structure, application design and data administration, data models, rendering, and interactions.

Another affront is to accustom subsisting community efforts, which describe a large number of blocks of code and thousands of developer times, to deal with future provocations for Data Visualization. Python firstly makes the exceptional reconstruction and R already comes with extrarich and more factual source in Data Visualization. Many business professionals are dealing with Data visualization for their analytic.

This paper demonstrated, data visualization techniques scope by meta-analysis with mappingthe variety of tools. Information described here will help the developers to improve their knowledge about the scope with guideline for providing new service to both general and professionals.

References

[1] H. Jagadish, J. Gehrke, A. Labrinidis, Y. Papakonstantinou, J. Patel, R. Ramakrishnan and C.Shahabi, "Big data and its technical challenges", Communications of the ACM, vol. 57, no. 7, pp.86-94, 2014.

[2] D. Keim, H. Qu and K. Ma, "Big-Data Visualization", IEEE Computer Graphics andApplications, vol. 33, no. 4, pp. 20-21, 2013.

[3] W. Yafooz, S. Abidin, N. Omar and S. Hilles, "Interactive Big Data Visualization Model Based on Hot Issues (Online News Articles)", Communications in Computer and Information Science, pp. 89-99, 2016.

[4] M. Mani and S. Fei, "Effective Big Data Visualization", Proceedings of the 21st InternationalDatabase Engineering & Applications Symposium on - IDEAS 2017, 2017.

[5] M. FRAMPTON, COMPLETE GUIDE TO OPEN SOURCE BIG DATA STACK. [S.l.]: APRESS, 2017, pp. 295-337.

[6] S. Prabhakar and L. Maves, "Big Data Analytics and Visualization: Finance", in Big Data and Visual Analytics, C. Sang and A. Thomas, Ed. Springer, Cham, 2017, pp. 219-229.

[7] C. Ekstrøm, The R primer, 2nd ed. Boca Raton: Chapman & Hall/CRC, 2017.

[8] H. Wickham and C. Sievert, Ggplot2:Elegant Graphics for Data Analysis, 2nd ed. [Cham]: Springer, 2016.

[9] B. Granger and J. VanderPlas, "Altair:Declarative Visualization in Python", Altair 1.3.0.dev0 documentation, 2016.

RESEARCH PAPER ON

FUSION OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT : ITS ROLE AND BENEFITS

FACULTY GUIDE:

Dr. Archana Deshpande

(Associate Professor)

SUBMITTED BY:

Lt Col Arun Kumar Shukla

Enrolment No 8008

Abstract

Human resource management (HRM) is faced with new challenges that must be addressed while ensuring the optimum growth and development of the organization. This research identifies the application of Artificial Intelligence (AI) technology in human resource departments as it relates to recruitment and selection, the onboarding process, retaining employees, compensation management, general employee management and employee retention. The fusion of artificial intelligence (AI) with HRM practices is altering how companies recruit, manage, and engage their workforce. With the use of artificial intelligence, machines are now able to make decisions based on historical data and behavioural patterns more precisely than people. As a result of this shift, all physical labour has been replaced by machines, forcing HR professionals to assume more strategic roles. The benefits of applying AI in the various units of HRM have been given and challenges faced by implementing AI in HRM. To compete with AI and advanced machines the real challenge now lies within the respective HR – departments that how well they train and re-transform their workforce in understanding HR and AI go hand in hand in future streamlining issues and make a better future.

Introduction

Artificial intelligence is a tool which use human intelligence in various fields and improve the performance, and it is an emerging technology which is used in all industries to improve productivity and performance. AI has a tremendous power to act like a human brain and it gives full efficiency. It uses different inputs to give outputs in the human resource management, Robotics is an artificial intelligence which mainly deals with every aspect in the industry, simply intelligence which is carried out by machines is called artificial intelligence, I works in speech recognition, problem solving etc.

Human resource management (HRM) finds its root in the emergence of industrial welfare work from the 1890s. There have been shifts from one directed system of management to a more technical system of management leading to growing professionalism in this role. Organizations can increase the value of their competitive edge through the acquisition, expansion, and fusion of not only human capital but also organizational and physical resources, and this can be achieved when organizations truly work on HR practices. AI technology can be incorporated with HR functions to come up with innovative solutions to employee problems concerning HR. This review paper attempts to discuss the applications of AI in human resource management (HRM), its benefits, and its challenges.

Literature Review

Anupam jauhari (2017):In the paper title how AI and machine learning will impact hr practices today .AI has becoming more and more important and reshaping the way companies hire and do each and every activity recruitment becomes easy for the practitioners because machine learning technology will make use of chatbot and proceed all the activities ,AI will screen candidates and send the confirmation or rejection email to the candidates .according to the analysis of India report of deloitte 5th annual global human capital trends 53% of companies are ready to deploy digital tools while 22% have already deployed there tools. AI and machine learning are the current buzzwords in present days HR chatbots to work efficiently, actually hr managers will have many tasks to do they should be capable of using chatbot to get solutions. **The major challenge HR manager face is about performance appraisal that means basing upon employees performance the performance appraisal will be decided and it can decide employees career path.**

Now the present world is ruled by the advanced technologies, which is intimidating the global workforce. Out of all the technologies, we can say AI is the most groundbreaking one. As importance in the application of AI almost in each and every sector may it be banking, health care insurance etc., but the results achieved are remarkable. AS most of the companies across the globe are adopting AI, India is also not an exception that new firms especially(start-up's) are now integrating their business with AI to stay more visible and to be competitive. Some of the start-up's that have integrated its business with AI in India are: ARYA.ai, BOXX.ai, cuddle.ai, Imbibe, Edgenetworks, and Haptik to name a few.

In the title of top ways to use AI in HR it was clearly stated that AI is reshaping the way that companies manage their work force and make the plans which increases productivity and

employee engagement in general. Talent acquisition is main important thing ,we can remove tons of stressful and monotonous work from hr managers namely talent acquisition software can scan, read and evaluate applicants and quickly eliminates 75% of them from the recruiting process.

AI can plan, organize and can give so many training programs to the newly joined employees through online courses and digital class rooms. AI can predicts the requirements of employees then retention will be more for the employees in the organization it plays a very important role in the organization because work cannot be done manually so with the help of artificial intelligence the work will be done easily

Prasanna tambe, peter cappeli and valery yakubovish(2018): In the paper title AI in HRM challenges and a path forward AI has been moved too fast trending that means the trend moved from big data to machine learning to AI in that 41% of CEO's are reporting that they are not prepared for using data analytic tools and only 4% are prepared for using tools. AI mainly outfit its technology to human brain it includes decision making .this technology mainly used in marketing, sales forecasting and critical decision making apart from them they are used for selection, recruitment, training and development. In the year 2018 amazon used the AI in its organization to make important decisions. This paper mainly tells about recruiting, selection it mainly see , are we securing good candidates or not it also facilitates on boarding means bringing an employee into organization. In AI it uses algorithmic approaches that means basing upon different algorithms the criteria for selection, training & development are used. If once this algorithims are embedded into system then algorithms will work on basing code embedded in it so definitely AI will have a outstanding benefits and it is one of the best technology to be used in each and every organization .to analyze the performance of an employee it maintain some standards basing upon some standards AI works

In the paper titled AI in HRM it was stated that AI will help us to make our job easy and reduce the work load of HR manager but it does not replace the work of human resource manager. Machine learning have a new wave in business it mainly tells that by the year 2020 every organization will use AI always hr departments will face new problems and challenges that means the problem starts from selecting right candidate and retention of the right candidate so AI will make challenges faster.hr professionals slowly depend on the technologies like AI to move up their work. AI mainly used in recruitment process like it mainly rejects the resumes which are unqualified it makes tasks easy.AI will make use of performance management like

system continuously take feedback from the employees .employee retention is more important in the organizations because according to the requirements of employees the hr manager should implement new policies and procedures so that employees will have interest to work in the organization. Through machine learning we have many results and definitely it has its impact in today`s world.

AI IMPLEMENTATION IN HR – RELATED FUNCTIONS:

Recruitment:

Predicting the best hire in the future is most important in every organization. The use of AI integrated systems helps the recruitment team to analyze the received resumes and then compares the them with already existing employee of same job role and then based on the result it will select the best candidate. So as there is zero human intervention there will be zero human bias. The use of AI integrated systems will help to speed up the recruitment process. Majority of the organizations are still lagging in integrating AI to its HR-Practices because of its cost associated in integration. Now-a-days AI has been successfully integrated. Previously it is used to take lot of time of the recruiters to screen the resumes and select best among them. But the integration of AI in the recruitment has completely reshaped the process used in selecting the candidates with Requisite skill-set. If we observe the current world of recruiting with AI, it can be divide into two :- (1)chatbots Functionality (2) The Machine learning.(J.Strange) Due to the integration of AI in HR/HCM it benefits the organisation by going into Automation and Producing better results. So that the reason AI in hr is the next best exciting thing to be happened in next coming years ahead. It is known fact that AI is completely invading the workplace and AI now has taken a new shape as a hiring managers. At, present AI when compared to other HR processes, is largely linked with the function of recruitment. With successful integration of AI to HR in recruitment benefited the companies in hiring the right talent.

Fama technologies a California based firm (A Tech Firm) has developed AI based software that searches the candidates Profile, that matches the interests of hiring managers, another example is Hyderabad based start-up named **Param.ai** which uses AI, which automatically Prescreens the resumes for various companies and tells if the candidate is good, bad (or) Average basing on the past hiring patterns(Smitha Verma).

Training:

The organizations design their training programmes without any pre-defined parameters and, in real sense most of the organizations don't know how to train their employees perfectly. Most

of the learning Professionals argued that whatever the trainees learn during the training programmes atleast half is wasted (Forgotten, Inappropriately applied, waste of time and money) (JOSH – BERSIN). But now, the use of AI in training has become a powerful avenue in organizations and the T&D programmes are more effective by the application of AI based Algorithms that monitors and studies the skills, behaviors and attitudes of the employees working at various levels. Different people have different styles of learning so by using the AI, customization of training programs can be made. After the training the trainees feedback is taken in order to make any improvisations in the program. The AI helps both the employer and the employee to know about the gaps in their skills, performance, personality, knowledge etc., and helps them to improve and give their best in their work.

In Performance Management:

Traditional appraisal of evaluating employee's performance is decreasing due to implementation and usage of AI. Most, of the employees viewed that while conducting appraisals, most of the managers showed bias and they also viewed even the error rate is also very high. (Shaw.S) Now all will have the bigger question is will AI integration in company's performance management systems will really improves the employees performances or not?. But the answer is yes where some of the top companies like Microsoft, adobe accenture and deloitte been successful with AI based applications in evaluating the performances. (P. Andrea). At present AI integration is largely related to recruitment practices and sooner AI is going to be implemented in each and every aspect of hr – practice through chatbots, AI based applications. (Dom Nicastro). As, per the latest survey conducted in the year 2017 by IBM over 6000 exceutives, "Extending Expertise": How cognitive computing is going to transform hr, and the key results of the survey are as follows: (Dom Nicastro).

BENEFITS

Artificial Intelligence provides benefits to a variety of industries by reducing the amount of time and effort required to complete complex tasks, resulting in higher accuracy and better results [12]. The amount of time required for data analysis increases along with the number of human resources data. AI-powered software can now easily identify data patterns and manage critical data-intensive tasks. This has helped computers to detect errors and discrepancies faster and more accurately than HR personnel. This significantly saves time leading to a higher profit margin. One of the key aims of every organization is to generate revenue and this has resulted in businesses maximizing the advantages of AI and employee-machine collaboration. Furthermore, the use of AI provides the opportunity for HR employees to focus on more challenging activities requiring significant human involvement. This includes building relationships with clients, a more engaged workplace, career development of employees, and a focus on strategies. Although many companies continue to use online learning tools for ongoing training, they are often disorganized, and employees do not receive the most benefit from them. A more effective learning experience is provided by carefully arranging and presenting programs using artificial intelligence techniques [18]. **As a result of AI, different functions within an organization such as recruitment and training can be reduced in cost.** Through its analytical and forecasting prowess, it provides solutions that are relevant and effective, enabling better preparation for future problems.

FUTURE OPPORTUNITIES

Researchers anticipate that in a few years, artificial intelligence technology will be superior to humans in many tasks and activities. According to experts, AI has a high possibility of exceeding human performance in activities and automating human employment in the coming years [32]. Some scholars think that AI will merely serve as a support system and never completely replace people. The future will consist of cooperation between people and machines [33]. The importance of the collaborative interaction between machines and humans, in which machines forecast the results and humans make decisions and take appropriate action, is emphasized in another study on AI and deep learning [34]. AI will be able to play a bigger role in HR if it is decided what data to track, examine, manage, and safeguard [35]. The field of people analytics still has a lot to teach us and discover. There will be fierce competition in the market to entice top personnel as more businesses begin to utilize AI technology. In that case, the only thing separating organizations from one another will be their capacity to meet candidates' digital expectations and give them the best experience. The sector that best equips

its workers to effectively use the promise of artificial intelligence and big data to acquire a competitive edge will dominate the industry.

CONCLUSION

There is still much catching up to accomplish despite the human resources sector's successful adaptation to the technical shift brought on by artificial intelligence. To take full advantage of any new development, it is imperative that we continuously seek solutions to its obstacles. **The HR field also must adopt a similar strategy. Based on the numerous studies discussed in this paper, it is simple to conclude that data is essential for applying artificial intelligence to organizational functions.** The HR professional must therefore pay close attention to making sure that reliable data is used. Artificial intelligence has been incorporated into HRM procedures to improve planning and decision-making. Applications powered by AI have helped businesses increase worker productivity, improve workplace efficiency overall, reduce costs, automate routine tasks now carried out by people, provide smart data analytics, and forecast the future. Businesses will only be able to survive and flourish in the current time of rising competition and technological development if they have fully embraced AI and understood its value early on. The lack of experimental and statistical studies in this area increases the potential for future studies in this field.

Based on the analysis of this paper, we can conclude that deploying **AI technology in human resource management when applied correctly can open doors to unforeseen possibilities**. This will keep organizations at the forefront of technological advancement.

References

(a) C. Vilani, “WHAT IS AI? Villani mission on artificial intelligence,” Mar. 2018.

(b) S. Russell and P. Norvig, “AI A Modern Approach Third Edition,” 2010.

(c) A. Kaplan and M. Haenlein, “Siri, Siri, in my hand: Who’s the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence,” Business Horizons, vol. 62, no. 1. Elsevier Ltd, pp. 15–25, Jan. 01, 2019. doi: 10.1016/j.bushor.2018.08.004

(d) A. Wilkinson and T. Redman, “Human Resource Management: A Contemporary Perspective” Jan. 2013. [Online]. Available: https://www.researchgate.net/publication/320465545

(e) Q. Jia, Y. Guo, R. Li, Y. Li, and Y. Chen, “Association for Information Systems AIS Electronic Library (AISeL) A Conceptual Artificial Intelligence Application Framework in Human Resource Management Recommended Citation ‘A Conceptual Artificial Intelligence Application Framework in Human Resource Management,’” Guilin, China, Dec. 2018. [Online]. Available: https://aisel.aisnet.org/iceb2018/91

(f) B. Garima, S. Vikram, and K. Vinay, An Empirical Study Of Artificial Intelligence and its Impact on Human Resource Functions. 2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM) Amity University, 2020.

(g) G. George and M. R. Thomas, “Integration of Artificial Intelligence in Human Resource,” International Journal of Innovative Technology and Exploring Engineering, 2019, doi: 10.35940/ijitee.L3364.129219.

(h) M. Vivek and V. Yawalkar, “A Study of Artificial Intelligence and its role in Human Resource Management,” IJRAR19UP004 International Journal of Research and Analytical Reviews, 2019, [Online]. Available: www.ijrar.org

(i) K. A. Kovach and C. E. Cathcart, “Human Resource Information Systems (HRIS): Providing Business with Rapid Data Access, Information Exchange and Strategic Advantage,” Public Pers Manage, vol. 28, no. 2, pp. 275–282, Jun. 1999, doi: 10.1177/009102609902800208.

(j) Skil AI, “AI Recruiter Bot for Candidate Acquisition | Chatbots Life,” Feb. 21, 2020. https://chatbotslife.com/ai-recruiter-bot-for-candidateacquisition-467812712262 (accessed Dec. 07, 2022).

(k) S. Aldulaimi, M. Mohamed Abdeldayem, and S. Ham

(l) Faiyaz Md.iqbal (2018) Can AI change the way in companies Recruitment, Development, Training and Managing in HR, Published in ISSN(E),2018.

(m) Dr Jeremy nunn (2019) Emerging impact of AI on HR, Published in Forebs Technology Council,February 6th,2019.

(n) Role of Artificial Intelligence in Human Resource Management: Overview of its benefits and challenges by Eniola Sanyaolu and Rebecca

(o) To Study Impact of Artificial Intelligence on Human Resource Management by Prasanna Matsa and Kusuma