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GURUKUL BUSINESS REVIEW (GBR)

An International Refereed Management Journal of FMS, Gurukula Kangri (Deemed to be University), Haridwar.

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CALL FOR PAPERS FOR GURUKUL BUSINESS REVIEW (GBR)

Editorial Information

Gurukul Business Review (GBR), is a double-blind peer-reviewed refereed journal of Faculty of Management Studies, Gurukul Kangri (Deemed to be University). It started its journey in the year 1996 and since then it is disseminating its research-based knowledge to the academia and the industry both. The journal is published annually and is available in electronic (e-ISSN No. 0973-9262) and in print (ISSN No. 0973-1466) format. For the upcoming GBR 2024 issue call for papers is in progress.

GBR aims to publish theoretical and empirical research articles, case studies and book reviews posing exuberant and transformational implications to the academics and business community. The focus of the journal is on publishing articles that are addressing the development and challenges evolving up in the different fields of management (human resource management, marketing, communication, leadership, organization behaviour, entrepreneurship, business ethics, operations management or finance) followed by the empirically proven solutions, and suggestions, having the potential to solve the real-time business problems.

Submission Guidelines

Before submitting a paper please go through the section: Guidelines for the author and Manuscript requirements on the journal website www.gurukulbusinessreview.in

To clear the editor's desk your writeup should be straightforward, thought-provoking, supported by strong evidence and in accordance with the aim, scope, and guidelines

of the journal.

The following brief checklist provides a quick reference for you to follow during your submission and manuscript review process.

- Papers submitted should not be under coexisting consideration at another journal.
- Any actual or potential data overlap with previous studies should be noted and described in the letter to the Editor.
- All new manuscripts should be submitted electronically. Electronic submissions should be uploaded to the Journal website.
- Files should be submitted in Microsoft Word format.
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- Authors should keep in mind that papers are evaluated on a page-to-contribution ratio.
- We encourage you to have a colleague peer review/ proper proofread of your paper prior to submission to the GBR. To maintain masked review, please acknowledge your peer reviewer(s) and include other author notes in the letter to the Editor.
- During the review process, including at the conditional accept stage, manuscripts may be subject to additional methodological screening that may require the submission of additional information (e.g. analysis code; analysis output; original data).
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WEB OF SCIENCE





FROM THE DESK OF THE EDITOR

Greetings and best wishes,

Time flies, after Eighteen years of regular publication 19th issue of Gurukul Business Review (GBR), 2023 is tabled for you all. Let me start with reminding you about the transformation GBR went through:

- Now the GBR has its own dedicated website www.gurukulbusinessreview.in
- The paper submission process is now online through the website mentioned.
- The abstract in the paper needs to be in a structural format (check author's section and manuscript requirements on the website).
- The referencing style has changed, earlier we use to refer APA but now we follow the Harvard style of referencing (For details, please visit the website of the journal).
- GBR follows the Committee on Publication Ethics (COPE) guidelines. GBR has adopted COPE's best practice guidelines for dealing with ethical issues in a journal.
- A gentle reminder on payment policy of GBR. The journal does not charge any fee from the authors for publication. However, to subscribe it within India, you have to bear a nominal cost of Rs 200/Annually for Institutions, Rs 100/Annually for Individuals and Rs 75 for Alumni. The subscription fee for bodies outside India is \$15 Annually.
- One of the refreshing news for the stakeholders of GBR is that now we are indexed in two more databases. One Web of Science Group (ESCI) and second, Indian Citation Index (ICI) other than Cabell's Directory, Inc., and J-GATE online database, recently got inducted in Scope Database.
- The journal impact factor has climbed to 2.82 from 0.75, courtesy IIFS.
- Since volume 16, GBR has also begun assigning DOIs to all articles published online and print.

One of the prime reasons for the structural change is to meet the international standards and UGC guidelines, and be progressive in the competitive world of publication. The result was the indexing of GBR in above mentioned databases of international repute. To maintain the progress, we are now targeting SCOPUS and Emerald. With your wishes and quality research papers hope we will be able to make it in coming years.

The 19th issue of GBR received papers from India and abroad, touching the themes imotional dissonance, organizational culture and managerial effectiveness, marketing dynamic capabilities. This year we received a total of 56 papers out of which 22 were desk rejected (due to not meeting the minimum standard of GBR), 34 papers went for the review process and finally 08 papers were able to make it for publication in GBR 2023. That leads to an acceptance rate of 21.43%.

Complying to the structural changes and difficulties faced by the authors in the restructuring process, I really take this opportunity to thank all the contributors and readers of GBR for making it an astounding success. As an editor, I also want to thank the university administration, authors, board of editorial advisors, board of editorial reviewers, my managing editor, associate managing editor, the faculty members, and the research scholars of FMS for their contribution that has really made the journey to complete uninterrupted Seventeen years of its publication.

Heartiest thanks to Dr. Ashish Arya for his commendable work and the efforts he has put in to make GBR a remarkable journal. Wishing him all the very best for his new academic excellence and agog to see him soon.

As now we are ready for the 20th issue of GBR-2024, we ring the bell of *call for papers-GBR 2024!*

Thank you for your time and consideration. Be our partner and make this journal a part of your life of ideas, thoughts and practice.

Happy Reading.

(V.K. Singh)

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Would you take a moment to evaluate the papers/articles you have read in the 19th issue of the "Gurukul Business Review (GBR)" Your valuable comments will help shape future issues. Thank you!

	Highly Appreciable	Somewhat Appreciable	Not Appreciable
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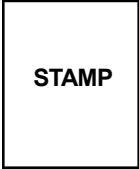
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A Study of the Role of Financial Technology in Firm Growth: The Case of Indian MSMEs

A Study of the Role of
Financial Technology in
Firm Growth
1

Upasana Gupta, Research Scholar, Amity University, Uttar Pradesh, India.
Bhawna Agarwal, Professor, Amity University, Uttar Pradesh, India.

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Abstract

Purpose: The purpose of this paper is to examine the role of Financial Technology on registered Micro, Small and Medium enterprise of India. The paper reveals the viewpoint of MSME sector on Risk Management, Financial needs, and Use of Technology. The paper also revealed the respondents' behavioural intention for adopting Financial technology as well as preferences and acceptance for using financial technology. Also, the impact of financial technology acceptance on firm growth is studied.

Design/methodology/approach: The paper was based on a descriptive and inferential research design for which original data is collected using a close ended questionnaire. The measurement items used in the questionnaire were derived from previous studies carried out in developing countries.

Findings: The Financial technology has changed the ecosystem of Indian MSMEs as well as Banking Sector. The Financial technology acceptance rate among the MSMEs is high as 49.2% respondents consider themselves as Early Adopters. MSMEs believes that financial products and services available to them through traditional banks does not sufficiently meet their business's needs (6% non-adopters, 24% early-adopters and 18% moderate-adopters) which echoes the need of alternate finance. Further 2% non-adopters, 47% early-adopters and 46% moderate-adopters strongly agreed that using technology is vital for Business Financial needs. Also, Financial technology acceptance has significantly positive impact on their growth in terms of Turnover, Profitability, Market share, and Productivity.

Originality/value: This empirical study contributes to the novel understanding of the acceptance and preference of MSME sector towards Financial technology and studies the impact of Financial technology acceptance on Firm growth.

Keywords: Financial technology, MSMEs, Perceived benefit, Satisfaction, Trust, Government Support, Firm growth

Category: Research paper

1. Introduction

The fintech sector has grown tremendously over the past few years and is expected to continue growing (Aggarwal and Stein, 2016). S&P Global Market Intelligence reports that from USD 11 billion in 2010 to USD 218 billion in 2019, investments in fintech firms and start-ups have grown significantly. Increased internet usage and better digital infrastructure are driving the growth of the Indian fintech market (Husaini and Lean, 2022), but a lack of customer confidence in digital payment methods and the growing threat of cyber and data security are limiting market expansion (Morse and Raval, 2008).

India is an emerging market with a high growth and high potential market, and it boasts the world's fastest growing fintech market (Abbasi et al, 2021). India and China had the greatest global adoption rates of fintech (87%) as of March 2020 among emerging markets (EY global fintech adoption index, 2019). The average adoption rate across the world, however, was 64%. The growth of the digital economy has been greatly aided by technology. Indian banks and financial service providers have steadily used technology to increase their reach, customer service, and operational effectiveness as a result of a developing market and technical advancements (Deloitte, 2017).

By improving their working capital and competitiveness (Deb and Baruah, 2022),



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Impact Factor : 2.82 (IIFS 2020)

organisations that have used fintech have seen increases in their productivity, market share, and turnover (Soni et al, 2022). Without the use of technology, organisations cannot function (Shrivastava et al, 2019). Technology significantly affects competitiveness and profitability and contributes to it (Panos and Wilson, 2020). Additionally, a company's ability to respond to and adapt to technological change is essential to its success (Singh and Gaur, 2018). Today, Fintech is utilised throughout all economic sectors, including MSMEs. Since FinTech solutions offer a wide range of functionality and features, are accessible round-the-clock, are easy to set up, operate, and use, they are popular with MSMEs in all markets, whether developing or developed (Hasan et al, 2020). According to turnover, investment in plant and machinery, and employee, the definition of an MSME varies by country to country. Consumer Fintech services and MSME Fintech services are not the same markets (EY global fintech adoption index, 2019). MSMEs, for instance, employ online payment processors and mobile point of sale (mPOS) payment terminals to collect payments, whereas customers use alternate services to pay for goods, like in-store mobile phone payments (Soni et al, 2022). The MSME sector is currently investing a significant amount of money in technology development or upgrades as well as adopting cutting-edge solutions to their various company activities, including their financial activity. Financial technology companies that operate in a variety of industries are dynamic participants in the technology industry. Financial Technology, like other Non-Banking Financial Companies (NBFCs), is regulated by the RBI and must adhere to the mandates, norms, and frameworks established by the competent authorities. They are able to provide unique Micro, Small, and Medium Enterprises (MSMEs) loan services due to their flexibility and capacity to innovate. It enables small firms to obtain critical support that traditional banks may be unable to provide.

The financial sector has undergone a huge digital transition as a result of the Covid-19 epidemic. In the face of adversity, the pandemic has also played a vital role in the expansion of MSMEs employing digital payments and the testing of new-age fintech models. MSME entrepreneurs are becoming more comfortable managing their financial affairs online. As a result, customer expectations have shifted, and demand for digital MSME lending services has risen. Though earlier studies emphasising the importance and role of fintech, this study is one of a kind since it mixes MSMEs and fintech. This research is significant for the following reasons in addition to adding to the body of information in the scientific community: First, this study expands on the scant prior research on MSMEs' perspectives on risk management, financial demands, and technological utilisation in business. Second, the preference and acceptance of MSMEs for financial technology will also be highlighted by this study. Third, this research was among the first to show how acceptance of financial technology affects business growth. Changes in MSMEs' Turnover, Profitability, Market Share, and Productivity are used to gauge an economic revenue.

The following section includes a summary of related studies in section 2 and the development of objectives and hypotheses in section 3. Section 4 provides a visual representation of the conceptual model. Section 5 provides an overview of the variables, instruments created, and methods used. Sections 6 and 7 provide a detailed explanation of the analysis and results of the study. Then, in the concluding section, we discussed the results' ramifications as well as their limits and potential future study directions.

2. Literature Review

2.1 Financial technology

Fintech was first used to refer as advancements in the back end of the financial industry. Currently, the term "fintech" refers to a group of smaller businesses that employ digital technology to add value for their customers (Riemer et al, 2017). Technology-driven financial innovation has a long history. The 1950s saw the inaugural introduction of credit cards. Automated teller machines (ATMs) were first deployed as a solitary customer support channel in the 1960s (Alt and Puschmann, 2016). Two customer support channels were used when electronic stock trading and new bank data recording systems were implemented in the 1970s and 1980s, while several customer support channels were used when e-commerce and online brokering were introduced in the 1990s. Many hybrid IT solutions were used

after 2010 in areas where business process outsourcing had begun (Patel and Patel, 2018). There is no widely agreed-upon definition of fintech. Fintech, according to Ernst & Young (2015), is a development in financial services made possible by technological methods. A hardware- and software-based business paradigm is used to deliver financial services (Lee and Teo, 2015). With more technology entrepreneurs entering the market and changing it to satisfy social demands, the word "fintech" is a broad one that is constantly growing (zavolokina et al., 2016).

2.2 Financial needs of small businesses

As per Statista research 2021, the demand for small business loans through official channels has been greater than the supply even before the coronavirus (COVID-19) outbreak. During the epidemic, this pattern was more pronounced. As a result, several MSME (micro, small, and medium-sized companies) turned to neighbourhood traditional finance, risking interest rates of up to 30%. A number of alternative financing options, including microlending and digital lending, have also surfaced in recent years, encouraging the growth of non-banking financial firms (NBFCs) in the worldwide (Adeyele, 2018; Pavón, 2021). Additionally, even if a MSME has a strong cash flow, it could still need loans for expansion or financing (Lekovic and Micic, 2018). This circumstance can be used to the advantage of financial technology (Fintech) and improvements in conventional business structures (Sheng, 2021). By addressing market flaws in the MSME sector including information asymmetry and high transaction costs, fintech promotes financial inclusion (Anagnostopoulos, 2018). Because they offer a good variety of functionality and features, have services available around-the-clock, and are simple to set up, operate, and use, MSMEs in various markets prefer FinTech solutions (EY global Fintech adoption index, 2019). Affordable credit and simple access to it are essential components of creating prospects for the expansion of the Micro, Small and Medium Enterprises (MSME) market, which is a direct evolution from basic banking (Baber, 2019). According to Statista estimates, MSMEs' In the area of digital payments, the total transaction value is estimated to reach \$8.49 trillion in 2022 and by 2027, it is predicted that the entire transaction value will have increased by a total of 12.31% each year (CAGR 2022-2027), totalling US\$15.17 trillion.

2.3 Adoption of Fintech by Small business

Many behavioural factors, including those discussed in the "Unified Theory of Acceptance and Use of Technology (UTAUT)" by Venkatesh et al. (2003), the "Technology Acceptance Model (TAM)" by Davis (1989), the "Theory of Planned Behaviour (TPB)" by Ajzen (1991), and the "Innovation Diffusion Theory (IDT)" by, could have an impact on the adoption of Fintech specifically in (Rogers, 1976) where, owners and managers can be divided into three groups based on their distinctive traits and varied technological adoption behaviours. "Tech non-adopters," "tech aspirers," and "moderate tech-adopters" are those people. Several investigations have previously utilised this notion (Ryu, 2018). There are various factors which are studied in past studies that can impact the decision of MSMEs for adopting any new technology in business. The detailed description and implication with respect to small business of variables has been given in table below:

Table 1.
Variables significant for
MSMEs in past studies

Variables	Description	Authors	Implication on Small Business
Risk Management	Risk is the likelihood of suffering a major financial loss or other negative effects (Sonfield and Lussier, 1997).	EY global fintech adoption index, 2019	In the subject of entrepreneurship, the idea of risk propensity is significant. The tendency of entrepreneurs to take risks has received a lot of attention in the past literature. Small Owner -managers with greater risk appetites are more motivated to implement new technology in their business.
Use of technology	Owners/managers decision to use technology in their business is important as in small businesses, owners/managers has to plays different role to run their business.		Willingness to adopt technology in business by management of small business plays an important role.
Financial needs	Financial needs are the foremost requirement of any business in the development process.		MSME development is severely hampered by a lack of sufficient financial resources.
Perceived ease of use	Users are more likely to adopt an application that is considered to be easy to use than another depending on how much they believe using a particular available technology would be painless (Davis, 1989).	Davis, 1989	According to the TAM model, "perceived usefulness" and "perceived ease of use" have the highest impact on behavioral intention.
Perceived usefulness	A person's belief that using a particular technology will boost his or her work performance or the performance of his or her organisation is known as perceived usefulness (Davis, 1989).		

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Trust	One of the most important factors affecting user behaviour and the effectiveness of technology adoption is trust (Yang et al., 2009). Trust is the degree to which a person believes that adopting various fintech platforms is secure and involves no privacy risks.	Shin, 2013	In prior research, there have been several extended versions of the TAM model that have been examined, and in these models, user behaviour and the success of technology adoption are heavily influenced by user satisfaction and trust (Chen and Barnes, 2007)	
Satisfaction	Satisfaction refers to user satisfaction that results from both positive and negative technological adoption experiences. Satisfaction is an effective customer condition, according to a global assessment of all the factors that go into a user relationship (Zameer et al, 2015).	Xu and Du, 2018		
Government support	One of the variables highlighted in the body of research as limiting the development of MSME technology is government support (Chundakkadan and Sasidharan, 2020). Lack of government support is one of the factors preventing businesses from using innovation and technology in their business (Flanagan and Uyarra, 2016).	Chatterjee et al, 2021; Rita et al, 2021	The government, especially the local government, is likely to pay special attention to MSMEs. Lack of government assistance is one of the factors preventing businesses from using innovation (Flanagan and Uyarra, 2016). One of the factors cited in the body of research as impeding the development of MSME technology is government backing (Chundakkadan and Sasidharan, 2020).	

Source: Author Compilation

2.4 Firm Growth

Financial services organisations used to offer a variety of services under one roof until recently. These services covered a wide range of things, from conventional banking operations to mortgage and trading services (Abbasi et al, 2021). Fintech companies unbundles these services into separate offerings in its most basic form and offered more effective products at reduced transaction costs by combining technology with solutions that are simplified (Milian et al, 2019).

The word "disruption" best captures how many fintech innovations have changed traditional trading, banking, financial advice, and products. Financial services and products that were previously only available through branches, salespeople, and desktop computers are now available through mobile devices or simply move away from powerful, entrenched institutions (Johnson et al, 2018). For instance, the mobile-only stock trading app Robinhood does not

charge commissions for trades, and peer-to-peer lending platforms like Prosper Marketplace, Lending Club, and OnDeck guarantee that rates will drop by exposing the lending industry to competitive pressures. Companies that offer business loans, such Funding Circle, Kabbage, and Lendio (among others), give new and existing companies simple, quick ways to get working capital. These advancement and innovation have resulted in positive impact in firm performance (Jafari-Sadeghi et al, 2021). A direct and positive relationship between technology use and firm performance has been demonstrated in the past literature (Oliveira and Martins, 2011). Products, processes, organisations, and infrastructures have all undergone substantial modifications as a result of technology use. These adjustments have impacted firm performance (Porter and Millar 1985).

3.Reserch Objectives

As a result, the current work has the following research questions given the mushrooming involvement of these recent changes in small and medium-sized industries.

- R1. Determine the positions of the MSME sector on risk management, financial requirements, and the usage of technology in business.
- R2. Determine the factors impacting intention of the MSME sector in terms of financial technology acceptance.
- R3. To determine the impact of financial technology adoption on business growth.

The following hypotheses were formed to find out the impact of financial technology adoption on business growth:

- Ha1- The use of fintech has a positive impact on turnover.
- Ha2- The use of fintech has a positive impact on profitability.
- Ha3- The use of fintech has a positive impact on market share.
- Ha4- The use of fintech has a positive impact on productivity.

4. Research Framework

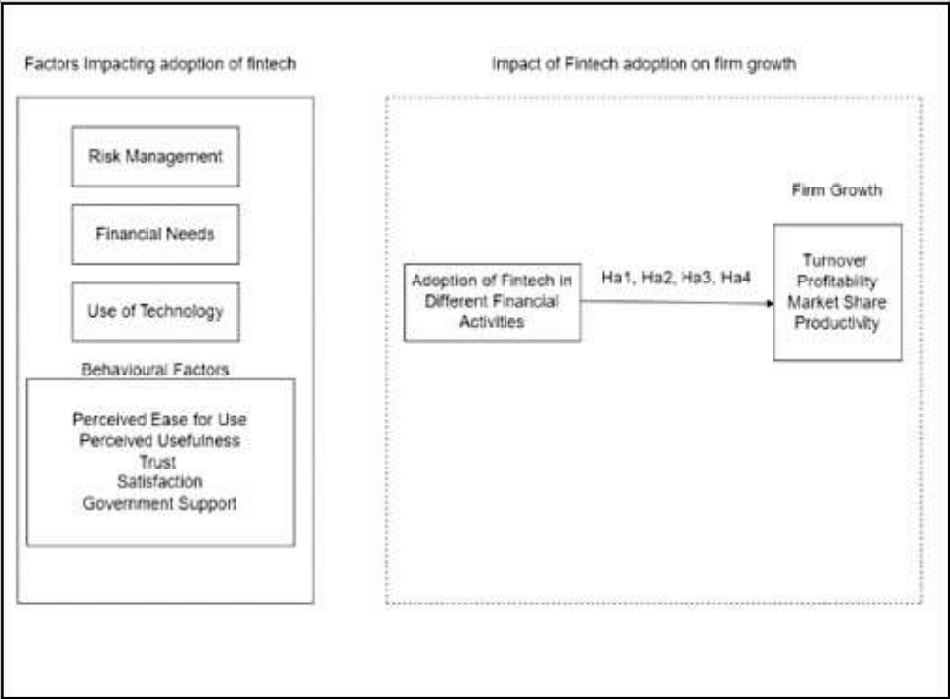


Figure 1.
Conceptual Framework

3. Research Methodology

5.1 Instrument Development

In order to gather data, the researchers used a questionnaire. To make sure the questionnaire was appropriate for its intended purpose, Gillham (2008)'s guidelines were followed when creating it. The measuring items in the questionnaire were modified from past studies carried out in underdeveloped nations. 34 questions total, broken down into three sections, make up the questionnaire. The respondent's age, gender, level of education, and work experience in the current industry are just a few examples of the demographic and socioeconomic factors included in the first section.

Using a five-point Likert scale, the second section identifies questions about risk management, financial needs, technology use in business, adoption of fintech services in various company activities, and various causes for adoption of fintech services. The final section examines how Fintech adoption affects business growth.

Variables	Source
Risk management	EY global fintech adoption index, 2019
Financial needs	
Use of technology in business	
Perceived ease of use	Davis, 1989
Perceived usefulness	
Trust	Shin, 2013
Satisfaction	Xu and Du, 2018
Government support	Chatterjee et al, 2021; Rita et al, 2021
Usage of Financial technology in different financial activity	Ivashchenko et al, 2018, GPFI, 2020
Firm Growth	Sefiani et al, 2018

Source: Author Compilation

5.2 Sampling and data collection

Primary data have been gathered in Delhi's Northwest Industrial area. The Northwest Industrial Region, which comprises Mangolpuri, Shahzada Bagh, and Wazirpur Industrial Area, was chosen because it is one of the largest and oldest industrial zones (Labour Commissioner, 2019). These industrial regions are among the 24 recognised industrial areas in Delhi, according to the Labour Commissioner (Labour Commissioner, 2019). According to the Udyog Aadhaar MSME registration dashboard, the population of the Northwest Industrial region is 26125. (MSME district wise Udyam registration details, 2022). According to (Kotrlík and Higgins, 2001), when alpha is .01, t is 2.58, and the margin of error is .03, the proper sample size is determined. Given that there are 26125 registered MSME units, a sample size of greater than 209 should be used for populations greater than 10,000. 250 valid responses were gathered by the researchers for the study. Owners and managers of MSMEs completed questionnaires to provide the data for this study. The timeframe from which responses were gathered was from December 2020 to February 2021. The snowball sampling approach, a non-random sample technique, has been used to acquire data. Because the first respondents presented more key informants who participated and were introduced to other respondents, snowball sampling was used. A google form is used to exchange the questionnaire.

6. Data Analysis And Results

6.1 Data Reliability and validity

The data collected through google form has been tested for threshold test i.e., missing value analysis. MVA is above 10% and chi-square value is more than 0.05. Thus, there is no pattern in missing value, outliers detection (Using frequency distribution Mean, Maximum and Minimum value is generated. The data has no outliers), and multicollinearity (Multi-

Table 2.
Source of the Instrument

collinearity is tested by calculating VIF values. VIF of all constructs less than 3). The data is free from all the abnormalities and fit for further data analysis.

6.2 Reliability of the Instrument

Cronbach Alpha

The questionnaire was also tested for reliability using Cronbach's alpha. The results of Cronbach's alpha indicate an instrument is reliable if alpha values are above 0.70. There are 34 items in the questionnaire. The alpha value of items is in the range of .773 to .869, which indicates that the instrument is reliable.

Variables	Items	Statements	Cronbach Alpha
Risk management	RM1	Owners/Managers are like to take the financial risk	.773
	RM2	Owners/managers here like to put plans in place only if they are positive, they will work.	
Financial needs	FN1	The financial goods and services offered to me are insufficient to suit the needs of my organization.	.703
	FN2	Traditional banks and insurers, in the general, do not satisfy the needs of my organization.	
Use of technology in business	UT1	When faced with new regulations, my company prefers to use technology whenever possible.	.885
	UT2	My organization analyses its technological tools and software on a regular basis to verify that they are still the best fit for us	
	UT3	I believe using technology is vital for Business Financial needs	
Perceived ease of use	PE1	Using Financial Technology for the financial activity I can meet my business needs easily	.838
	PE2	Using Financial Technology for financial activity improves the efficiency of the business, as to access information about different platforms is faster	
	PE3	It is simple to do financial transactions on fintech apps/websites.	
Perceived usefulness	PU1	It reduces the time of transaction	.773
	PU2	It is simple to do financial transactions in a digital format.	
	PU3	Financial products offered digitally (Fintech Platforms) have lower transaction fees	
Trust	TR1	I believe my business financial information is safe if I acquire finance through digital mode	.841
	TR2	I believe my money is safe in e-wallets	

The following diagram shows the coefficients extracted in the nonstandard mode.

Satisfaction	ST1	Digital financial providers provide fair/reasonable services and products	.839
	ST2	I believe acquiring financial products digitally, provides better decision-making for my business	
	ST3	I am satisfied doing financial activities digitally for my business	
Government support	GS1	I believe the government has introduced favourable legislation and regulations in recent years as IT Act, 2008	.837
	GS2	I believe the government is active in setting up new infrastructure such as the infrastructure telecom network, which has a positive role in promoting Mobile Phones for financial activity	
Firm Growth	Using different financial technology platforms for business activities has a significant impact on turnover of business		.869
	Using different financial technology platforms for business activities has a significant impact on profitability of business		
	Using different financial technology platforms for business activities has a significant impact on market share of business		
	Using different financial technology platforms for business activities has a significant impact on productivity of business		

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Table 3.
Reliability of the
Instrument

Source: Author Compilation

Factor Analysis

Factor analysis is a technique for condensing a large number of variables into a smaller number of factors. This method pulls the largest common variance from all variables and converts it into a single score. It should be emphasised that the initial goal of this research was to impose an experimental model. The purpose of exploratory factor analysis is to identify the fewest number of interpretable factors that sufficiently explain the relationships between a set of variables. Factor analysis was conducted and interpreted using KMO and bartlett's test, total variance explained and rotated component matrix.The KMO assesses sampling adequacy (whether or not the replies provided with the sample are adequate) and should be close to 0.5 for satisfactory factor analysis to occur. Kaiser (1974) recommends 0.5 (number for KMO) as a bare minimum (acceptable), values between 0.7 and 0.8 as good, and values over 0.9 as excellent. According to the table below, the KMO measure is 0.945, which is excellent.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.945
Bartlett's Test of Sphericity	Approx. Chi -Square	10089.946
	df	351
	Sig.	.000

Source: Author calculation

Table 4.
KMO and Bartlett's Test

For analysis and interpretation, we are primarily interested in Initial Eigenvalues and Extracted Sums of Squared Loadings. The presence of eigenvalues greater than one is required to determine the number of components or factors stated by selected variables. According to Table V, the first component has a value of $7.751 > 1$; the second component has a value of $3.178 > 1$; the third component has a value of $1.9131 > 1$; the fourth component has a value of $1.743 > 1$; and the fifth component has a value of $1.014 > 1$. Furthermore, the extracted sum of the squared holding percentage of variation of the first five variables is 70.985%. As a result, five components are adequate for accurately capturing all of the features or elements highlighted by the eight variables listed above.

Table 5.
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.751	35.230	35.230	7.751	35.230	35.230	4.369	19.861	19.861
2	3.178	14.444	49.674	3.178	14.444	49.674	3.870	17.590	37.451
3	1.931	8.778	58.452	1.931	8.778	58.452	3.408	15.493	52.944
4	1.743	7.921	66.374	1.743	7.921	66.374	2.134	9.701	62.645
5	1.014	4.611	70.985	1.014	4.611	70.985	1.835	8.340	70.985
6	.822	3.738	74.723						
7	.723	3.288	78.011						
8	.650	2.956	80.967						
9	.582	2.644	83.611						
10	.473	2.149	85.760						
11	.431	1.961	87.722						
12	.400	1.818	89.540						
13	.375	1.705	91.245						
14	.340	1.546	92.791						
15	.326	1.483	94.274						
16	.268	1.220	95.494						
17	.211	.957	96.451						
18	.191	.868	97.319						
19	.178	.809	98.128						
20	.152	.689	98.817						
21	.140	.636	99.453						
22	.120	.547	100.000						
Extraction Method: Principal Component Analysis.									

Source: Author calculation

The goal of rotation is to limit the number of factors with strong loadings on the variables under consideration. The rotation has no effect on the analysis but simplifies its interpretation. The rotated component matrix, often known as the loadings, is the primary output of principal components analysis. It includes estimated correlations between each variable and the calculated components. Our results shows that loading of all the variables are above 0.6, which shows moderate to strong correlation among the variables. Thus, all the variables are retained and used for further analysis.

	Component				
	1	2	3	4	5
RM1				.673	
RM2				.900	
FN1				.850	
FN2			.805		
T1			.861		
T2			.865		
T3			.739		
PE1		.866			
PE2		.851			
PE3		.779			
PE4		.650			
PU1					
PU2		.563			
PU3		.740			
T1	.709				
T2	.855				
T3	.833				
S1	.874				
S2	.834				
S3	.691				
GS1					.759
GS2					.811
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 6 iterations.					

Source: Author Compilation

Table 6.

Rotated Component Matrix

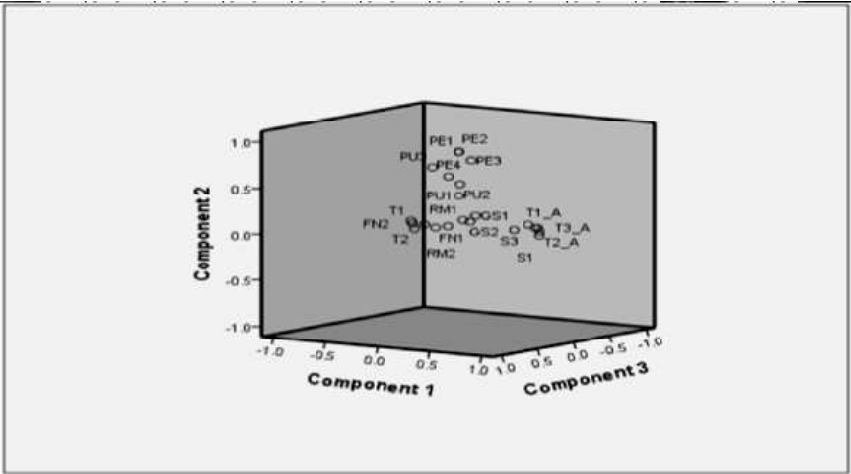


Figure 2.

Component Plot in rotated space

6.3:Analysis of the Demographic Profile of the Respondents

In Table VII, the demographic profile of respondents is given, which includes age, gender, education, experience in current business, classification of business, industry, and level of their financial technology knowledge. Maximum respondents are male in the age bracket of 31-40 years and have experience of 9-12 years. Respondents were also asked to rate their understanding of financial technologies. It's critical to evaluate if MSMEs are competent to understand the meaning of financial technology and are aware enough to do financial

transactions through different Fintech platforms, in the context of quick changes and constant advances in the financial industry.13.2% have very low knowledge, 10.8 percent have low knowledge, 34% have basic knowledge, 26.4% have high knowledge, and 15.6% have very high knowledge. The theory of innovation diffusion (Rogers, 1976) is used to analyze the behavior of respondents when adopting any new technology in business, where 4.4% consider themselves non-adopters, 46.4 % consider themselves moderate adopters, and the remaining 49.2% are early adopters.

Characteristics	Value	Number	Percentage (%)
Gender	Female	50	20
	Male	200	80
Age	20-30 years	10	4
	31-40 years	98	39.2
	41-50 years	89	35.6
	51-60 years	35	14
	61 or more	18	7.2
Education level	No formal education	14	5.6
	Senior secondary graduate	110	44
	Vocational diploma	12	4.8
	Postgraduate	110	44
	Ph.D.	4	1.6
Experience	Less than 3 years	14	5.6
	3-6 years	31	12.4
	6-9 years	70	28
	9-12 years	71	28.4
	12 or more	64	25.6
Classification of Business	Manufacturing	200	80.0
	Service	33	13.2
	Mixed	17	6.8
Industry	Communication services	17	6.8
	Construction materials	10	4.0
	Consumer goods	41	16.4
	Food and agro based goods	15	6.0
	Information technology	07	2.8
	Machinery	32	12.8
	Miscellaneous Services	16	6.4
	Miscellaneous Manufacturing	18	7.2
	Plastic Products	29	11.6
	Textile	04	1.6
	Trading	52	20.8
	Transport Service	9	3.6
Level of financial technology knowledge	Very low	33	13.2
	Low	27	10.8
	Basic	85	34
	High	66	26.4
	Very high	39	15.6
Behaviour for adopting any new technology in business	Non-adopter	11	4.4
	Moderate adopter	116	46.4
	Early adopter	123	49.2

Table 7.
Respondents' characteristics

Source: Author Compilation

Respondents were questioned about their viewpoints on risk management, financial needs, and use of technology in business. To record the MSME preference, logical statements (using a 5-point Likert scale where, five denotes highly agreed, while 1 denotes very highly disagreed) are recorded and tabulated using percentage and mean rating evaluation. The statements were formed based on prior literature on risk management (Watkins, 2012; Falkner and Hiebl, 2015); financial needs (Agyei, 2018), and use of technology (Gopalakrishnan and Damanpour, 1997). Some of the items are modified to better fit the current research context. In addition, the following criteria are used for the analysis:

- The mean score between 1.00 - 1.80 means "very strongly disagreed",
- The mean score between 1.80 - 2.60 means Disagreed with the,
- The mean score between 2.60 - 3.40 means neutral,
- The mean score between 3.40 - 4.20 means agreed.
- The mean score between 4.20 - 5.00 means strongly agreed (Motwani et al, 2014; Streijl et al, 2016)

Risk Management: Respondents' attitudes towards risk were analyzed. Two statements were analyzed using risk aversion (Brunette et al, 2017) parameters. Overall, the respondents are neutral while taking financial risks in business (3.26) and when implementing any new plan (3.09). Also, only 8.4 percent of early adopters and 6.4 percent of moderate adopters are likely to implement a new plan only if they are certain that it will work.

Financial Needs: Most respondents are unsatisfied with the services offered by traditional banks and insurance companies (3.2% non-adopters, 29.2 percent early-adopters, and 29.6 percent moderate-adopters). They believe that the financial products and services available to them are insufficient to suit the needs of their firm (2.4% non-adopters, 9.6% early-adopters, and 7.2%) moderate-adopters).

Use of technology: Most of the respondents are in favour of using technological solutions wherever it is possible, i.e., 28.8% of early adopters and 25.2 % of moderate adopters, and even 2.8 % of non-adopters also agreed that technology is vital for their business. In addition, 28.4 percent of early adopters and 29.6 percent of moderate adopters review their technological tools and software regularly. Further, 0.8 % of non-adopters, 18.8 % of early adopters, and 18.4 % of moderate adopters strongly agreed that using technology is vital for business financial needs.

Table 8.
Viewpoints of respondents
regarding Risk
management, Financial
needs, and Use of
technology

Variables	Statements	Types of Adopters	1	2	3	4	5	Mean
Risk Management	RM1	Non-Adopters	0.4	0	1.2	2.8	0	3.26
		Early-Adopters	0.8	0	32.8	4.8	0.8	
		Moderate-Adopters	0.8	0	34.4	9.2	3.6	
	RM2	Non-Adopters	0.8	0	1.6	2	0	3.09
		Early-Adopters	0.4	0.4	37.2	8.4	0	
		Moderate-Adopters	2.4	0.4	40	6.4	0	
Financial Needs	FN1	Non-Adopters	0.8	0	1.2	2.4	0	3.14
		Early-Adopters	0.4	0	36	9.6	0.4	
		Moderate-Adopters	2.4	0	39.2	7.2	0.4	
	FN2	Non-Adopters	0	0	0.4	3.2	0.8	4.24
		Early-Adopters	0	0	3.6	29.2	34	
		Moderate-Adopters	0.4	0	2.4	29.6	42	
Use of technology	UT1	Non-Adopters	0.4	0	0.4	2.8	0.8	4.30
		Early-Adopters	0	0	2	28.8	15.6	
		Moderate-Adopters	0.8	0	1.6	25.2	21.6	
	UT2	Non-Adopters	0	0	0.4	3.2	0.8	4.28
		Early-Adopters	0	0	2.4	28.4	15.6	
		Moderate-Adopters	0.4	0	2	29.6	17.2	
	UT3	Non-Adopters	0.4	0	0.4	2.8	0.8	4.26
		Early-Adopters	0	0	3.2	24.4	18.8	
		Moderate-Adopters	1.6	0	2.8	26.4	18.4	

Source: Author calculation

6.5 Analysis of Intention for adopting fintech services

Five variables have been identified from various previous literatures (Cheung and Vogel, 2013; Kim et al, 2015; Jünger and Mietzner, 2020) to analyze the behavioral intention of customers/users to adopt any new technology in their business. The explanation of each variable is as follows:

Perceived ease of use: In this study respondents were asked whether doing financing activity through fintech apps/websites is easy to use and does it improve business efficiency or not. Respondents agree that financial technology meets their business needs easily (82.4%), using technology for financial activity improves the efficiency of business (79.2%), Further, respondents agree that fintech apps/website is easy to use (60.4%).

Perceived usefulness: This includes the belief of the respondents that the service would be useful. It has an indirect effect from the experience of using fintech services (Venkatesh and Davis, 1996). In this study questions were asked does fintech products are offered at a faster rate of approval, lower transaction cost, and to what extent their paperwork is reduced. Respondents strongly agreed that fintech products have a faster rate of approval (34.8%), lower transaction costs (38.8%), and less paperwork (26.8%).

Trust: This includes initial trust belief and initial trust attitude toward the fintech service providers (Mer and Viridi 2021). Respondents were asked about the safety of their personal information and money. Respondents agree that their personal information (49.6%) and money (62.4%) are safe while using fintech services.

Satisfaction: This includes a "post-consumption" experience in which the perceived quality of the product is compared to the intended quality (Zameer et al, 2015). In this study, participants were asked whether Fintech platforms offer fair and reasonable services and products, which results in better decision-making. Further, 37.2 percent of respondents strongly agreed that they experienced customer satisfaction after using fintech services.

Government Support: Introduction of favorable legislation/regulations and improved infrastructure. These two variables are named government support for this study. Respondents agree that favorable legislation (57.2%) and improved infrastructure increase their intention to use fintech services (53.2%).

As per respondents perceived ease of use is the most important factor to accept fintech services in business, followed by perceived usefulness and government support.

Motives	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
Perceived Ease for Use	PE1	0	0	4.8	82.4	12.8	4.08
	PE2	0	0	3.2	79.2	17.6	4.14
	PE3	0	0	3.2	73.6	23.2	4.20
	PE4	0	0	2.4	60.4	37.2	4.35
Perceived Usefulness	PU1	.8	0	4.8	59.6	34.8	4.28
	PU2	0	0	4.8	56.4	38.8	4.34
	PU3	0	0	3.2	70.0	26.8	4.24
Trust	T1	.8	0	16.0	49.6	33.6	4.15
	T2	0	0	8.8	62.4	28.8	4.20
	T3	0	0	8.0	57.6	34.4	4.26
Satisfaction	S1	0	0	6.4	69.2	24.4	4.18
	S2	.8	0	7.2	60.8	31.2	4.22
	S3	0	0	4.0	58.8	37.2	4.33
Government Support	GS1	0	0	8.8	57.2	34.0	4.25
	GS2	0	0	10.8	53.2	36.0	4.25

Table 9.
Percentage of
Respondents, Mean Score,
Interpretation, and
Recommendation

Source: Author Calculation

6.6 Analysis of the impact of financial technology adoption on firm growth

We grouped FinTech services into five broad categories: receipts & payments, borrowings, savings & investments, insurance, and financial planning. These categories have been used for both developed and developing nations in previous literature (EY global fintech adoption index, 2019; Ivashchenko et al, 2018; Takeda and Ito, 2021; Abbasi et al, 2021). We looked at FinTech services specifically used by MSMEs, such as mPOS machines and invoice finance solutions, which can differ from those used by consumers. FinTech adoption (independent variable) is measured by using five statements (Table VII). Respondents are asked to rate the adoption of given financial activities in their business through Fintech with a five-point Likert scale, where 1 is the least used and 5 is the most used in business. In addition, the criteria described by (Motwani et al, 2014; Streijl et al, 2016) are used for the below analysis. Also, Multinomial Logistic Regression was conducted to analyze the impact of Financial technology adoption on respondents' Turnover, Profitability, Market Share, and Productivity (dependent variables). Multinomial logistic regression is the most optimum technique to use as per the data collected. All the assumptions of multinomial logistic regression are fulfilled i.e., dependent variables i.e., Turnover, Profitability, Market share, and Productivity are nominal in nature, independent variable i.e., Fintech adoption is ordinal in nature and there is the independent of observations where the dependent variable has mutually exclusive and exhaustive categories.

To measure the growth of MSMEs, researchers examined a variety of factors (Sefiani et al, 2018) such as Turnover, Profitability, Market Share, and Productivity. Five outcomes are specified for the dependent variable: (1) Increased by 10% per year, (2) 10 to 20% per year, (3) More than 20% per year, (4) No growth, and (5) Reduced by 10% per year. The result of the Multinomial Logistic Regression is given in Table X.

Table 10.
Adoption of Financial
Technology in different
financial activities

Financial Activities	Least Used (1)	(2)	(3)	(4)	Most Used (5)	Mea n
Receipts and Payments (Externally)	1.2	2.0	8.0	63.2	25.6	4.10
Borrowings	2.8	2.8	13.6	49.2	31.6	4.04
Savings and Investment	0	4.4	14.0	52.8	28.8	4.06
Insurance	.4	3.6	16.4	41.6	38.0	4.13
Financial Planning	1.6	4.0	19.2	36.4	38.8	4.07

Source: Author calculation

According to respondents, financial planning (38.8 percent) is the most used financing activity through fintech websites/applications, followed by payments and receivables (25.6 percent) are transferred digitally between business-to-business and business-to-customer transactions. Also, 38 percent of respondents chose insurance with the help of Fintech. 31.6 percent of respondents are borrowing, and 28.8 percent are investing through various fintech platforms. The above results show that MSMEs are choosing financial technology for different financial activities over traditional banks. These digital transactions leave a digital trail of MSMEs business. FinTech companies are combining this digital transaction data with other alternative data sources (mobile phone call records, utility bill payments, and so on) to create new credit risk models and algorithms that better assess an MSME's ability to pay any loan which is changing the ecosystem of Indian MSMEs as well as the Indian banking sector, because of this new credit risk model and algorithms many MSMEs are eligible for working capital and short-term loans. After the computation of the five statements related to Fintech service adoption, these statements were then combined, and a scale score was formed to accept or reject the hypothesis formulated.

							A Study of the Role of Financial Technology in Firm Growth
Growth Variable	Beta	Sig	R square	-2 log - likelihood	Chi- Square	Correct Classification	17
Turnover							
Increased by 10% per year	.194	.479	.165	120.580	30.385	38.8%	
10 to 20% per year	1.053	.001					
More than 20% per year	2.119	.000					
No growth	.111	.760					
Profitability							
Increased by 10% per year	.686	.095	.250	167.393	58.147	42.4%	
10 to 20% per year	1.516	.001					
More than 20% per year	2.875	.000					
No growth	-.322	.475					
Market Share							
Increased by 10% per year	.712	.016	.104	112.108	45.729	45.6%	
10 to 20% per year	.744	.038					
More than 20% per year	1.052	.017					
No growth	-.370	.229					
Productivity							
Increased by 10% per year	.418	.144	.203	136.651	40.001	37.2%	
10 to 20% per year	1.502	.000					
More than 20% per year	2.352	.000					
							Table 11. Impact of Fintech adoption on firm growth

Source: Author calculation

Reduced by 10% per year is the reference category, which is arbitrarily selected. The significance value that is either higher or lower than 0.05 is used to accept or reject the alternate hypothesis. According to the above table, respondents' use of financial technology has a substantial impact on their turnover, profitability, market share, and productivity. The model fit test is based on the difference between twice the log of likelihood (-2LL) for the model with no independent variables and the full model is significant ($p=0.000<0.005$). The data also shows that the overall average proportion of correctly classified cases was 41%, suggesting that the model is capable of correctly classifying observations. It is a widely used metric for determining the model's overall fit (Press and Wilson, 1978). The chi-square values in the table indicate that the model has high explanatory power. The Nagelkerke R square value is not zero in all cases, which shows that there is some variation due to the independent variable on the dependent variable.

We accept the alternative hypothesis (Ha1), (Ha2), and (Ha4) because the coefficient of turnover, profitability, and productivity is positive and statistically significant at the 5% level in the two categories, i.e., increased between 10 to 20% per year and more than 20% per year. This shows respondents agreed that adopting financial technology in business has increased their turnover, profitability, and productivity at least by 20%. In the case of market share, the coefficient is positive and statistically significant at the 5% level in both categories,

i.e., increased by 10% per year, increased by 10 to 20% per year, and increased by more than 20% per year, confirming the alternate hypothesis (Ha3). Thus, the market share has increased by 10 to 20% if, financial technology is adopted.

7. Findings

Fintech has the ability to alter the financial sector by offering a wide range of financial solutions at reasonable prices (Deloitte, 2017). Financial technology services are not restricted to loan approval; fintech firms assist MSME owners/managers in completing their and their employees' tax returns, assist in financial planning, and provide investing and liquidity services. These advanced tools and algorithms are powerful enough to help anyone design complex financial strategies. The following are the study's key conclusions after analysing the data and putting the hypotheses to the test: Financial technology adoption among MSMEs is high, with 49.2% of respondents classifying themselves as Early Adopters. MSMEs believe that the financial goods and services available through traditional banks do not adequately fulfil their business's needs (6% non-adopters, 24% early-adopters, and 18% moderate-adopters), emphasising the need for alternative finance. Furthermore, 47% of early adopters, 47% of moderate adopters, and 2% of non-adopters strongly believed that employing technology is critical for Business Financial needs. Findings of the research clearly shows that financial technology has potential to fill the financing gap specifically in case of MSME sector. Further, variables identified impacting the intention of MSME sector to adopt financial technology in business such as perceived ease for use, perceived usefulness, trust, satisfaction, and government support has positive influence on MSME sector behaviour. Financial technology service providers should explore variables related to perceived ease of use and perceived usefulness to attract MSMEs to use fintech services. Fintech providers can help MSMEs by making their website/application more user-friendly. The findings indicated that MSMEs are concerned about a lack of consumer protection and financial losses caused by system or process failures or security breaches, regardless of how innovative the service providers are. To attract more fintech users, fintech companies must strengthen their reputation by proving the dependability and trustworthiness of their system.

Financial technology has the ability to transform the way financial institutions work by improving product distribution and access while also increasing efficiency and engagement through technology and user experience. MSME entrepreneurs can apply for a business loan online by visiting a financial technology website or their app and determining their eligibility for a business loan. If they are eligible for a business loan, they can proceed with the application procedure and submit the required papers. Within 24 hours, the funds will be digitally deposited to their account. This financial inclusion provided by financial technology companies to MSME sector has significantly improved there turnover, profitability, market share and productivity which is shown in our study also.

8. Conclusion And Implication

8.1 Managerial Implication

The study has some significant management and practical implications. First, as India is a developing country and an emerging market for the fintech sector, Indian MSMEs are rapidly integrating fintech solutions into their operations. MSMEs will be more likely to employ fintech services if they begin to trust the providers more. As a result, Fintech service providers had to take the initiative to inform potential MSME clients through a variety of marketing initiatives.

The basic TAM variables, perceived usefulness and ease of use, have a positive effect on MSMEs' behaviour, according to the research data. To get more MSMEs to use their services, fintech service providers should consider elements relating to perceived utility and simplicity of usage. Fintech companies may facilitate ideas for MSMEs by making their websites and applications user-friendly. Third, according to earlier research (World Payment Report, 2022), fintech companies must innovate their front ends and develop their back offices in order to offer B2C services, but B2B services see less innovation. In order to increase the acceptance of their products, fintech companies should maintain a client-centred approach by offering profile-based or personalised services, particularly to MSMEs.

Finally, regulatory authorities' assistance is required to increase the level of Fintech adoption in MSMEs through enhanced internet infrastructure and skill-development initiatives.

Regulatory agencies can aid in raising MSMEs' awareness of various financial technology platforms. Young fintech startups also require the backing of legislators.

8.2 Conclusion

Fintech has the ability to completely change the financial industry by offering a wide range of financial goods at low prices (Deloitte, 2017). Financial technology companies offer more than just loan approval; they also assist MSME owners and managers with tax preparation for themselves and their staff members, assist with financial planning, and offer services for investment and liquidity. Anyone who wants to create cutting-edge financial plans can do so thanks to these sophisticated tools and algorithms. According to Rosavina et al. (2019), these tactics enable MSMEs work more effectively internally and externally, which is supported by the empirical findings of the study.

9. Limitation And Future Research

The sample size can be increased, or a new type and size of sample can be used to confirm the results in subsequent studies in order to provide a more accurate picture of the MSME sector. Second, while the research provides a broad overview of financial technology and the intentions of the MSME sector, future studies can incorporate control factors to provide a more intricate framework and a more thorough analysis. Thirdly, future studies can incorporate innovative lending models used by Indian MSME sector through financial technology adoption as non-bank crowd financing, microlending, and non-secured SME lending. Lastly, future studies can include fintech-related variables like perceived risk, efficiency, and security.

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A Study of Issues and Problems of Truck Owners in Haryana

A Study of Issues and
Problems of Truck Owners
in Haryana
22

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Abstract

Purpose: There are not enough studies on the concerns and issues with transportation, even though it is one of the most essential services utilized by every organization. Among all the modes of transportation, freight transportation by road is essential for the functioning of primary and secondary sectors of any economy. The study aims to identify the issues confronted by truck (fleet) owners in Haryana.

Design/Methodology/Approach - On a 5-point Likert scale, responses from 62 fleet owners of Haryana were gathered using a self-developed (post-pilot study) questionnaire. Using SPSS 26, the collected data were examined using factor analysis, independent t-test, one-way ANOVA, and descriptive statistics.

Findings: The study revealed that truck owners face problems at the micro (internal environment of the firms) and macro-level (external environment). However, the problems in the external environment, i.e., Government policies and administration, fuel prices, technology up-gradation, brokers, etc., are more significant than those in the internal environment, i.e., management, financial intermediaries, customers, and human resources.

Originality/Value: The present study is a unique piece of work in the area highlighting the issues and prospects of the transportation owners in the state of Haryana (India), which previous studies have not yet covered.

Keywords: Truck owners, trucking, road transport, fleet owners, freight transportation.

Paper Type: Research Paper.

1.Introduction

The word 'Transportation' refers to the movement of humans, animals, goods, liquids, and gases from one place to another using a mode of transport, i.e., air, water, roads, rail, and pipeline. Among all the modes of transport, the Road Transport is the oldest one. In India, there is a total road network of 6215797 km, including national highways, state highways, district roads, project roads, expressways, etc. compared to this, the total road network of Haryana is 31702 km (0.5percent of India) (Wikipedia). Given its capacity to traverse crowded regions and rough terrains, road transport is one of the most cost-effective and favoured modes of freight and passenger transportation. As a result, it is critical for the country's economic development and social integration. Road transport has emerged as the most important means of transportation in India, accounting for 4.5 percent of GDP in 2005-06, more than all other modes combined. The road transport sector transports about 80percent of passenger traffic and 60percent of freight traffic in the country. Road transportation benefits from the easy availability of many types of vehicles to meet the demands of consumers and the cost reductions (Ministry of Road Transport and the Highways). In 2018-19, Road Transport carried a 64percent of the total freight generated in India (Ministry of Railways, 2020).

The National Transport Development Policy Committee (NTDPC) had estimated the overall freight traffic of approximately 4800 billion tonne-kilometer with a share of 39:61 between rail and road transport for the year 2021-22, jointly contributing 8 percent to the GDP directly. The role of road transport infrastructure in the economy is exactly like the role of the circulatory system in the human body, i.e., to carry out the movements of essentials from one point to another. Imagine a scenario of the ill-functioning of a person's circulatory



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system. It may lead to various health-related issues and challenges for that person, and in the worst-case scenario, it may eventually lead to his death. The same is the case for road transport infrastructure; if there remain issues and problems unattended and unresolved in the road transport industry, it will severely affect the economy. Since transportation is a necessary component of all commercial and governmental activities and enables them to fulfill the innate demand for human mobility, its operation and advancement have a universal nature (Banister et al., 2000; May, 2005). Of the three components of GDP- agricultural, manufacturing, and services- the former two entirely depend on goods transportation to be functional. Transporting goods from one plant to another is an element of the receiver's procurement and the supplier's distribution functions (Forkenbrock, 2001; Guenther & Greschner, 2010). So, it becomes necessary to identify the existing problems in the transportation of goods by road and eliminate them to ensure the enhanced growth of the economy.

2.Review of literature

(Raghuram, 2015) highlighted the structure of the trucking industry and briefly explained its elements, i.e., core actors, tangible elements, support services, government, and regulatory bodies. The importance of road transport is also described by showing its contribution to India's GDP. Also, the modal shares of different modes of transport are shown in which the road transport is leading. The causes and consequences of industry structure are also explained with the help of various factors, i.e., a phenomenon named "Unholy Equilibrium in the Road Transportation Sector," financing facilities, ownership pattern, and service quality. The study concluded that the 'five S' framework should drive the transport industry, i.e., speed, sustainability, safety, security, and stresslessness. (Pradhan & Bagchi, 2013) Using the VECM, researchers looked at the impact of road and rail transportation on India's economic development from 1970 to 2010. (Vector Error Correction Model). The study found bidirectional causality between road transportation and economic development, capital formation, and GDP growth. On the other hand, rail transportation has a one-way causality with gross capital creation and economic growth. According to the study, transportation infrastructure is a "significant" contributor to economic growth. An appropriate strategy is required to boost transportation infrastructure and raise gross capital creation, which will contribute to significant economic growth. (TCIL, 2015) conducted a comprehensive study to evaluate the operational efficiency of freight transportation by roads, and to do so, a survey was conducted on twenty-eight major routes. The study has given an insight into India's road network and an overview of the composition of vehicles used in road transportation. An illustration of the composition of a truck's trip expenses, i.e., fuel cost, driver's wage, maintenance cost, and on-road cost, has been made. Where the fuel alone contributes to more than 50 percent. It also came to light that India bears an additional fuel consumption cost of 14.7 billion USD due to delays. The increase in the freight rate was not proportionate to the increase in freight cost, which further led to a notable drop in the contribution margin. The study also described a few other dimensions of freight transportation by road, namely, multi-modal transportation, prospects like Sagar Mala and Bharat mala projects, and the impact of seasonality on business. The study also highlighted the urgent need to develop new road infrastructure, increase the width of present roads, and timely maintenance of roads. (NITI Aayog, 2021) has highlighted the importance of the role that the transport industry has played, is playing, and will play in the economy's growth. According to the report, India's logistics sector accounts for 5% of GDP and handles 4.6 billion tonnes of products annually, with growth predicted to be five-fold by 2050. India's freight transportation system is critical to its success. In this report, three opportunity areas are discussed, namely increasing the modal share of rail transport, optimizing truck use, and promoting fuel-efficient vehicles, in order for India to reduce its energy consumption by 50%, reduce logistics costs from 14% to 10% of GDP, reduce carbon emissions and improve the air quality index, and reduce road traffic. (Kot, 2015) has studied the cost management issue in road transport enterprises of different sizes, i.e., micro, small, medium, and large, because of the differences in their functioning and manner of operations. It came to light that the large companies bear

the greatest fuel consumption costs, and the costs of small companies have diminished over time. Other variable costs associated with road transport are drivers' compulsory social insurance, salaries, food and accommodation expenses, etc. In the case of companies, different forms of employment offered are contract of mandate or self-employment, or contract of employment. The study concluded that road transport is currently the most significant mode of transport in the present economic situation due to its flexibility with other modes. The efficient management of a road transport company requires precise cost analyses and controls. (Demir et al., 2014) presented a review of recent studies on green road freight transportation. The study has mentioned the harmful effects of road freight transportation on human health and on the environment caused by the emissions of nitrogen oxides (N₂O), carbon dioxide (CO₂), and particulate matter. The study emphasized understanding the vehicle emission models and their inclusion in the existing optimization models. The factors affecting fuel consumption are categorized further, viz., vehicle, environment, traffic, driver, and operations are also studied, and their implications are shown in the study. Various fuel consumption models are also mentioned, along with their applications, drawbacks, and findings. The study concluded that vehicle speed is crucial in minimizing fuel consumption; light-duty vehicles must be preferred over medium and heavy-duty vehicles. Besides carbon dioxide equivalent emissions, other traffic externalities like noise, accidents, and environmental damage could be examined at the regional levels. (Rameshwar Dubey Angappa Gunasekaran, 2015) have developed a theoretical framework with the support of a practical method using a quasi-ethnographic technique to determine the features and talents of a truck driver for sustainable transportation. Maturity, knowledge, and endurance were highlighted as three characteristics of an ideal truck driver. A truck driver's talents include both technical knowledge and behavioural qualities. The theoretical framework of the study explained three sorts of pressures: coercive, normative, and mimetic. The research advised that truck drivers' training assists in incorporating external demands into technical and behavioural abilities to make truck driving a valued career and make truck drivers part of a sustainable supply chain network. The top management should recognize the drivers' contribution and provide them regular training, health check-ups, and incentives in case of good performance. (Iv, 2018) interviewed eighteen log truck operators in Georgia, USA, to learn about the expenses and other problems of log truck transportation. The owners' fleet sizes ranged from zero trucks (which had recently stopped carrying) to more than fifty trucks. Their log trucks travelled an average of 1,27,324 kilo meters per year and delivered 17,410 tonnes per year. The combination of average payload, percent-loaded km, and reported haul rates, according to the analysis, makes it extremely difficult for log trucking companies to make a profit. The significant issues log truck operators confront are a lack of skilled drivers and escalating truck insurance prices. According to the study, boosting percent-loaded miles, giving driver training, lowering turn times at mills and harvest sites, and implementing new technology like GPS and onboard cameras could increase transportation efficiency and safety. (Tunde & Adeniyi, 2012) used primary and secondary data to investigate the influence of road transport on agricultural development in Kwara state's Ilorin East L.G.A. Farmers in the research region were given 150 copies of the questionnaire methodically. The impact of road transportation on rural development was assessed through a focus group discussion. According to the findings, road transport has both negative and positive effects on agricultural development in the studied area. According to the study, farmers' increased productivity is favourably connected with improvements in the road transportation infrastructure. Community participation in road transportation development should also be promoted in the study region. (Singh, 2012) provided an overview of India's urban transportation issues and challenges. The study concentrated on only the most important aspects of policy formulation. The study began by reviewing the trends in vehicular growth and available transportation infrastructure in Indian cities, followed by a discussion of the nature and scope of urban transportation problems, such as traffic congestion, pollution, and road accidents. The study concluded that the demand for transport had increased substantially in various Indian cities because of the increased population. In contrast, the public transport systems in those cities have not been able to keep up the pace. The study

suggested that the public transport system should be boosted, stringent emissions standards should be implemented, specifications for clean fuels, etc., to solve urban transport problems in India. (Kesharwani (1976), Padam and Singh (2001), Agarwal et al. (2010, 2011, 2014), and Baležentis & Balezentis (2011)) have all contributed to the expanding body of literature on transportation. Haryana invests heavily in the transportation industry (Haryana Government, 2004-2005). " Technical and pure technical efficiency" (PTE) were assessed by the CRS-MODEL and the VRS-model, with findings indicating that just one STU (STHAR) has the highest level of efficiency in transportation (Bishnoi & Sujata, 2007).

3.Objective

1.To study the issues and problems faced by the truck owners of Haryana.

4.Research Methodology

An empirical research design is used to study the problems of truck owners operating in Haryana. The purposive cum convenience sampling technique is used. Researchers personally visited 62 fleet owners from all over the Haryana and asked them to fill the self-developed questionnaires. The scheduling method of data collected is also used in case of some fleet owners because of their lower level of education. The responses were collected using a 5-point Likert scale, where "1=Strongly Disagree, 2=Disagree, 3=Neither Agree Nor Disagree, 4=Agree, and 5=Strongly Agree" on ten statements. Personal interviews were also conducted as a pilot study with 20 respondents to get valuable insights into the trucking business environment of the country. These personal interviews helped a lot in designing the questionnaire. All these responses were analyzed by the Exploratory factor analysis, independent t-test, one-way ANOVA, and descriptive statistics in SPSS 26.

5.Hypotheses

There is no significant difference in the problems of truck owners based on their demographic features, i.e., age, education, income, no. of trucks, residence, and finance facility.

6.Analysis and Interpretation

Table 1.
Demographic Profile of
Respondents

Particulars		Frequency	Percentage
Age of Respondent	21-40	20	32.3
	41-60	37	59.7
	61-80	5	8.1
Level of Education	Upto 12th	48	77.4
	Graduate	12	19.4
	Post Graduate	2	3.2
Annual Income of Respondent	upto 5 lacs	46	74.2
	500001-10 lacs	11	17.7
	above ten lacs	5	8.1
Number of Trucks Owned	1-10	55	88.7
	11-20	4	6.5
	above 20	3	4.8
Residence of Respondent	urban	45	72.6
	rural	17	27.4
Finance Facility	Yes	55	88.7
	No	7	11.3

Table 1 presents the demographic profile of the truck owners (respondents). It shows that almost 60 percent of the truck owners belong to the age group of 41-60 years, while 32percent are from the 21-40 years category, and only 8 percent of the respondents are from the 61-80 age group. Almost 77percent of the truck owners studied only up to 12th class, 20 percent of them have done their graduation, and only a meager 3 percent are postgraduates. The majority of respondents (74percent) have an annual income of less than ₹ Five lacs, almost 18 percent of respondents have an annual income between ₹ 500001 and ten lacs, and only 8 percent with an annual income above ₹ ten lacs. The majority (89 percent) of the respondents owned less than ten trucks, 7 percent owned between 11-20 trucks, and only 5 percent owned more than 20 trucks. Out of the total respondents, 73 percent live in urban areas, and the remaining 27 percent live in rural areas. Eighty-nine percent of the total respondents have availed themselves of a finance facility, while only 11 percent have not.

Exploratory Factor Analysis

Collected data were further analyzed using exploratory factor analysis. It is a statistical technique used to identify the clusters of variables by measuring their correlation. In EFA, highly correlated variables are clubbed together to form latent variables known as factors. The study used the Kaiser-Meyer-Olkin Measure (KMO) and Bartlett's sphericity test to check the needed sample adequacy and the correlation between different pairs of variables.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.794
Bartlett's Test of Sphericity	Approx. Chi-Square	586.371
	df	45
	Sig.	.000

Table 2.
KMO and Bartlett's Test

The Kaiser-MeyerOhlin Measure of sample adequacy is 0.794 in table 2, indicating that the study's sample size is appropriate. When there is a significant correlation between the variables, exploratory factor analysis is used. The Bartlett Sphericity test examines the correlation matrix of the variables and tests the null hypothesis that the correlation matrix is an identity matrix. The null hypothesis that the correlation matrix of the variables is identity is rejected based on the outcome of Barlett's Test of Sphericity, which shows that the p-value of .000 (<0.05) with x²=586.371 is significant at a 5% level of significance. As a result, it may be determined that the selected variables have a significant correlation and that the matrix is not an identity matrix.

Statements	Initial	Extraction
You have an efficient management	1.000	.882
It is easy to get finance through formal sources	1.000	.803
The insurance claims are settled within time.	1.000	.426
Payment of services is received on time	1.000	.855
Your employees are skilled and trained	1.000	.560
Government policies positively impact the trucking industry	1.000	.400
Brokers are an inseparable part of the trucking industry.	1.000	.865
Technological up-gradation is easy to adopt	1.000	.883
Government authorities are not cooperative	1.000	.651
Fuel prices are justified	1.000	.633
Extraction Method: Principal Component Analysis.		

Table 3.
Communalities

Table 3 shows the communalities of factors after extraction. Communalities reflect how much of each variable is accounted for by the underlying factor.

Table 4.
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.440	54.399	54.399	5.440	54.399	54.399	3.983	39.835	39.835
2	1.518	15.181	69.580	1.518	15.181	69.580	2.975	29.745	69.580
3	.872	8.723	78.303						
4	.746	7.462	85.765						
5	.511	5.114	90.879						
6	.406	4.061	94.940						
7	.313	3.125	98.066						
8	.140	1.401	99.466						
9	.033	.327	99.793						
10	.021	.207	100.000						
Extraction Method: Principal Component Analysis.									

Table 4 shows the total variance before and after the varimax rotation; only two factors are extracted with the help of factor analysis. Both have an eigenvalue > 1, so both are considered appropriate. These two variables explain a total 69.58 percent variance, while the first one explains 39.83 percent, and the second factor explains 29.75 percent.

Table 5.
Rotated Component
Matrix^a

Statements	Component	
	1	2
You have an efficient management	.360	.867
It is easy to get finance through formal sources	.479	.758
The insurance claims are settled within time.	-.233	.610
Payment of services is received on time	.368	.849
Your employees are skilled and trained	.461	.589
Government policies positively impact the trucking industry	.619	.127
Brokers are an inseparable part of the trucking industry.	.907	.208
Technological up-gradation is easy to adopt	.895	.286
Government authorities are not cooperative	.802	.084
Fuel prices are justified	.756	.247
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization a. Rotation converged in 3 iterations.		

Table 5 shows the results of the varimax rotation with Kaiser normalization. The rotated component matrix shows that ten variables are clubbed into two factors comprising five factors each. "If a factor has at least four loadings greater than .6, it is reliable regardless of sample size" (Guadagnoli & Velicer, 1988). Based on exploratory factor analysis, two factors are extracted, namely:

- Problems in the external environment of the business. (F1)
- Problems in the internal environment of the business. (F2)

Descriptive Analysis

A descriptive analysis was also conducted based on the replies collected from truck owners.

Factors	Mean	Std. Deviation
F1 Problems in the external environment of the business.	2.8161	1.07203
F2 Problems in the internal environment of the business.	3.1000	.98364

Table 6. Truck owners' responses in context to factors extracted

Table 6 shows that the mean value of factor 1 (2.8161) is less than that of factor 2 (3.1). Based on mean values, it can be predicted that truck owners are giving more importance to the problems in the external environment of the business. (As all the statements of the questionnaire are positively framed, a lower mean value of the factor suggests that the truck owners are considering it as a more significant problem)

Grouping Variable	Test	Factor1 (p-value)	Factor 2 (p-value)
Age	One way ANOVA	.810	.692
Education	One way ANOVA	.302	.066
Income	One way ANOVA	.012	.014
No. of Trucks	One way ANOVA	.116	.000
Residence	Independent t -test	.749	.140
Finance Facility	Independent t -test	0.11	.359

Table 7. Hypotheses Summary

- At a 5% level of significance, the one-way ANOVA turns insignificant. Hence, H01 and H02 are not rejected, and it can be concluded that there is no significant difference in the problems of truck owners based on their age and level of education.
- At a 5% level of significance, the one-way ANOVA turns out to be significant. Hence, H03 is rejected, and it can be concluded that there is a significant difference in the problems (both in the internal and the external environment of the business) of truck owners based on their annual income.
- At a 5% level of significance, the one-way ANOVA turns insignificant for factor1 but significant for factor2. Hence, H04 is rejected, and it can be concluded that there is a significant difference in truck owners' problems based on their level of education.
- At a 5% level of significance, the independent t-test turns out insignificant. Hence, H05 and H06 are not rejected, and it can be concluded that there is no significant difference in the problems of truck owners based on their area of residence and facility of finance availed by them.

8.Limitations and Further Scope of Research

The study was attempted only by taking into its purview the owners of trailers only, and other vehicle owners have been left out. Moreover, some transporters deal in a particular type of goods. The study ignores that part of the population. Further, the secondary data have not been used primarily to draw the inferences, though the same has been used in limited quantity wherever necessary. The sample size of the study is also small.

9.Conclusion

This study has specifically examined the problems faced by the truck owners of Haryana. The problems at the micro-level are pointing towards the deficiencies in the management skills of owners, functioning of financial intermediaries, and performance of human resources of the businesses. Comparatively, the macro-level problems point toward the government's failure to provide a sustainable and efficient road infrastructure. As evident from (Table 1), almost 80 percent of the truck owners have had only a school education, and approximately 90 percent of the truck owners operate small fleets, i.e., less than ten trucks, which prevents them from achieving economies of scale (Iv, 2018). Even though individual truck owners in

Haryana maintain small fleets, the state's logistics industry supports an economic system worth billions of dollars. Considering Haryana is a land-locked state, it becomes essential for Haryana to remove the existing problems of the trucking industry. Hence, it is suggested that the government improve the conditions of roads, reduce fuel prices, and make policies favorable to the trucking industry to keep it profitable for the truck owners, as it will boost the trucking operations in the country.

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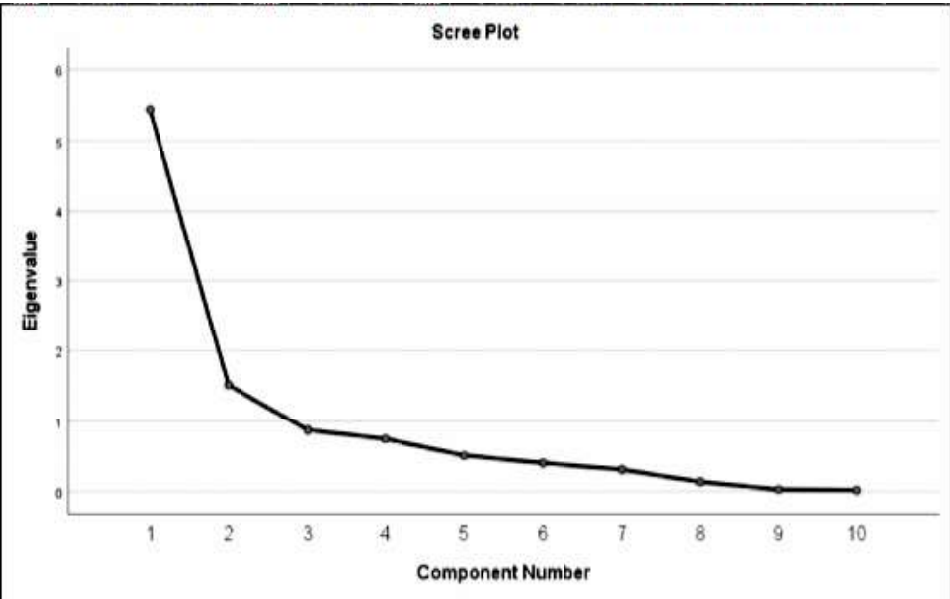


Exhibit 1.
Scree plot

	Cronbach's Alpha Based on Standardized Items	
Cronbach's Alpha		N of Items
.888	.887	5

Table 1.
Reliability Statistics of
Factor 1

	Cronbach's Alpha Based on Standardized Items	
Cronbach's Alpha		N of Items
.862	.850	5

Table 1.
Reliability Statistics of
Factor 2

Trends and Future Research Directions in Online Customer Experience: Insights from Bibliometric Analysis

Trends and Future
Research Directions in
Online Customer
Experience
31

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Abstract

Purpose: Companies perceive "customer experience" as a crucial differentiator in the current dynamic landscape. The purpose of this study is to evaluate the trends and create a comprehensive map to gain quantitative insights into the existing literature on "online customer experience".

Methodology: This study is based on the bibliometric analysis of 176 documents selected from the Scopus database. The study analyzed the extant literature for the last 15 years, i.e., from 2007 to 2022, and the results using tables and co-occurrence plots are presented for the top journals, countries, authors, affiliations, subject area, and keywords. Content analysis for the top 20 most cited articles is also performed to provide a comprehensive picture of extant literature in this domain.

Findings: Authors and Institution's from developed economies contributed significantly to this domain. The presence of developing countries, like India, brings out the importance being given to this research field. The analysis indicates the presence of multi-disciplinarity in this research domain with research areas such as Business Management, Accounting, Econometrics, Computer Science, and Social sciences. Bibliometric results showed that the year 2007, 2015, and 2020 are crucial years, representing three distinct phases.

Originality/value: The study put forward that consumer in present times, across all geographies and demographics, seek out-of-the-box experiences; hence staging "memorable experiences" is of utmost importance for any organization to remain ahead of others; thus, as the world transcends towards "Experience Economy" researchers and industry practitioners must carry out further study in this domain.

Keywords: Consumer Behaviour, Customer Satisfaction, Experience Economy, Scopus Database, Content Analysis

1. Introduction

In the current dynamic landscape, companies perceive "customer experience" as an essential factor for gaining a competitive advantage. Today, customers' opinion carries significant influence and the exponential growth of information and communication technology has facilitated multiple avenues to express it. Through online reviews, websites, social networking sites, and access to the internet, customers have extensive knowledge about competitive products and services. Customers want more from a product or service than just its consumption. Customers seek a one-of-a-kind and memorable experience that accompanies the delivery and post-sales service/support for goods and services (Joseph & Gilmore, 1999) (Stein & Ramaseshan, n.d.).

Research by Deloitte shows that customers are more inclined to order things "online" than buying in physical stores. Customers are becoming less tolerant of organizations that do not offer simple and smooth experiences. Delivering a consistent and seamless experience has become challenging due to the increased complexity and cost of delivering services through multi-channels. Businesses need to identify different touch points; the customers engage with their brand, build the necessary competencies, and deploy resources to provide a memorable customer experience (Fenech Celine et al., 2016).



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Covid-19 impacted all spheres of our lives, which changed consumer behavior spanning all businesses, countries, and demographics. As priorities changed, emphasis on health and safety has increased, which has impacted our decisions making and purchasing behavior. Consequently, what was seen as an excellent customer experience in the past may no longer be appropriate in the present time, hence, nearly all firms are reviewing their interaction with clients (Hernandez Julio, 2020). Working on the "customer experience" in the "online domain" is vital in this competitive world. Organizations these days have shown keen interest in managing customer experience; thus, domain experts are being engaged in meeting customers' increasing expectations.

2. Literature review

The emergence of the internet as a distribution and communication channel has opened up tremendous opportunities for organization-customer interactions. These interactions happen as a result of activities like information search for companies and/or products, or for services like banking, transactions on e-commerce websites, and engagement in social networking sites or online communities. According to customer experience research, carried out by Forbes (2020), 200 global marketing experts emphasized the necessity of a refined customer experience strategy as a method to differentiate a business from its competition. This, in turn, will increase consumer loyalty, satisfaction, and brand engagement. Businesses find it increasingly challenging to predict what customers want, particularly as digital technology develops, and customers' expectations continue to rise. Consumers are adopting multi-channel for the purchase of goods and services, in addition to expecting personalized services, which for businesses at some point in time becomes challenging (Fenech Celine et al., 2016).

Abbott was one of the pioneers in this field, who elaborated on the idea of "experience" way back in 1955. He described it as what people wish are not goods or services but "pleasant experiences" (Abbott, 1955). In the book "The Experience Economy," Joseph Pine and James Gilmore introduced the concept of "Experiential Marketing" and discussed how "experiences" are valued more than goods and services (Pine & Gilmore, 2011). The customer experience concept was extensively discussed in marketing journals and research papers. The idea supported the notion of focusing on an all-encompassing "experience." Since then, academicians and practitioners have paid close attention to evaluating the concept of customer experience(Sindhu and Bharti, 2020). Dhillon et al., (2021) explored the impact of experiential marketing by taking its different dimensions on consumer satisfaction in the luxury cosmetic industry in India. Lucas et al., (2021) researched consumer experience and values through a marketing lens in the context of shopping centers in the Brazilian region. Akma Mohd Salleh et al., (2019) investigated the impact of flow theory-derived web experience factors such as usability, interactivity, trust, and aesthetics on purchasing intention. Thus, academicians across the globe are working in the "customer experience domain", across different industries to further their knowledge.

The term "experience" has been discussed in multiple disciplinary fields like marketing, philosophy, and management, resulting in various definitions of customer experience (Ferreira and Teixeira, 2013; Jo ? Sko Brakus et al., 2009). The term "customer experience," as per Schmitt (2010), refers to the perception, emotions, and ideas that consumers have when they come into contact with brands and engage in the consumption process. Schmitt also asserts that experience may be influenced by packaging, communication, in-person contacts, and marketing events (Schmitt, 2010). Customer experience, according to Meyer and Schwager (2007), refers to a customer's internal and subjective reaction to any direct or indirect engagement with a company. Typically, direct contact occurs throughout the purchase journey, including its usage and post-sales service. Unexpected interaction constitutes the majority of indirect engagements like advertisements, news items, reviews, word-of-mouth recommendations or criticism, etc. (Meyer and Schwager, 2007). Therefore, Lemon & Verhoef (2016), proposed customer experience as a multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire purchase journey.

In contrast to direct engagement in brick-and-mortar stores, verbal and visual stimuli used on websites influence how consumers evaluate products "online"(Bleier et al., 2019). According to Gentile (2007), there are six dimensions of online customer experience: cognitive, emotional, sensorial, pragmatic, relational, and lifestyle (Gentile et al., 2007). Authors across the globe have realized the need to work on "customer experience," particularly in the online domain, since every sphere of our lifestyle is impacted by technology, which changes at an unbelievable pace. The growth of Information and Communication Technology (ICT), coupled with the competitive environment, where the only differentiation could be the "experiential factor," has forced researchers and industry practitioners to further explore this field.

A study was conducted by Martin (2015); they gathered data from an internet survey of both frequent and infrequent online buyers to assess "Online Customer Experience" (OCE). The study evaluated OCE considering various antecedents like telepresence, challenge, aesthetics, perceived benefits, ease-of-use, customization, connectedness, using cognitive and affective dimensions, and their impact on factors like "satisfaction and repurchase intention" (Martin et al., 2015a). Brun (2017) investigated the relationship between customer loyalty and the five aspects of consumer experience-cognitive, affective, sensory, behavioral, and social. The emphasis of the research was on two channels: branch/agency and online (Brun et al., 2017a). Rajaobelina (2017) researched in a multichannel context and investigated how the customer experience aspects of think, feel, sense, act, and relate impact the quality of relationships with travel companies (in-store and online). Also, Martínez-López et al., (2022) investigated how the use of an instant refund impacts the number of consumer responses. Thus, based on the extant literature it can be inferred that online customer experience is multidimensional, broadly consisting of five dimensions namely cognitive, affective, sensory, behavioral, and social. Hence, the purpose of this study is to evaluate the trends and create a comprehensive map to gain quantitative insights into the existing literature on "online customer experience".

Therefore, the literature review indicates the following gaps, which are addressed in this paper:

- "Customer experience" is a much-researched area, qualitatively and quantitatively; however, we find very few papers in the "online customer experience" domain.
- Various bibliometric studies on customer experience have extracted data from the Web of Science database, whereas this study evaluated the data extracted from Scopus.
- Customer experience studies as per the extant literature, have generally been done in a particular industry/field, however, this paper covers the whole domain of "online customer experience" by including papers from 2007 to 2022.

3. Methodology

To gain quantitative insights, bibliometric analysis is being used to create a comprehensive map of the existing literature on "online customer experience". This study examined the most contributing authors, journals, publications, institutions, countries, subject areas, keywords, and performed content analysis for the most cited 20 articles. "Online customer experience" was the search term used to extract the data for bibliometric analysis using the Scopus database. As of February 10, 2022, the database produced a preliminary result of 3,911 documents, out of which 3,865 were English-language papers.

1,820 papers were chosen amongst these 3,865 documents after further filtering on the topics of "business, management accounting," and "economics, econometrics, and finance." Finally, 176 papers were selected from the 1,820 shortlisted documents using search terms like "customer experience," "user experience," and "online customer experience." These 176 documents were subjected to bibliometric analysis using the VOSviewer software.

3.1 Research objectives

Based on the literature review, the following objectives are framed:

- To identify trends and create a comprehensive map to gain quantitative insights

into the existing literature in the domain of "online customer experience".

- To perform a content analysis of the 20 most cited articles in the "online customer experience" domain.

4. Results

The results of the study are shown in the following section. Charts, figures, and tables are used to present the results for the 176 selected documents. The study identified top journals, authors, affiliations, countries, subject areas, keyword occurrence, and lastly, the content analysis is performed for the top 20 most cited papers as part of the bibliometric analysis for documents published from the year 2007 onwards.

Figure 1 shows the number of publications per year about "Online customer experience" from 2007 to 2022. Research related to "customer experience" has a long history. Still, with the advancements in information and communication technology (ICT) and the focus on human-computer interaction (HCI), the research in the field of "online customer experience" can be traced back to the year 2007 only.

In the initial years, the publications were very few, limited to three documents per year on average. This phase in the study has been termed the "initial phase."

Subsequently, with the growth in ICT, the topic got its attention and became popular with academicians and researchers. From 2015 to 2020, on average, seventeen documents were published, which is termed the "stabilization phase" in the study.

Covid - 19 pandemic changed the whole scenario, as the world moved on from physical to online mode in every possible sphere. There was a considerable spike in published documents in the year 2021 onwards on "online customer experience" due to the keen interest shown by researchers across the globe in this domain. The year 2020, this phase in the paper is termed the "growth phase."

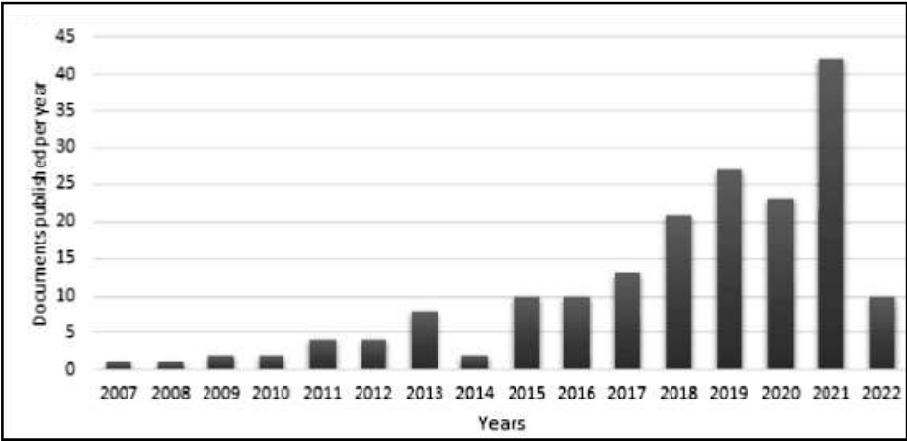


Figure 1.
Documents published per
year

Data for 2022 is only till February 10, 2022.

In the field of online customer experience, the top 10 journals in which the maximum number of articles were published are shown below in Table 1. The top 10 journals were identified based on the ranking, where the maximum number of articles were published. The leading journal in this category is the "Journal of Retailing and Consumer Services," which published 16 articles, followed by the "Journal of Research in Interactive Marketing" with seven articles.

"The Journal of Services Marketing" ranked 3rd in this category with five articles to its credit, followed by "Decision Support Systems" and "International Journal of Retail and Distribution Management," which published four articles.

"Electronic Commerce Research and Applications," "Global Business Review," "International Journal of Industrial Engineering and Management," and International Journal of Quality and Service Sciences" have three publications each to their credit. Publications in various journals signify the importance and keen interest in the "online consumer experience" field.

Trends and Future Research Directions in Online Customer Experience		
S.No	Source	Documents
1	Journal Of Retailing and Consumer Services	16
2	Journal Of Research in Interactive Marketing	7
3	Journal Of Services Marketing	5
4	Decision Support Systems	4
5	International Journal of Retail and Distribution Management	4
6	Electronic Commerce Research and Applications	3
7	Global Business Review	3
8	International Journal of Industrial Engineering and Management	3
9	International Journal of Quality and Service Sciences	3
10	International Review of Retail Distribution and Consumer Research	3

Table 1.
Top 10 Journal

In the "online customer experience" field, the top 10 prominent authors are mentioned in Figure 2. Lova Rajaobelina published the maximum number of articles which is four; next on the list is Isabelle Brun with three articles, followed by Lynda M. Andrews, Khairi Aseh, Mojtaba Barari, Arijit Bhattacharya, Anil Bilgihan, Józef Bużko, Jashen Chen, Cindy Yunhsin Chou with two publications each to their credit. This brings out that authors across the globe have shown keen interest in the field of online customer experience which is in line with the concept that the world is transitioning towards an "Experience Economy."

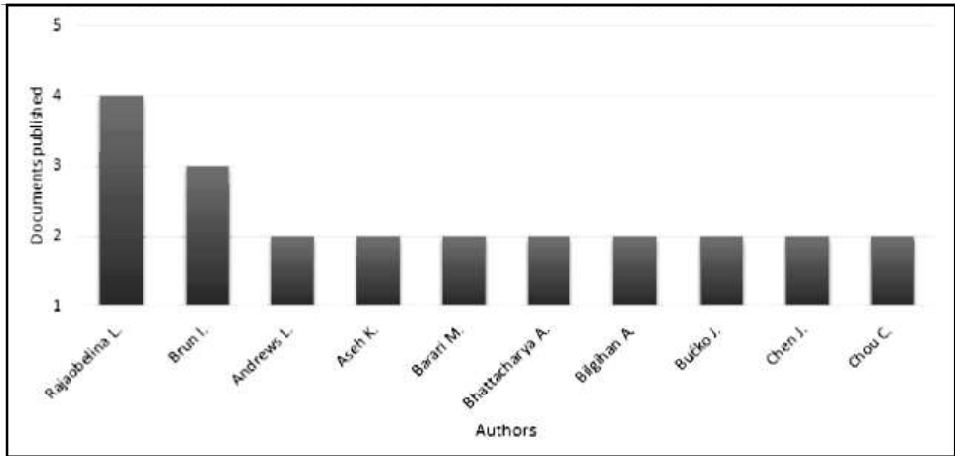
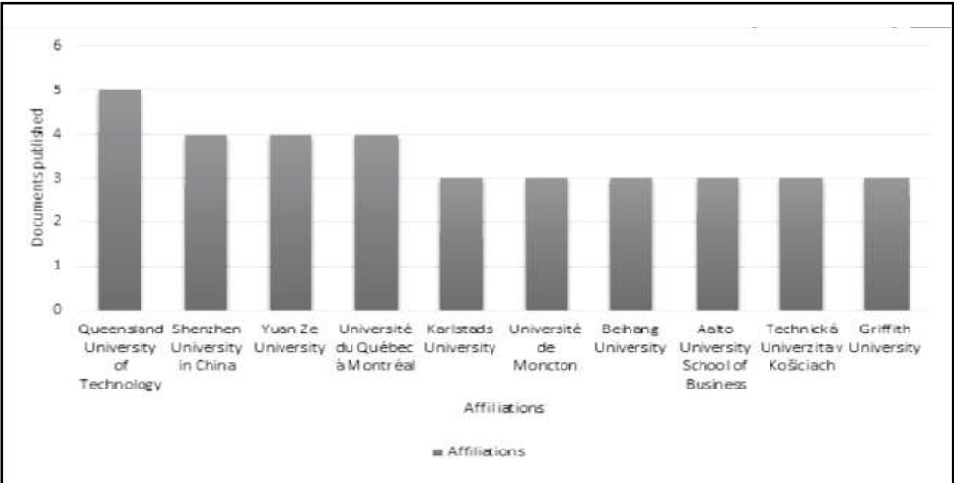


Figure 2.
Top contributing authors

The top 10 affiliations in the "online customer experience" field can be seen in Figure 3. The Queensland University of Technology, Australia, has the maximum number of publications that is five; next on the list are Shenzhen University in China, Yuan Ze University in Taiwan, and Université du Québec à Montréal in Canada, with four publications each on online customer experience to their credit. Further, we have a bunch of universities having three publications each; these are Karlstads University (Sweden), Université de Moncton (Canada), Beihang University (China), Aalto University School of Business (Finland), Technická Univerzita v Košiciach (Slovakia), (Australia). From the above results, it can be deduced that Australia has the most significant number of publications in terms of affiliation, followed by China and Canada.

Figure 3.
Publication by affiliations



The top 10 countries which have carried out research in the field of online customer experience are mentioned below in Figure 4. The United States, one of the most influential and early adopters of technology, has the highest number of publications which is thirty-three over the years. Next on the list is the world's most populous country, China, with twenty-three publications. Further, despite being a developing nation, India stands third on the list with twenty-one publications. India's entry into the top three list is no surprise. The exponential growth of ICT and the focus of the Indian government on making India a digitally empowered society, coupled with its 52% population below the age of 30, is a clear testimony of the market potential. (International Institute for Population Sciences (IIPS) and ICF. 2021, 2022) Australia and the United Kingdom have 14 articles each on online customer experience to their credit. The countries at the bottom of the list are Taiwan, Finland, Germany, Netherlands, and Canada, with nine, eight, seven, seven, and six documents respectively.

Figure 4.
Publications by countries

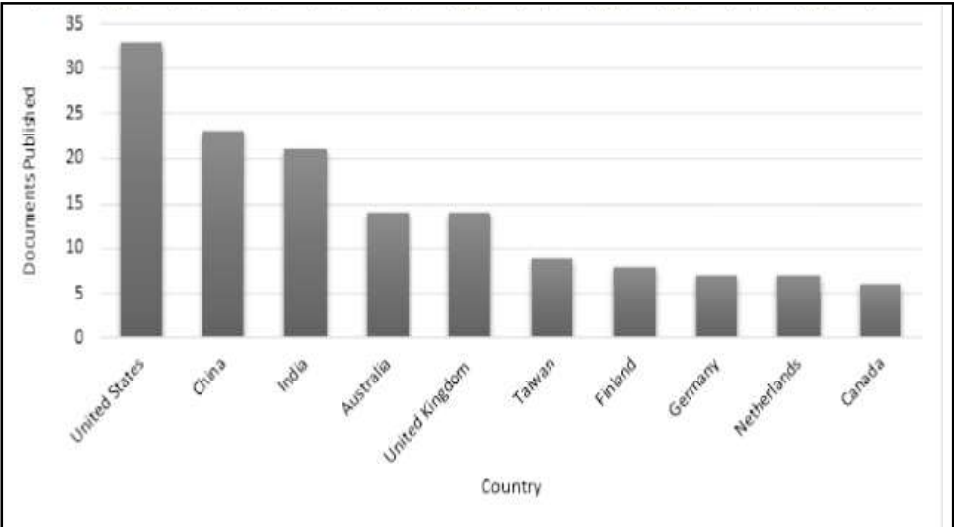


Figure 5 shows the different subject areas where research in online customer experience has been carried out from 2007 to 2022. The results reflect that "online customer experience" studies have been carried out in multidisciplinary research areas. Since, for this paper, search criteria are restricted to two subject areas, namely, "Business Management & Accounting" and Economics, Econometrics & Finance" therefore, the maximum number of documents can be seen in the area of Business, Management, and Accounting with 51.2%

share followed by Computer Science and Decision Sciences with 14.3% and 10.7% share respectively. Social sciences, Economics, Econometrics, and Finance, are other research fields with a share ranging around 6%. Research areas like Psychology, Arts and Humanities, Energy, Mathematics, and others have a minimal share. The above analysis shows the focus on "customer experience" in multidisciplinary research areas. In this competitive world, organizations are trying their best to stage memorable consumer experiences; hence, academicians and researchers across the globe are focusing on analyzing the antecedents, outcomes, dimensions, and other behavioral aspects of the same.

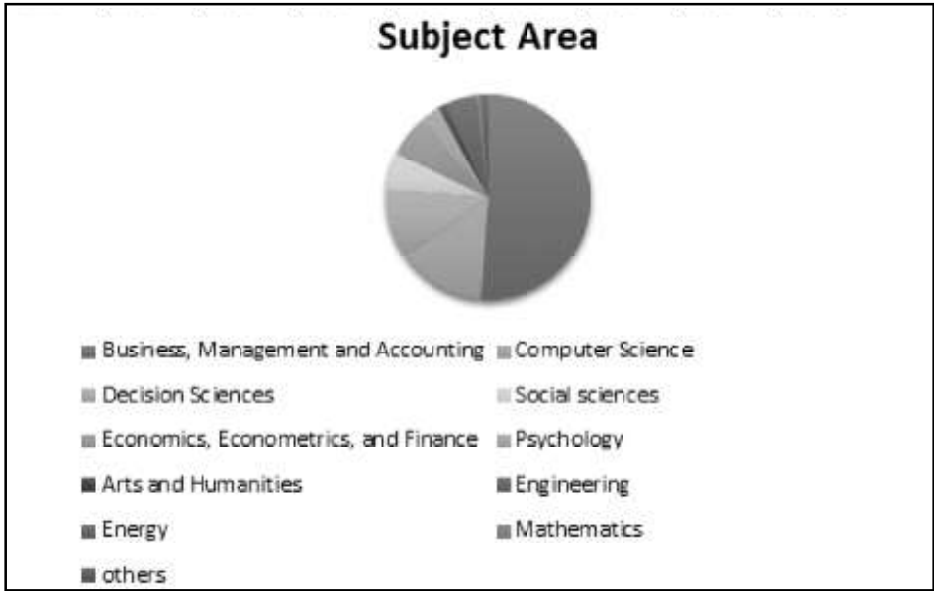
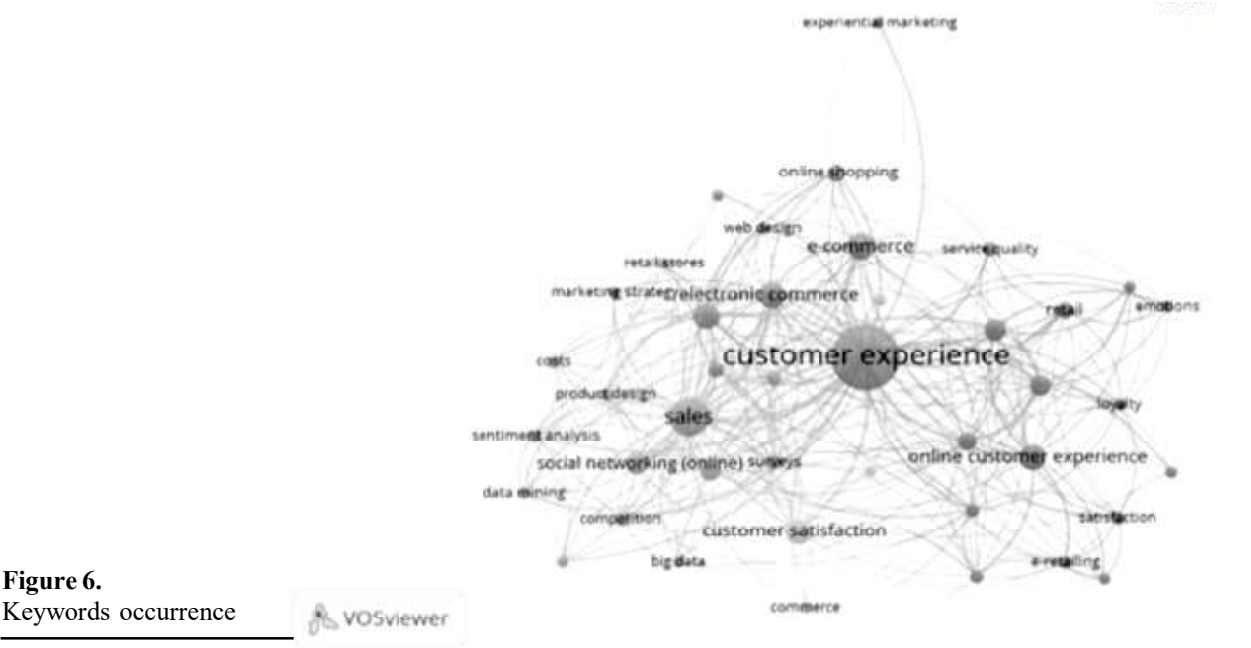


Figure 5.
Publications by subject
area

Figure 6 presents the keywords' occurrence in the online customer experience field and their relationship with others. The threshold for keywords was set at five (Vallaster et al., 2019). The bubble size represents the frequency with which keywords are included in the articles, and the bigger the bubble, the more frequently the keyword appears in the extracted data set (van Eck and Waltman, 2010) The stronger the relationship between the keywords, the more closely they are associated with each other (Alonso et al., 2009). In the figure shown below, the clusters are color-coded as per the conceptual area, and the same have been grouped into four clusters for analysis of the keywords. Also, the top 10 keywords in the domain of online customer experience are shown in Table 2.

The cluster classifications are described below:
Cluster 1 (Red): The Red cluster identifies the association between "Online Customer Experience" and its antecedents and outcomes. Loyalty, satisfaction, repurchase intentions, and consumer behavior are the notable outcomes of customer experience and customer engagement; service quality is a crucial antecedent of consumer experience.
Cluster 2 (Green): The Green cluster contains keywords related to Sales. Staging "Comprehensive User experience" aims at competitive advantage resulting in improved sales or continuance usage intention. Sales are closely related to social networking, product design, sentiment analysis, data mining, consumer behavior, and many others. In total, this cluster includes 12 keywords that are interrelated to each other.
Cluster 3 (Blue): The blue cluster contains the most commonly used keyword in the data set, i.e., "Customer Experience." This cluster includes 11 keywords that are all related to each other. It indicates that the extant customer experience studies have evaluated the influence of e-commerce, online shopping, web design, website, and retail stores. The clear mandate

GBR	for organizations is to stage a memorable customer experience both in the online and physical environment and "marketing strategies" must be designed to achieve a comprehensive customer experience.
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38	Cluster 4 (yellow): The Yellow cluster is about "Customer satisfaction." Customer satisfaction is a significant factor in any consumer behavior research field. In this cluster, there are three other items apart from customer satisfaction: commerce, omnichannel, and perceived value. For customer satisfaction, organizations must provide a seamless customer experience across all channels, hence the keyword "Omni-Channel." The Omni-channel factor has gained a prominent role in customer experience research due to COVID-19 pandemic, where customers are looking for a seamless experience both in the physical and online environment.



S.no	Keyword	Occurrences	Total link strength
1	Customer Experience	138	271
2	Sales	47	178
3	Electronic Commerce	21	85
4	Customer Satisfaction	21	75
5	E-commerce	24	70
6	Social Networking (online)	15	66
7	User Experience	21	57
8	Retailing	16	54
9	Consumption Behaviour	13	53
10	Online Customer Experience	22	52

Table 3 (refer to appendix) presents the top 20 most cited documents in the "online customer experience" field. The table lists the title of the paper, authors, year of publication, journal, country, data collection strategy, objectives, factors (covering the antecedents, outcomes, mediating or moderating variables, and other factors), dimensions, and lastly use of any theoretical approach to support the findings.

The paper titled "Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes" tops the list with 468 citations; it proposed a model in the e-retailing sector by including antecedents such as telepresence, level of challenge, skill, speed of interactivity, aesthetics, perceived benefits, ease of use, customization,

connectedness, and outcomes like satisfaction, trust in online shopping, online repurchase intention and the mediating effect of perceived control (Rose et al., 2012a).

Next on the list is a paper titled "Re-examining online customer experience to include purchase frequency and perceived risk" with 130 citations (Martin et al., 2015), followed by an article titled "The Case of Amazon.com: Towards a conceptual framework of Online customer service experience (OCSE) using the emerging consensus technique (ECT)" with 124 citations (Klaus, 2013). The last in the list, amongst the top 20 cited documents in the field of "online customer experience," is the paper titled "The Impact of Customer Experience on Relationship Quality with Travel Agencies in a Multichannel Environment," with 46 citations to its credit (Rajaobelina, 2017).

Moving further, Rajaobelina the top contributor in the field of "online customer experience", (figure 2), also has two papers among the top 20 most cited articles. Surprisingly, Rose, whose paper is the most cited, is not among the top contributors in this domain (figure2). Also, Brun who stands next on the list amongst the top contributors, has collaborated with Rajaobelina in the paper titled "Impact of customer experience on loyalty: a multichannel examination," which is included in the top 20 most cited articles.

The "Journal of Research in Interactive Marketing" has the maximum reoccurrence in the list of 20 top-cited articles, followed by the "Technological Forecasting and Social Change" and "International Journal of Information Management." However, on the contrary, only the "Journal of Research in Interactive Marketing" is covered in the list of top 10 journals which published the maximum number of articles in the domain of "Online customer experience" (Table 1). Also, the top-cited article "Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes," with 468 citations (Rose et al., 2012a) which has been published in the "Journal of Retailing" is not included in the list of top 10 journals with the maximum number of publications in the domain of "Online customer experience." Hence, it may not be necessary that the journals publishing the maximum number of articles in a particular field can also be credited with the most cited papers.

The United States of America tops the list of countries with the most cited articles, which is also in line with the top countries publishing the maximum number of articles in the field of "Online customer experience" (figure 5). Next is Australia, followed by the United Kingdom, France, China, and Canada. China is the only developing economy amongst the list dominated by developed countries credited with the most cited articles. India, despite being 3rd amongst 10 countries publishing the maximum articles in this domain, finds no place in the list of 20 most cited papers.

Amongst the top 20 most cited articles, most papers have used quantitative techniques for data collection, thus highlighting the advantage of quantitative methodology over other data collection techniques.

The functionality and psychological factors identified from the top 20 most cited articles are being segregated for the sake of understanding/evaluation.

Functionality factors: These factors, as listed below, are related to products/services or websites and directly/indirectly impact the customer experience.

- | | |
|--|---------------------------|
| • Ease of Use | • Perceived Benefits |
| • Perceived Usefulness | • Speed of Interactivity |
| • Customizations. | • Aesthetics |
| • Multi-Device Compatibility | • Telepresence Challenge |
| • Usability | • Personalization, |
| • Product Presence | |
| • Easiness to locate the website and app | • Webpage Design elements |
| • Utilitarian features | • Telepresence |
| • Enjoyment | • Social Interactions |
| • Level of Challenge | • Hedonic Features |
| • Social Support | • Focused immersion |
| • Heightened enjoyment | • Curiosity |

Psychological factors: The factors, as listed below, are the ones that impact or influence

GBR	consumer behavior or decision-making.	
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40	<ul style="list-style-type: none">• Trust• Repurchase Intention• Repeat Purchase• Continuance Intention• Customer purchase• Value for Money• Behavioral intention• Sense of Community	<ul style="list-style-type: none">• Satisfaction• WOM• Brand Engagement• Sustainable and Social relationship• Customer loyalty• Community Engagement• Brand equity• Customers Attitude

"Ease of use" is the most commonly used functionality factor in the list of 20 top-cited articles and is essential for a seamless and memorable customer experience, particularly in an online environment. When a product or service is easy to use, its adoption and continuous use become effortless, and more and more customers adopt it.

Amongst the psychological factors, the most influential among the 20 top-cited articles is "Satisfaction and Trust," which is critical for a seamless, memorable, and comprehensive online customer experience. Satisfaction leads to "continuance intention" and "customer loyalty," as per the extant literature. Since the cost of acquiring a new customer is five to twenty-five times higher than the cost of retaining an existing one, organizations need to focus on retaining existing customers (Gallo Amy, 2014). Thus "Satisfaction" is an important critical factor for repurchase intention.

"Customer experience" is a multidisciplinary study that focuses on the different dimensions as proposed by many authors (Lemon and Verhoef, 2016). Surprisingly, amongst the top-cited 20 papers, dimensions have generally not been considered, barring articles titled "Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes," "Re-examining online customer experience to include purchase frequency and perceived risk," "Creating effective online customer experiences," "Using netnography research method to reveal the underlying dimensions of the customer/tourist experience" and "Impact of customer experience on loyalty: a multichannel examination." The most commonly used dimensions in the list of 20 top-cited articles are "Cognitive and Affective." The moderating variables used amongst the top 20 most cited articles are product type, brand trustworthiness, the impact of channels (branch/agency and online), and customers' prior experience in co-innovation projects. The mediating variable "perceived control," "perceived risk," and "community engagement" have been used in a few papers.

Very few papers among the 20 top-cited articles have used any theoretical framework to support their findings. S-O-R framework, Theory of Consumption Values and Developmental Psychology, Service Ecosystem theory, Kaplan's theory of Environmental Preferences, and Technology Acceptance Model are the few theoretical frameworks used to support the findings.

5. Discussions

5.1 Implications

The study findings have implications, which will be offered as research directions in the following section. This study used bibliometric analysis to evaluate the extant literature, and its findings will significantly benefit academicians and industry practitioners interested in the "online customer experience" field. The paper concludes that there is a rising trend since 2007 when the first paper was published in this domain, and also, there is tremendous potential for further research in this area. Further, it is crucial to note that, amongst the top 20 most cited articles (table 3), most of the papers were published during 2012-2019, which substantially falls under the stabilization phase. (figure1)

"Journal of Retailing and Consumer Services" is the most influential journal in the domain of online customer experience (table 1); hence, researchers and industry practitioners interested in this area can tap this journal.

During 2012-2019, the studies generally used quantitative techniques for data collection, as compared to the qualitative, mixed-method, and theoretical/conceptual approaches.

Researchers interested in this area henceforth should focus more on qualitative or mixed methodological approaches.

Researchers and young scholars interested in the domain of "Online customer experience" may refer to the works of Lova Rajaobelina, who tops the list with the maximum number of published articles (figure 2), and also to the top-cited article "Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes" by Rose for conceptual understanding in this domain (table3).

As far as social and economic implications are concerned, it is clearly understood that the only differentiation in this competitive world could be managed just by "staging experiences," as product/service features can not only be replicated but even improved upon. As per the study, out of the top ten countries (figure 4) which have published the maximum number of articles in this domain, the majority of them are developed economies, barring India and China. Hence, the evident influence of American and European economies in the domain of "online customer experience" signals a massive opportunity for researchers, academicians, and industry practitioners in other parts of the globe to carry out further research, for a better understanding of the field of "online customer experience."

Industry professionals who are working in the domain of online customer experience could also use this study to identify the maximum number of articles published per year and journal wise, which will help them take a walk through it. Further, practitioners with the help of this article could identify and collaboration with the most prominent authors working in this domain and aid in the formulation of better customer experience strategies. Also, this article highlighted the universities and the country where online customer experience is most talked about, this could benefit the practitioners in cross-country collaboration and gaining a better understanding of different contexts. In addition to it, this study showed the keyword occurrence, which could benefit by focusing on key areas such as sales, satisfaction, customer engagement, service quality, e-commerce and retailing, etc. Practitioners could link each of these with online customer experience. Further, the functionality and psychological factors were identified, and working on these can benefit in providing a seamless and memorable customer experience.

This paper made some theoretical contributions to the literature. It evaluated the trends in the "online customer experience" domain and identified "three clear phases" in the overall journey (figure1). The paper further sheds light on the prominent authors (figure 2), the influential countries (figure 4), top journals (table 1) & affiliations (figure 3). The paper evaluated the interrelated patterns of "keywords" in online customer experience (figure 6) and also did the content analysis of 20 top-cited articles (table 3). Lastly, the paper proposed future research directions to help budding researchers in this domain.

5.2 Future research directions

From the above analysis, future research directions can be inferred. Amongst the top 20 most cited articles (table 3), very few papers have used any theoretical framework to justify their finding, and most of the theories have psychological backing or technological/environmental aspects. Hence, it is suggested that future researchers, academicians, and practitioners should use a theoretical framework to justify their findings. Secondly, young scholars pursuing work in the domain of "Online customer experience" should focus on developing theoretical models that can work across geographies and demographics in multidisciplinary fields.

Amongst the 20 most cited papers (table 3), the methodology used is majorly quantitative, and hardly any articles have used qualitative, mixed-method, and theoretical approaches in the field of online customer experience. Therefore, future researchers should focus more on using either of the methodologies i.e. qualitative, mixed-method, or theoretical.

Amongst the top 20 most cited articles (table 3), most of the authors are from developed nations, barring China and Malaysia. Future researchers from developing economies, including India, have a tremendous opportunity to carry out further research in the "Online customer experience" field.

"Consumer Experience" is a multidimensional subject; however, from the content analysis (table 3), it is inferred that very few papers have used "dimensions" to evaluate the same, hence, comprehensive evaluation of the results is difficult; therefore, scholars willing for

GBR Vol. 19	further research in this domain, should for sure, evaluate "online customer experience" using "dimensions."
42	As the world moves to the digital era, researchers should explore the influence of staging "Online consumer experience" in a business-to-business (B2B) environment. Future bibliometric studies in this domain can use more sophisticated, multivariate statistical tools and their papers should also cover co-citation analysis and bibliometric coupling.

6. Conclusion

This paper evaluated the trends and proposed future research directions in the "online customer experience" domain based on bibliometric analysis. The study analyzed the extant literature for the last 15 years, i.e., from 2007 to 2022, and the results using tables and co-occurrence plots are presented for the top journals, countries, authors, affiliations, subject area, and keywords. Content analysis for the top 20 most cited articles is also performed to provide a comprehensive picture of the evaluation of data collection strategy, research objectives, antecedents, outcomes, dimensions, mediating/moderating variables, and theoretical framework. The conclusion is as follows:

Bibliometric results show that the year 2007, 2015, and 2020 are crucial years, representing three distinct phases in the research on "Online Consumer Experience". The year 2021 had the maximum number of publications, due to the impact of the COVID-19 pandemic, which encouraged researchers to focus on this domain. The USA, followed by China leads the way in terms of literature volume. India stood at the third position due to the tremendous growth of ICT and the focus of government on digitalization.

The authors with the maximum publications in this domain are Lova Rajaobelina and Isabelle Brun. The leading journal in this category is the "Journal of Retailing and Consumer Services," followed by the "Journal of Research in Interactive Marketing". Loyalty, satisfaction, customer experience, repurchase intentions, consumer behavior, social networking, product design, sentiment analysis, data mining, web design, website, Omni- channel, and perceived value are the "keywords" observed in this domain.

The content analysis of 20 top-cited articles shows that the paper titled "Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes" (Rose et al., 2012) followed by "Re-examining online customer experience to include purchase frequency and perceived risk" (Martin et al., 2015) tops the chart in terms of citations. The "Journal of Research in Interactive Marketing", followed by the "Technological Forecasting and Social Change" and "International Journal of Information Management" have the maximum reoccurrence in the list of 20 top-cited articles. The United States of America tops the list of countries with the most cited articles, followed by Australia. India, despite being 3rd amongst 10 countries publishing the maximum articles in this domain, finds no place in the list of 20 most cited papers.

Satisfaction and Trust, and Ease of use are the commonly used psychological and functionality factor in the list of 20 top-cited articles. Surprisingly, "dimensions" have generally not been considered in the 20 most cited papers, and also very few of them have used any theoretical framework to support their findings.

As far as future research trends are concerned, the study put forward that consumer in present times, across all geographies and demographics, seek out-of-the-box experiences; hence staging "memorable experiences" is of utmost importance for any organization to remain ahead of others; thus, as the world transcends towards "Experience Economy" researchers and industry practitioners must carry out further study in this domain.

Like previous research articles in this domain, this paper also has its limitations. Since this paper was based on the bibliometric analysis, it was restricted to specific subject areas, "business, management accounting" and "economics, econometrics, and finance" thus, future researchers could further explore other subject areas to broad base the study. This paper covers the whole domain of "online customer experience"; however, future studies could focus on specific industries like tourism, banking, retail, or entertainment. Next, the paper covers the bibliometric analysis of papers in English; thus, other language papers could also be included in future studies.

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Table 3: Top 20 most cited papers

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
1	Online Customer Experience in e-Retailing: An empirical model of Antecedents and Outcomes	(Rose <i>et al.</i> , 2012b)	Journal of Retailing	468	Survey	United Kingdom	To identify the components of OCE and to develop a theoretical model of OCE based on a pre-existing theory of customer purchase intention	Telepresence, Level of Challenge, Skill, and Speed of Interactivity, Aesthetics, Perceived Benefits, Ease-of-Use, Customization, Connectedness, Online Shopping Satisfaction, Trust in Online Shopping, and Online Repurchase Intention	Cognitive and Affective	Mediating effect of Perceived Control	S-O-R framework
2	Re-examining online customer experience to include purchase frequency and perceived risk	(Martin <i>et al.</i> , 2015b)	Journal of Retailing and Consumer Services	130	Survey	Australia	To examine the relationship of OCE variables across two important groups; frequent and infrequent online shoppers, to investigate the impact of perceived risk for the two groups.	Telepresence, Challenge, Aesthetics, Perceived Benefits, Ease-of-Use, Customization, Connectedness, Satisfaction, Trust, Perceived Risk, and Repurchase Intentions	Cognitive and Affective		-

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
3	The case of Amazon.com: Towards a conceptual framework of online customer service experience (OCSE) using the emerging consensus technique (ECT)	(Klaus, 2013)	Journal of Services Marketing	124	Interviews	France	To explore what constitutes OCSE in the chosen context, develop a conceptual framework of OCSE, Explore the dynamic nature of OCSE	Usability, Product Presence, Communication, Social Presence, Interactivity, Context Familiarity, Trust, and Value for Money			
4	Towards a unified customer experience in online shopping environments: Antecedents and outcomes	(Bilgihan <i>et al.</i> , 2016)	International Journal of Quality and Service Sciences	120	Theoretical	United States	To develop a theoretical model for a unified online customer experience by drawing from related literature on consumer behavior in the online contexts	Easiness to Locate the Website and App, Ease of Use & Usefulness, Hedonic & Utilitarian Features, Enjoyment, Personalization, Social Interactions, Multi-device Compatibility, Word of Mouth, Repeat Purchase, and Brand Engagement			

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
5	A mixed-method approach to examining brand-consumer interactions driven by social media	(Rohm <i>et al.</i> , 2013)	Journal of Research in Interactive Marketing	108	Mixed-method approach	United States	To analyze the role of social media platforms such as Facebook and Twitter among younger consumers in their interactions with brands.				
6	The impact of customer experience and perceived value on sustainable social relationship in blogs: An empirical study	(Chen and Lin, 2015)	Technological Forecasting and Social Change	93	Survey	Taiwan	To propose a model to understand and examine the formation of sustainable social relationships and the continued usage of blogs in marketing contexts	Sense experience, feel experience, think experience, Act experience, Relate experience, Satisfaction, Continuance intention, Sustainable social relationship			

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
7	Creating effective online customer experiences	(Bleier et al., 2019)	Journal of Marketing	78	Field experiment	Germany	To investigate how unique design elements, across experiments, shape four dimensions of the online customer experience and thus influence purchase	Web design elements, Customer Purchase	Informativeness (Cognitive), Entertainment (Affective), Social Presence (Social), Sensory Appeal (Sensory)	The moderating role of Product Type (search vs. experience) and Brand Trustworthiness	
8	Making Omni channel an augmented reality: the current and future state of the art	(Hilken et al., 2018)	Journal of Research in Interactive Marketing	70	Theoretical	Netherlands	To explore the current and future roles of augmented reality (AR) as an enabler of Omni channel experience across the customer journey				

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
9	Using netnography research method to reveal the underlying dimensions of the customer/tourist experience	(Rageh <i>et al.</i> , 2013)	Qualitative Market Research: An International Journal	70	Netnography method	Malaysia	To identify the underlying dimensions that constitute the constructs of customer experience.		Comfort, Educational, Hedonic, Novelty, Recognition, Relational, Safety, and Beauty		
10	Why do teens spend real money in virtual worlds? A consumption values and developmental psychology perspective on virtual consumption	(Mäntymäki and Salo, 2015)	International Journal of Information Management	69	Survey	Finland	To evaluate what value, do teenagers create by purchasing virtual items and premium user accounts in a social virtual world and how this relates to their developmental stage				Theory of Consumption Values and Developmental Psychology

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
11	Online grocery shopping: the impact of shopping frequency on perceived risk	(Mortimer <i>et al.</i> , 2016)	International Review of Retail, Distribution, and Consumer Research	67	Survey	Australia	To examine the specific relationship between online shopping satisfaction, trust, and repurchase intention, across two groups, frequent and infrequent online grocery shoppers, to investigate the impact of perceived risk	Online Shopping satisfaction, Trust, Online Repurchase Intention		Mediating effect of Perceived Risk	
12	Understanding relationships among customer experience, engagement, and word-of-mouth intention on online brand communities: The perspective of service ecosystem	(Zhang <i>et al.</i> , 2017)	Internet Research	66	Survey	China	To investigate what and how customer experience elevates customer engagement and consequent word-of-mouth intention on online brand communities	Social Support (Informational support and Emotional support), Social Presence, Flow, Community engagement, WOM engagement.		Mediating effect of Community Engagement	Service Ecosystem theory

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
13	The future of omnichannel retail: A four-stage Delphi study	(von Briel, 2018)	Technological Forecasting and Social Change	64	Delphi technique	Australia	To perform a four-stage Delphi research with 18 retail professionals to determine the significant trends, major obstacles, key technologies, and primary customer touchpoints that will emerge in Omni channel retail over the next 10 years.				
14	The influence of website customer experiences, perceptions and behavioral intentions: An exploration of 2D vs. 3D web design	(Visinescu <i>et al.</i> , 2015)	Information and Management	57	Survey	United States	To elaborate on previous research and look at how 3D environments affect psychological and perceptual variables that have been found to impact online shopping behaviors	Perceived Usefulness, Perceived Ease of Use, Behavioural Intention, Cognitive Absorption-Temporal Disassociation, Focused Immersion, Heightened Enjoyment, Curiosity			Kaplan's theory of Environmental Preferences, Technology Acceptance Model, Cognitive Absorption Nomological net

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
15	Impact of customer experience on loyalty: a multichannel examination	(Brun <i>et al.</i> , 2017b)	Service Industries Journal	53	Survey	Canada	To investigate the relationship between Schmitt's five aspects of customer experience and loyalty. The research focuses on two distinct channels: branch/agency (physical) and internet (Web-based)	Customer Loyalty	Cognitive, Affective, Sensory, Behavioural, and Social	Moderating impact of Channel (Branch/agency and online)	
16	Motivations for customer engagement in online co-innovation communities (OCCs): A conceptual framework	(Zhang <i>et al.</i> , 2015)	Journal of Hospitality and Tourism Technology	53	Prior literature and applicable business practices	United States	To extend the present understanding of the OCC concept as a unique business innovation model	Brand Equity, Sense of Community and Monetary Incentives and Customers' Attitudes		The moderating role of Customers' prior Experience in Co-Innovation projects	

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
17	Exploiting user experience from online customer reviews for product design	(Yang <i>et al.</i> , 2019)	International Journal of Information Management	52	Online textual customer reviews	China	To develop a computational approach that can be utilized to build a UX knowledge base from online reviews for product design				
18	Exploring the role of the online customer experience in firms' multi-channel strategy: An empirical analysis of the retail banking services sector	(Klaus <i>et al.</i> , 2013)	Journal of Strategic Marketing	52	Interviews	France	To synthesize existing retail banking service literature, explore current online channel retail banking service strategies and practices to ascertain and classify practices and investigate the role of the online customer experience, particularly focused on social media in a multi-channel environment				

Rank	Title	Author & Year	Journal	Citations	Data Collection	Country	Objectives	Variables	Dimensions	Moderating / Mediating variables	Theory
19	Online shopping experience in an emerging e-retailing market	(Izogo and Jayawardhena, 2018)	Journal of Research in Interactive Marketing	48	Nemography and conversation analysis	United Kingdom	To look into the drivers and consequences of OSE, as well as to gain a better understanding of how individuals act in group scenarios through a qualitative research approach that is naturalistic and unobtrusive				
20	The Impact of Customer Experience on Relationship Quality with Travel Agencies in a Multichannel Environment	(Rajaobelina, 2017)	Journal of Travel Research	46	Survey	Canada	To investigate the influence of the customer experience on the quality of relationships with travel agencies in a multichannel context (in-store and online)	Think, Feel, Act, Sense, Relate, and Relationship Quality			

The Role of Teachers in Moderating the Impact of Bullying on Academic Achievements Amongst Gen-z Through Psychosomatic Well-being

The Role of Teachers in
Moderating the Impact of
Bullying on Academic
Achievements
55

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Abstract

Purpose: Indian learning system is exceedingly modest since the inception of knowledge with a prominent thrust on academic performance. This article aimed to put some light on prevalent issues in the higher learning atmosphere across the University eco-system in Indian context. This study measured the impact of various bullying types (Verbal, Cyber, Relational and Physical) on psychosomatic well-being of Gen-Z which impacted to academic achievements along with teachers' role as moderating variable.

Design/Methodology: A Cross-sectional research was conducted by using self-administered questionnaires. The participants considered were from Gen-Z from Maharashtra, India. The survey piloted in between the August, 2021 to December 2021 semesters. The SPSS-Amos 24.0 version was used for inferential analysis to check for significant results of the variables undertaken in the study. The sample of (n=305) was drawn with convenience sampling from the population.

Results and Findings: The completed surveys were obtained from a targeted sample of 305 Gen-Z. The males accounted for 72.8 percent, while females for 27.2 percent. The bullying categories had a significant favorable influence on psychosomatic well-being. Further, results from this study demonstrate a positive and significant impact of psychosomatic well-being on academic achievements; however, the teacher's role as moderator also reveals positive impact on it.

Directions to future research and Limitations: The study's most significant limitation was its sample size. It does, however, provide important and valuable insights into student teaching-learning mechanisms. The second limitation was cross-sectional research design impedes the analysis of directionality of association among psychosomatic well-being and academic achievements. The implications of this study could be such as-developing conducive learning environment, new counseling strategies identifications. Moreover, future researchers can study more dimensions likewise gender as a moderator and Bystander Intervention Model implementation for bullied victims.

Originality/Value: Present study enhances the domain of existing literature by investigating the effect of a bullying on Gen-Z with respect to psychosomatic well-being and academic aspects. These dimensions were particular as Verbal Bullying (VB), Cyber Bullying (CB), Relational Bullying (RB), and Physical Bullying (PB) and psychosomatic well-being effectively explored; hence, the emphasis is on teachers' role in as effective medium to manage the motivation of depressed or bullied students with suggested measures such as career counseling and inculcation of ragging as a syllabus in curriculum in Indian settings.

Keywords: Academic achievements, Bullying types, Psychosomatic well-being, Teachers' role, Gen-Z, University

Paper type: Research paper

1. Introduction

In today's education world the tech-savvy students are engaged phenomenally in learning but sometimes they are feeling an environment of stress. A segment of students i.e. Gen-Z is the foremost group where, anxiety statuses are the important cause of the degradation of academic performance (Nelson et. al., 2012; Kuh., 2008; Hunter and Linder 2005). The term



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bullying is an attention seeker and fascinating among Gen-Z. It is befalling everywhere such as family, schools, colleges, universities and workplaces. Enormous researches have noticed that schools, colleges and universities are highly noticeable spots where the recurrence of bullying is high (Al-Ali and Shattnawi, 2018; Holt et. al., 2017; Raskauskas, J., and Modell, 2011; Omoteso, 2010; Allen, 2010; Kartal, H., and Bilgin, 2009 and Jankauskien et. al., 2008). Maliki et al., (2009) also noticed that learning institutes are becoming insecure place for the students. A survey report published in Times of India (2017) revealed that 54 percent boys and 46 percent of girls reported the complaint of bullying during their school days. Additionally, an annual survey done by Ditch Label (2020) on bullying reflected that only 7 percent of students bullied verbal, 43 percent physical and 50 percent bullied by cyber. This attracts the attention of researchers, academicians, and practitioners to break down the existence of bullying at school, college and university level.

Bullying reflected as "recurrent acts of inexcusable hostility that are disturbing psychosomatic well-being of sufferer and where the strength is not equal" (Jankauskiene et. al., 2008). In other words, bullying refers to viciousness that hurts bullied victim and it recurrence at school amid numerous events when a student or set of students utilizes their power in harming individual or group (Coloroso, 2002; Schuster, 1996 and Olweus, 1993). Researchers (Rose and Monda, A 2011; Raskauskas and Modell, 2011) demarcated bullying is very dangerous for psychosomatic well-being (PWB) and found as a serious problem amongst students. Fundamentally, it has an adverse impact on scholar's academic, psychosomatic and community advancement (Ttofi and Farrington, 2011 and Kartal and Bilgin, 2009). Consequently, Allen (2010) highlighted that teacher comprehend bullying elements and results notwithstanding what they can do to reinforce their students in such circumstances. Moreover, Samara et al. (2020) fostered that transparent communication between parents, child and school management lead sound mental well-being of student. After analyzing the previous literature, it is diagnosed that bullying is a major issue in Gen-Z. With respect to it, the current research paper is focusing on the effect of bullying on psychosomatic well-being of Gen-Z which impacted on their academic achievements. The paper also analyzed the role of a teacher as a moderator between psychosomatic well-being of Gen-Z and their academic achievements.

2. Objectives

The primary goal of this study is to look into the effects of bullied students from various backgrounds, as well as to examine the influence of different types of bullying on various aspects of psychosomatic well-being.

The following research questions of this study are:

RQ1. Did there is the existence of students' bullying types in University/College campuses?

RQ2. Is there any link between the forms of bullying students engage in and their psychosomatic well-being?

RQ3. Was the impact of psychosomatic well-being on academic achievements leads to lower academic performance of students?

RQ4. Was the role of a teacher coming as a significant moderator between students' psychosomatic well-being and academic achievements?

Hypotheses Creation and Conceptual Framework

The current study attempted to investigate the existence of bullying types and their impact on psychosomatic well-being of Gen-Z with moderating role of a teacher.

3. Review of PWB and Bullying Types

Bullying got the attention of researchers and became a globalized concern which affecting the physical, psychological and communal well-being of a person (Samara et. al., 2020; Kowalski et. al., 2016). A plethora of previous researches (Stubbs- Richardson, M., & May, D. C., 2021; Chen et. al., 2020; McCuddy, T., and Esbensen, F. A. 2017; Pham and Adesman 2015) indicated that bullying is a construct of four different sub-elements namely Verbal Bullying (VB), Physical Bullying (PB), Cyber Bullying (CB) and Relational Bullying (RB). Furthermore, researchers (Omoteso, 2010; Quiroz et al., 2006; O'Connell et al, 1999; Colvin et

al, 1998 and Olweus D., 1993) recognized bullying as a hostile or unsocial behavior through-beating, threatening, hitting, bad name calling, abusive, commenting), social isolation, spreading rumors, ignorance etc.

Moreover, bullying is exaggerated by both direct and indirect ways (Bjärehed, et. al., 2020; Dedousis et. al., 2014; Smith et. al., 2012; Brighi, et. al., 2012; Carbone et. al., 2010; Agervold, 2007; Gardner & Johnson, 2001; Rayner et. al., 1999; O'Moore, Seigne, Smith & McGuire, 1998). Indirect hostility revealed through Relational bullying (social isolation, backbiting, whispering), while direct hostility indicates through Verbal bullying (embarrassment at public place, bad mouthing, allegation) as well as Physical bullying (hitting, threatening and pushing). Apart from this traditional bullying (VB, PB and RB); Cyber bullying (CB) is also becoming prominent way for the harassment of Gen-Z. It comprises by sending different obscene message, e-mails and videos through the new mode of communication (Cross et. al., 2015; Patchin, J. W. and Hinduja, S. 2015; Hinduja and Patchin 2014; Litwiller et. al., 2013). Enormous researchers (Romero-Reignier et. al., 2022; Chui et. al., 2022; Samara et. al., 2020; Anasori et. al., 2020; Wolke et al., 2015; Evans et al., 2014; Gini and Pozzoli 2009; Zapf; Einarsen and Mikkelsen, 2003; Einarsen, Hoel, and Vartia, 2003; Hawker and Boulton, 2000; Sharp, Thomson and Arora, 2000) diagnosed an adverse impact of parents' dissension and bullying victimization on the psychosomatic well-being of students, adolescents and refugee children. They also pointed out that this poor psychosomatic well-being impacted their self-admiration, interpersonal relationship, academic performance and emotional balance.

Furthermore, Conway et al., (2021) extended literature review revealed that workplace bullying acted as catalyst for stress, depression, psychological unwell-being, and anxiety of human-beings. Bullied persons have high suicidal tendency as compared to non-bullied (Skapinakis et. al., 2011). These research questions were revised as the subsequent null hypotheses, which can be either supported or rejected after data analysis. The underpinned null hypotheses constitute bullying as a major variable. Hence, these hypotheses are measuring the effect of bullying on psychosomatic well-being.

H01: There is no significant effect of verbal bullying on psychosomatic well-being.

H02: There is no significant effect of relational bullying on psychosomatic well-being.

H03: There is no significant effect of cyber bullying on psychosomatic well-being.

H04: There is no significant effect of physical bullying on psychosomatic well-being.

4. Review of Psychosomatic well-being and Academic achievements:

Psychosomatic well-being is a state of mind of a person when he is depressed, stressed and anxious. Previous research studies proven that bullying are a predictor for poor psychosomatic well-being. In this regard the present research is an attempt to analyze the impact of psychosomatic well-being on academic achievements of Gen-Z. A plethora of research studies giving an insight into it. Across world 10-15 percent of students are bullied twice or thrice in a month (Chaux et. al. 2009). Researchers (Reid, Monsen and Rivers, 2004; Twemlow, Fonagy, and Sacco, 2001) postulated that bullying influenced school, college and university culture negatively which impacted students' psychosomatic well-being like fear, anxiety, depression, suicidal thoughts. This poor psychosomatic well-being resulted in students' absenteeism rate, low self-esteem, distraction and poor academic performance (Juvonen, et. al., 2014; Turner et. al., 2013; Brank et. al., 2012 and Camodeca and Goossens 2005). Moreover, bullied victim felt unrest, anxiety and afraid from school/college because they perceived themselves unsafe at their place (Block, 2014; Mehta et. al., 2013; Roman and Murillo, 2011; Konishi et. al., 2010; Skrzypiec; 2008; Glew et. al., 2005).

Bullied victims were less ambitious and de-motivated towards their academic excellence and success (Laith and Vaillancourt, 2022; Samara et. al., 2021; Shukla et. al., 2016; Young-Jones et. al., 2015; Kokkinos and Kipritsi, 2012; Thijs and Verkuyten, 2008). On the basis of this discussion, the hypothesis can be frame as follows:-

H05: There is no substantial effect of psychosomatic well-being on students' academic achievements.

5. Review of Teachers' moderating role in psychosomatic well-being and academic achievements:

Teachers are considered as role models for their students. Enormous research indicated that

teachers are acting as catalyst in managing bullied victims' psychosomatic well-being, social life, sound academic excellence and prosperity (Lee et. al., 2022 and Samara et. al., 2020; Vedder, Boekaerts, and Seegers, 2005; Brewster and Bowen, 2004; Colarossi and Eccles, 2003; Malecki and Demaray, 2003). They suggested that teacher emotional support, post school clubs' activities, anti-bullying policies, and positive school climate worked a lot in maintaining psychosomatic well-being and well-being of bullied victims. Moreover, Affuso et. al., (2022) highlighted parents' and teachers' emotional support improvises motivation and self-esteem of bullied victims which influenced their academic success and performance positively. Furthermore, researchers recognized that if teacher is supportive and caring then bullied victims had minimum well-being issues and are less likely involved in abusive behavior like drinking alcohol, smoking, tobacco, and drugs consumption (McNeely and Falci, 2004). Students who had bullying incidents regularly and received less social support resulted in the poor level of well- being (Rigby, 2004). On the contrary, researchers (Fischer et. al., 2021; Doll et. al., 2004 and Bosworth et. al., 1999) propounded that teachers' empathetic behavior is not having an impact on bullied students' psychosomatic well-being. It was investigated that students were not shared their bullied incidents with their teachers because of teachers non-seriousness. Non-bullied students received high social sustenance from their teachers as compared to the bullied victim (Alasker, 2006; Demaray and Malecki, 2003). On the basis of the above literature, for the present research the following hypothesis can be formulated: H06: Teacher role does not account as a moderator amongst psychosomatic well-being and academic achievements.

On the basis of above discussion and hypotheses formulation, it is noticed that bullying is a construct of different types of bullying (VB, PB, RB and CB). Furthermore, it was assessed that these types of bullying have an adverse impact on psychosomatic well-being. Research also indicated that poor psychosomatic well-being created disturbance in the life of Gen-Z in different ways. Some researchers also talked about the role of a teacher in giving support to the bullied victim. On the basis of previous literature the following conceptual framework has been created for the current study.

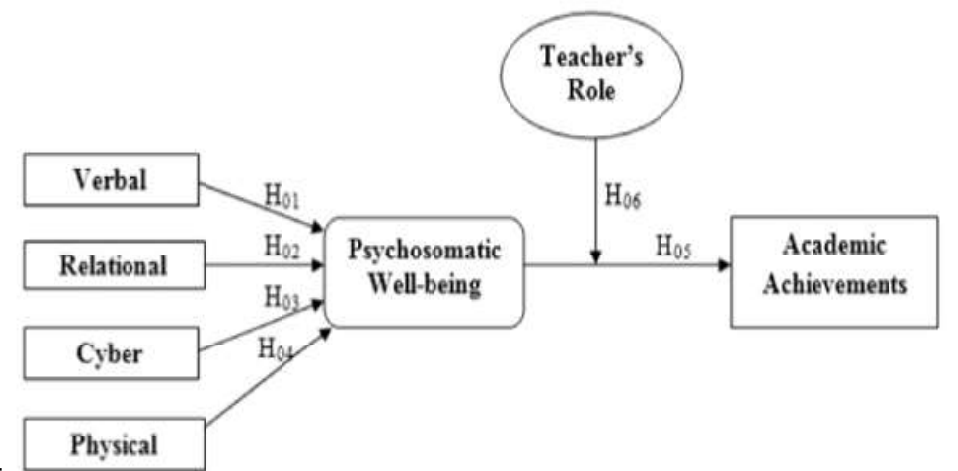


Figure 1.
Researchers conceptual
model based on literature

6. Research Methodology and Model Description

Data

The study considered a random sample of 305 participants from management institutes located in Maharashtra, India. The self-structured questionnaire was circulated to Gen-Z (sampling unit) from major cities of Maharashtra. The university having minimum 400 students registered in management programme have been considered as criteria for selection of sampling unit. The data collection tool i.e. questionnaire was disseminated by e-mail and physical distribution. The sampling method employed was random. 310 questionnaires were distributed as in person along with 950 questionnaires e-mailed to the targeted respondents. Out of 1260 only 379 responses were gathered and after eliminating 74 incomplete and

partially filled questionnaires, constituting 30.07 % response rate for the current study.

Variables (Measures) Used in study

The variables for bullying were defined as cyber (CB), relational (RB), physical (PB) and verbal (VB).The variable such as PWB and AA were pivotal constructs in the study. For the independent variables, PWB and the bullying types are affecting the dependent variable AA. The variable (PWB) is the principal mind set at people usually feel anxiety, depression, anger and threaten and could have an adverse impact on their academic progress or achievements. All variables explained in theoretical framework as described earlier in one of sections. The items which has been drawn for each contributing variable has been explained in Table 2

The construct bullying has four sub-constructs like CB, RB, PB and VB. each type of bulling has 3 items or statements mentioned in Table 2. Moreover, one of the pivotal moderating variables is teachers' role (TR) could be estimated by either good as group 1 or bad as group 2. TR was estimated by probing the students to specify the degree which they supposed that PWB could affect AA keeping TR as moderator. Lastly, PWB has six items in data collecting instrument affecting the AA, which has five items.

Instrumentation

This section deals with a self-constructed questionnaire to search the answer of research questions. The preliminary segment have overall data and figures about the study and pursued basic demographical information determinants; gender, age, education, and university residents. The data collecting tool consists of information about students in terms of bullying types like CB, RB, PB and VB associated with PWB and AA (23 items), for which the respondents were enquired to specify their response for each of bullying type behavior by giving preference on five point Likert scale; always as 5; frequently as 4; occasionally as 3; rarely as 2 and never as 1. Every continuum of scale was apportioned a unique value to expedite the data exploration. The values for which are displayed in Table 2. In the last section, named "bullying types," facts were pursued. This section had several pivotal subsections: bullying types, psychosomatic well-being and academic achievements. Participant Responses were chronicled on a five-point Likert scale.

Research Methodology adopted

This section deals with the data collection procedure as first step towards research methodology involved in the current article. The sampling unit is basically Gen-Z in higher educational institutes. The participants were Gen-Z from different universities and colleges located in Maharashtra, India. The survey has been piloted in between August, 2021 to December 2021 semester. For survey students from different institutions of Maharashtra, India has been taken. The Gen-Z was targeted with convenience sampling. The survey was administered in bilingual language (Hindi and English) to deduce reachable to Gen-Z. The intent of the survey tool was made very clear to Gen-Z in terms of aspects like bullying, PWB, AA and TR.

In current study, estimation of antecedents affecting PWB, and to measure the moderating effects of TR towards AA, Structural Equation Modeling (SEM) was used. Reliability analysis and Confirmatory Factor Analysis (CFA) was employed. Almost all questionnaires item was evaluated by imparting the maximum likelihood method. The consistency is measured by Reliability analysis as an estimating method for the consistency by measuring items in form of Cronbach's alpha.

Further, by employing CFA, which is used to assess whether restrained items of the model are reliable with predictor variables using covariance, we may comprehend the construct validity and relevance of the measurement model.

Structural Equation Modeling (SEM) could be employed to ascertain the validity of the theoretical model and cause-effect relationship among the variables statistically. The bullying is categorized in four categories rigorously CB, VB, PB and RB. The types of bullying are analyzed with respect to PWB, further measuring academic achievements amongst Gen-Z.

The primary objective is to ascertain the moderating effects of TR, for which it was suitable to impart SEM to evaluate diverse impact of moderators. Also study establishes the validity and casual relation of measurement model. The moderating impact of teachers' role by categorizing into two groups; teachers' role is classified as good teaching role and bad teaching role. Lastly moderator TR impact was assessed by employing 2 difference tests among the two models. SPSS 24.0 (IBM) for windows and AMOS 23.0 software (IBM) was incorporated.

7. Results and Implications

Demographical Characteristics of Respondents

The sample exhibits demographical information in Table 1. It also disseminates of participants by gender, age, education, and university residency.

Table 1.
Descriptive statistics for
Demographics

Variables	Items	Frequency	Percentage
Gender	Female	83	27.2
	Male	222	72.8
Age	Less than 18 years	14	4.6
	19 years to 21 years	160	52.5
	22 years to 24 years	131	42.9
Education	Graduate	202	66.2
	Post Graduate	89	29.2
	Others	14	4.6
University Resident	Hostlers	253	82.9
	Day Scholars	52	17.1

Gender measured in two categories namely female with 27.2 percent (n=83) and male 72.8 percent (n=222). Demographic age represents three sections in which category 19 years to 21years has maximum contribution 52.5 percent (n=160) as compared to remaining two categories. In terms of availing education the graduate category encounters highest 66.2 percent (n=202), while others contributes minimum 4.6 percent (n=14). Lastly, University residency plays significant part of this research work where hostlers category shows 82.9 percent (n=253) as compared to day scholars 52 percent (n=17.1).

Reliability and Validity Analysis

The term Reliability and Validity in this study was accomplished by the measurement model. After reliability analysis TR on AA has to be assessed. In this study, the suggested measurement model comprises of VB, RB, PB and CB. The CFA results show that the deliberate model fits the information in a critical manner. The model fit indices of CFA on normalized model are GFI=0.945; AGFI=0.918; CFI=0.905; IFI=0.902, RMR=0.038 and RMSEA=0.056), Standardized Regression Weights (SRW) for these things were under 0.5. Hence, these things were annihilated and CFA was achieved on the standardized model. Presenting to the results of CFA on altered or corrected model, all variables stacking are significant and all SRW are above 0.5 (allude Table 2).

Table 2.
Standardized estimates
and factor loading

Items	Estimate	Factor loading	t-statistic
VB3<VB	1.000	0.548	1.4140***
VB2<VB	1.018	0.714	14.178***
VB1<VB	1.184	0.795	14.097***
PB3<PB	1.000	0.878	3.134***
PB2<PB	1.098	0.769	24.717***
PB1<PB	0.989	0.786	23.244***
RB3<RB	0.988	0.787	22.144***
RB2<RB	1.012	0.746	24.175***
RB1<RB	.0884	0.519	17.197***
CB3<CB	1.000	0.678	1.312***
CB2<CB	1.371	0.901	26.548***
CB1<CB	0.778	0.616	13.614***

*** Statistically significant at 99 %

Moreover, the model fit indices such as GFI=0.948, the AGFI= 0.966, the NFI=0.972, IFI=0.978, and the RMR=0.021 of the modified model achieved the suggested threshold levels, so it is advisable that modified model is better than the standard model. On the basis of CFA, some selected items as VB, PB, RB and CB. The reliability analysis was also performed on each item, and found no problems with scales, because the values of alpha (α) are above 0.7 for all statements in table 3.

Variables	Statements	Cronbach alpha (α)	Sources of Statements drawn
Verbal Bullying (VB)	<ul style="list-style-type: none"> Mostly verbal bullying has taken place at your study place. I have been called by the name based on race, religion or ethnicity Someone has used abusive/insulting language at study place 	0.771	Wang, J., Iannotti, R. J., & Nansel, T. R. (2009)
Relational Bullying (RB)	<ul style="list-style-type: none"> How often has someone been left out of activities or have others refused to play/socialize with you at study place. I have been ignored by others People have told lies about you 	0.842	Wang, J., Iannotti, R. J., & Nansel, T. R. (2009)
Cyber Bullying (CB)	<ul style="list-style-type: none"> Someone is entering into your private page without your permission through the Internet. People using internet as a slandering tool against you. Someone spreading rumors about you through the Internet. 	0.867	Çetin, B., Yaman, E., & Peker, A. (2011).
Physical bullying (PB)	<ul style="list-style-type: none"> Sometimes pushed around, slapped or punched by others. I have been threatened by others. People had taken things from me. 	0.901	Wang, J., Iannotti, R. J., & Nansel, T. R. (2009)
Psychosomatic Well-being (PWB)	<ul style="list-style-type: none"> If you had felt miserable or depressed You Felt anxious You Felt as though you might have a breakdown Ever Had you felt difficulty falling asleep or staying asleep You ever suffered from nightmares You ever been experienced a twitching of your face, head or shoulders 	0.761	Kellner, R. (1987); Hesketh, T., Zhen, Y., Lu, L., Dong, Z. X., Jun, Y. X., & Xing, Z. W. (2010).
Academic Achievements (AA)	<ul style="list-style-type: none"> Bullying affected negatively yours' academic level Due to of Bullying the exam results were poor Bullying creates an adverse environment at study place Students' academic performance emerges due to Verbal abuse affected most Bullying dampens you to join classroom 	0.734	Choy, J. L. F., O'Grady, G., & Rotgans, J. I. (2012)

Table 3.

Survey statements and Cronbach alpha (α) after employing (CFA)

Results of the Standard Structural Model

The variables such as VB, RB, PB, CB, PWB, and AA were assessed for covariance structure analysis, constituting a total of 305 participants, and maximum likelihood technique, which is identified to be reliable and asymptotically effective when assessing the determinants of large samples as shown in figure 2.

GBR Vol. 19		Hypotheses	Path	Estimate	S.E	β	t-value (β/SE)	P	Decision
62		H1	PWB<-VB	.111	.114	0.2789	2.4464	.034	Accept
		H2	PWB<-RB	.236	.072	0.3972	5.5166	***	Accept
		H3	PWB<-CB	.206	.084	0.3161	3.7630	***	Accept
		H4	PWB<-PB	.317	.080	0.5797	7.2462	***	Accept
		H5	AA<-PWB	.933	.078	0.8107	10.3965	***	Accept
		H6	AA<- TR<PWB	.050	0.64	0.216	7.4425	***	Accept

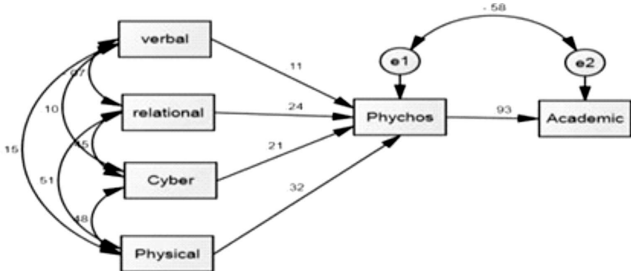
Table 4.
Results of the Standard Model.

Note: *** indicates significance at the 1% level.

The χ^2 measurement is the main statistic for estimating goodness-of-fit for conclusion that the model is apt as χ^2 estimator is low and the p-value of χ^2 is high. Here, the $\chi^2/df= 3.626/ 3$ i.e. CMIN=1.209. The model fit indices of the basic measurement model, were like the goodness-of-fit index (GFI = 0.928), adjusted goodness-of-fit index (AGFI = 0.910), normed fit index (NFI=0.993), relative fit index (RFI=0.965), Tucker Lewis index (TLI=0.994), comparative fit index (CFI=0.998), the root-mean-square residual (RMR = 0.028) and Root-mean-square error of approximation (RMSEA=0.026). Moreover, RMSEA value 0.026 which is less than 0.05 as p-value to be considered a very good model fit. The other model fit indicators like GFI, NFI, AGFI, TLI, and RFI were above 0.90, which is itself a good considerable model fit indices. Therefore, all indices of the modified model are apt for the concluding data analysis.

The research question "Did there is existence of students' bullying types in University" also justified as for all variables undertaken in study shows r above 0.5 i.e. 50 percent correlation coefficient. Further, the outcomes from inferential analysis about the effects of VB, RB, CB, and PB on PWB and PWB over AA are shown in Table 5. Mainly, the effect of VB on PWB was significant with positive ($\beta_{VB} = 0.0278, p < 0.01$). Consequently the, Hypotheses 1, "There is significant impact of verbal bullying over psychosomatic well-being was accepted. This comprehends that the verbal bullying is fair enough to affect the psychosomatic well-being of students. Second Hypothesis, "There is significant impact of RB over PWB was significant with path coefficients ($\beta_{RB} = 0.397, p < 0.01$) laid positive path from VB to PWB and hence hypothesis 2 was supported. Third, in the current study, the impact of CB is measured by questions about the pertinent reasons for cyber bullying. As per results, CB had a positive effect on PWB, and the path coefficients was significant ($\beta_{CB} = 0.316, p < 0.01$). Hence, Hypothesis 3, "there is a significant effect of CB over PWB found significant. Similarly for Hypothesis 4, "there is significant effect of PB over PWB shows that higher the physical bullying leading more psychosomatic well-being disorders among the students and significant ($\beta_{PB} = 0.579, p < 0.01$). Moreover, among the four contributing (latent) variables in research, PB had the most significant effect on PWB and accounts for the maximum β value. Lastly, Hypothesis 5, "there is a significant effect of PWB on AA found significant with ($\beta_{PB} = 0.810, p < 0.01$) and hence it also positive with standard regression weights 0.933. Thus, the Hypothesis 5 was supported. Figure-2 depicts the structural model.

Figure 2.
Structural model



8. Results of the Moderating Effects of Teachers' role (TR)

Teaching Role as Moderator

The technique of multiple group analysis (MGA) was performed to assess the moderating effects of teachers' role on academic achievements. The techniques of MGA mainly investigate the variance of path coefficients amongst two unique groups (Bae, B. 2011). In this article, participants were allocated into two clusters based on their teaching roles. Participants with a decision-making ability were placed in a good group (n=234), however, participants with low involvement in decision-making were categorized into a bad group (n=71). We predicted the relevance of the difference among these two groups by equating their 2 estimates. Table 5, shows the moderating effect TR. As overall model, goodness-of- fit indices attained the recommended level with indices CMIN=1.527, AGFI=0.933, GFI=0.991, CFI=0.992 and RMSEA=0.042. Moderating effect did not affect the construct relationships as of earlier modification indices of the structural model but in case of the bad model or bad as group 2, the VB was found insignificant with PWB, though all relationships from table 5 present acceptable Z-scores and estimates fairly good enough.

Good (Group 1), n=234			Bad(Group 2), n=71		
Dimensions (relationship)	Estimate	Sig. level (P)	Estimate	Sig. level (P)	Z-score
PWB<-VB	.099	.034	.089	.142	2.146
PWB<-RB	.216	***	.228	.006	2.417
PWB<-CB	.169	.002	.236	.001	2.258
PWB<-PB	.337	***	.340	***	2.748
AA<-PWB	.850	***	1.126	***	2.048

Table 5.
Moderating effects of
Teaching Role on
Academic achievements

Regression weights for table 6 were non-standardized estimates. CMIN/DF-1.527, GFI-0.991,AGFI-0.933, CFI-0.992 & RMSEA0.042

Indirect Effects on Academic through Psychosomatic

	B	Z value	P-Value
PWB->AA	0.292	7.44	(p < 0.01)
PWB->AA	0.006	4.68	(p < 0.01)

Table 6.
Indirect effects of
moderator Teachers role

The results suggest that the moderating indirect effect of PWB to AA is significant (β = 0.292, $p < 0.01$), and that the (β = 0.06, $p < 0.01$); therefore, indirect effect for both groups good and bad is significant and hence, the magnitude of indirect effect for the bad model is less than the indirect effect of a good model for criterion academic achievement, table 6. Thus the model is significant with moderating results of PWB to AA showing the concern of TT being moderator with respect to all bullying types (VB, RB, CB, and PB) considered here in this study. H6 is accepted.

9. Discussion

The bullying concept has not been unexplored but still it is a burning and attention seeking concept for researchers. The current paper focused on the different forms of bullying- VB, PB, RB and CB and its impact on psychosomatic well-being as well as academic achievements of the Gen-Z. This study also emphasized on the teachers' moderating role as good or bad between psychosomatic well-being and academic achievements of Gen-Z. Enormous researchers (Romero-Reignier et. al., 2022; Chui et. al., 2022; Samara et. al., 2020; Anasori et. al., 2020; Wolke et al., 2015; Evans et al., 2014; Omoteso, Rose and Monda, A, 2011; Raskauskas and Modell, 2011; Wang et. al., 2011; Quiroz et. al., 2006; O'Connell et. al, 1999; Colvin et. al,

1998; Olweus D., 1993) investigated that bullied victims revealed poor psychosomatic well-being which increased suicidal tendency amongst them. Results revealed that all forms of bullying (VB, PB, RB and CB) have a substantial effect on the psychosomatic well-being of students. This finding is consistent with the studies of enormous researchers (Stubbs-Richardson, M., & May, D. C., 2021; Samara, et. al., 2020; Chen et. al., 2020; Wolke et. al., 2015; Evans et. al., 2014; Gini and Pozzoli, 2009; Zapf, Einarsen, Hoel, and Vartia, 2003; Hawker and Boulton, 2000; Sharp, Thompson, and Arora, 2000). They quoted that bullying is adversely associated with the psychosomatic well-being of students which is generally indicated through lack of self-admiration, poor interpersonal relationship, substandard academic performance, mediocre emotions, depression, anxiety and worry etc. Therefore, null hypotheses (H01, H02, H03, and H04) are rejected, stating all alternate hypotheses are accepted as shown in Table 4.

Furthermore, the analysis found that students' psychosomatic well-being impacted their academic achievements. This outcome is in tune with various authors (Samara et. al., 2021; Laith and Vaillancourt, 2020; Block, 2014; Mehta et. al., 2013; Roman and Murillo, 2011; Konishi et. al., 2010; Skrzypiec, 2008; Glew et. al., 2005) which quoted that bullied victims are unable to concentrate on their studies and hampered their academic progression because of poor psychosomatic well-being. Therefore, null hypothesis (H05) is rejected and the alternate hypothesis is supported as shown in Table 4.

The last step of this research is to measure moderating role of teachers as good or bad between psychosomatic well-being and academic achievements of Gen-Z. Results revealed that teachers' moderating role as good is highly significant as compared to teachers' role as bad. This finding is in line with numerous researchers (Lee et. al., 2022; Samara et. al., 2020; Vedder, Boekaerts, and Seegers, 2005; Brewster and Bowen, 2004; Colarossi and Eccles, 2003; Malecki and Demaray, 2003) who postulated an important and moderating role of teacher between psychosomatic well-being and academic achievement of the students. In contrast some researchers (Fischer et. al., 2021; Perren and Alasker, 2006; Malecki and Demaray, 2003) postulated that bullied students are not getting much support from their teachers as compared to non bullied victims. So, hypothesis H06 is not supported results in acceptance of alternate hypothesis as shown in Table 5.

10. Limitations

The first limitation of the current study was its sample size. However, it gives significant, valuable insights into the teaching-learning phenomena among students; through the practice of the teachers' role in academic performance. The second limitation was exploiting cross-sectional design precludes the testing of directionality of the association among Psychosomatic Well-being (PWB) and Academic achievements (AA). The variable PWB may include the types like anger, depression, suicidal pattern, anxiety, and mental trauma to be assessed by future researchers, and meanwhile, it comes as one of the limitations. Similarly, academic achievements in this research excluded some other variants of AA such as career-path, goal- settings, livelihood concerns, etc. Thirdly, the bullying types likewise verbal, cyber, physical, and relational are different in magnitude with each other is not ascertained. These bullying types might be addressed further and these four forms of bullying would be measured in futuristic studies.

11. Implications and future direction of research

The current research indicated that bullying has an adverse impact on the psychosomatic well-being of Gen-Z which resulted in poor academic achievements as well as performance. The conceptual framework developed through this research has several managerial implications for practice. Firstly, educational institutes can form committees for grievance management and counseling which facilitate psychological support and well-being to bullied victims. By this, they can build a conducive learning atmosphere as well as trust among Gen-Z. Secondly, the role of a teacher becomes more challenging in diminishing the bullying effect on Gen-Z. With this teachers can develop new strategies to counsel bullied victims through empathy, counseling, mentoring, guidance and emotional support. This insight

gives an opportunity to the researchers and academicians too to consider this and analyze the mediating role of teachers in the well-being of Gen-Z in their further research work. Thirdly, the contextual role of verbal (VB), physical (PB), relational (RB), and cyber (CB) bullying with academic excellence and psychosomatic well-being of Gen-Z and gender as a moderator can be the scope for research. Fourth, researchers can also recognize the role of Bystander intervention model (Latané and Darley, 1970) in helping bullied victims by conducting a pre and post test as well as the role of gender in its implication and prevention of bullying. Furthermore, Higher Learning Institutes and Industries can organize awareness campaigning for Bystander Intervention Model to reduce the poisonous effect of bullying among Gen- Z. Fifth; researchers can interrogate the role of Leader-Member Exchange theory in the implication of Bystander Intervention Model to curtail the effect of bullying among Gen-Z. Lastly, the researchers can also diagnose the answer of a research question that how Higher Learning Institutes can develop a sustainable learning ambiance.

12. Conclusion

Bullying has always been a prevalent concern for the organization. This cross-sectional study provides indications that how the bullying types in the college/University affected the mental cognition of students. In this study the hostlers' contribution in terms of demographics was high as compared to day scholars, the reason they are more prone towards senior students and confined to prolong hours on campuses only. The bullying type's verbal, cyber, physical and relational triggers the Psychosomatic Well-being, leads to mental anxiety among Gen-Z. The primary objective of this research is full-filled as all the alternative hypotheses are supported. Moreover, Psychosomatic Well-being leads to superseded of the academic achievements of the students in an academic environment in terms of their lower grades, placements and career growth. This study has found that the teachers' role act as a moderator in urging the impact of psychosomatic outcomes on academic achievements. The teachers' role furnished a significant impact on the academic achievements while, the teacher's role categorized well as a group is more effective as per the bad as a group considered, although both are significant in terms of standardized regression weights. This study may graft teachers' role in resilience for students to manage the youth bullying with some variables like empathy, counseling sessions. Moreover, the importance of different bullying types in the betterment of Gen-Z and how they are addressed through different psychological tests, counseling - sessions, mentor-mentee relation and career path stimulus and progression.

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Servant Leadership: A Bibliometric Review Through Performance Evaluation and Science Mapping

Servant Leadership: A
Bibliometric Review
Through Performance
Evaluation
70

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Abstract

Purpose: Leadership has always been a prominent research topic in the public administration sphere and servant leadership (SL) is one of the significant leadership styles. Servant leaders endeavor selflessly and altruistically to help others before themselves, work to foster their followers' most noteworthy potential, and try to help the community. With the increasing prominence of servant leadership, there is a prevailing need to articulate SL's literature more precisely. Thus, a bibliometric analysis is conducted on SL's literature based on the SCOPUS database considering the timeframe of the earliest (1977) to the latest years (2021). The overarching aim of this study is to evaluate the research patterns and trends in this arena so far, to generate a comprehensible outlook of the field.

Design/ methodology/ approach : The analysis focused on analyzing the performance matrix and content analysis along with network generation to evaluate the research trend by identifying the bibliographic information of SL. The study used Biblioshiny, an R tool for bibliometrics analysis.

Findings: This study demonstrated that 'Leadership and Organization development Journal' is the top journal in SL's literature following that 'Liden RC' and 'Van derendonek' are the most relevant authors in the field. In addition to it, North America and Europe are the regions where most of the research on SL has been conducted. Moreover, Van derendonek and Liden rc are the most co-cited authors in the literature of SL. Further through thematic mapping, niche themes, motor themes, emerging or declining themes, and basic themes have been identified based on density and centrality.

Originality/ value: The originality of the article lies in shedding light upon new insights of bibliographic information likewise three field's plot, Bradford's law, thematic map, and trend topics which remained under-defined in SL's literature.

Practical implications: This article can have several practical implications likewise identifying knowledge gaps within the existing literature of SL, guiding researchers for future research aspects of SL, benchmarking performance of various contributors in the field and enhancing collaboration for further researches in this particular area.

Keywords: Servant leadership, Servant leaders, Bibliometric analysis, Bibliometric techniques.

1. Introduction

"Be the servant if you will rule. That is the real secret... Kill the self-first if you want to rule...Such a man becomes a world mover for whom this little self is dead and God stands in its place."

- Swami Vivekananda

Presently organizations are peculiarly concerned about human interventions. The scope of leadership has been shifting from focusing only on productivity to quality work and a satisfied workforce. The concept of leadership has pivotally gained significance in shaping the employee work cycle. Styles of leadership are now focused on employees' prominent needs be it transformational leadership or servant leadership. Servant leadership states the intent of a leader where he counts people before himself. In 1977, Robert K. Greenleaf first begat the term 'servant leadership' as the leadership approach of serving the needs of followers and accentuating their great over the personal interest of leaders. In his views, SL is more than a management technique, likely a lifestyle that starts with "the normal inclination



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that one needs to serve, to serve first". In general, the term servant leadership was initiated by Greenleaf in his article "The Servant as Leader" to depict an emerging trend of leadership where leaders focused on followers' self-improvement and development, by ethically treating them. Greenleaf's origination was then refined by various analysts, such as Ehrhart (2004), who expressed that SL is one such form of leadership where a leader goes beyond the financial achievement of the organization perceiving their ethical responsibility towards subordinates, customers, and the entire organization's community. The emphasis of SL's theory has been set over the long run on serving and providing value for numerous stakeholders, both internal and outside of the organization.

1.1 heoretical framework

Servant leadership is a leadership theory in which a leader thrives to serve people and the community. It differs from traditional leadership where the leader's main intent is to prosper the needs and necessities of their organization. A servant leader shares power, considers the necessities of the employees first, and helps individuals create and proceed as exceptionally as could be expected (Sendjaya S., et. al., 2002). Rather than individuals attempting to serve the leader, the leader exists to serve individuals (Kashyap et al., 2016) As expressed by its organizer, Robert K. Greenleaf, a Servant Leader ought to be centered around, "Do those served to develop as people? Do they, while being served, become better, savvier, more liberated, more independent, almost certain themselves to become servants?"

Servant leadership mainly considers two social theories to elucidate how it impacts follower behavior: social theory and social exchange theory. In servant leadership literature, the utilization of social learning theory contends that servant leaders influence their followers, as their followers observe and imitate the leader's positive ways of behaving. Interestingly, social exchange theory is utilized to contend that a servant leader's followers are showing positive ways of behaving because of the equal relationship they create with their leader.

2. Research Purpose and Gaps

Research on servant leadership (SL) can be classified into three stages. The earliest stage centered on the applied development of SL, focusing on the work crafted by Greenleaf (1977) and Spears (1996). Second, a measurement stage where the research pivoted on identifying measures of SL and testing relationships between SL and outcomes through cross-sectional research. We are currently, at the third phase of SL research, which is the model development stage where more complex research plans are being used to go past straightforward associations with outcomes to comprehend the antecedents, mediating mechanisms, and limit states of SL. This third stage has seen an expansion of studies on SL, with more than 100 articles and two meta-analysis being published over the most recent four years alone (Eva et al., 2019).

Regardless of this developing consideration from practitioners and academics, SL is as yet an under-investigated theme while most of the empirical studies stay little (Parris and Peachey, 2012). We are at the beginning phases of understanding its real worth for organizations and employees (Hunter et al., 2013). Researchers argue to enhance and promote SL's research (Liden et al., 2014). Parris and Peachey (2012) claim SL is a "promising new field of research". Liden et al. (2014) consider SL "at an early stage of theoretical development" and predict it has noteworthy potential for further research.

It is evident from the published studies that aspects of SL are being researched globally in recent times. However, there remains a dearth of precise systematic literature in this area, moreover, transparency in concepts and SL constructs are still vague. The global SL research trends and themes are yet to be identified, analyzed, and evaluated in a clear and structured way. The contribution put forward by different nations, authors, journals, and their associations with one another are yet to be discovered and represented in a way that could lead to significant research outcomes for potential researchers and academicians across the globe. The most contributing countries in SL's research at the time are the USA, Netherlands, China, and Australia. There exists a huge gap to study SL's literature in the African, Middle Eastern, and South Asian contexts.

In one of a very profound research study relating to the literature review by Eva, Robin, Sendjaya, van Dierendonck, and Liden (2019) published by leadership quarterly, they have determined and classified the various phases of SL research over the timeframe of 20 years (1998-2018). Nonetheless, there still is a requirement for an extensive and incorporated bibliometric review to recognize the themes, trends, and development of SL research with identifying the potential future of the field.

In other words, bibliometric analysis is valuable for interpreting and mapping the total scientific knowledge and transformative nuances of well-established fields by sorting out enormous volumes of unstructured data in thorough ways. In this manner, bibliometric studies which are precisely done can fabricate strong ground works for propelling a field in novel and significant ways - it empowers and allows researchers to (1) gain a one-stop outline, (2) identify knowledge gaps, (3) determine original ideas for investigation, and (4) position their planned contributions to the field (Naveen Donthu et. al, 2021).

This research study aims to provide a precise and prominent review of the literature on SL through bibliometric methods likewise performance analysis and science mapping using an 'R-tool' Biblioshiny, The current research study attempts to address the following aspects:

- * The recent publication flow.
- * The current thematic trend in this arena.
- * The utmost influential authors.
- * The collaboration trend.
- * The core journals using Bradford's Law.
- * The most cited and frequently used author keywords.
- * The 'Three field's plot' using Sankey diagrams.
- * The most influential countries and their annual scientific production over the years in SL's literature.
- * The most relevant affiliations in the field.
- * The conceptual, intellectual, and social structures.

3. Method

This study provides a significant contribution to servant leadership research by retrieving and analyzing all the publications on SL in different disciplines published by journals indexed in the Scopus database. To present the finding in an organized and structured way, the bibliometric analysis approach was considered to further evaluate the characteristics of all the publications in the field of SL. The techniques used for bibliometric analysis were performance analysis to identify the most contributing constituents in the field and science mapping to present the relationships among the identified constituents.

3.1 Search strategy

The search for this study was conducted on January 18th, 2022 using the Scopus database. The topic for this search was "servant leadership" in the title, abstract, and keywords to analyze the global recent research trends of SL. The list of articles was sorted from oldest to latest where the oldest is 1977 and the latest is 2021. The search string was set as: (TITLE-ABS-KEY {"servant leadership", "servant leader"}). A total of 1753 articles were retrieved using this search string thereafter limiting the Subject area to 'Business, management and accounting', 'Social sciences', 'Medicine', and 'Health profession', Source type was limited to 'Journals' and 'Conference proceedings', and Document type was limited to 'Articles' after which only 486 articles were retrieved for further concluding bibliometric analysis.

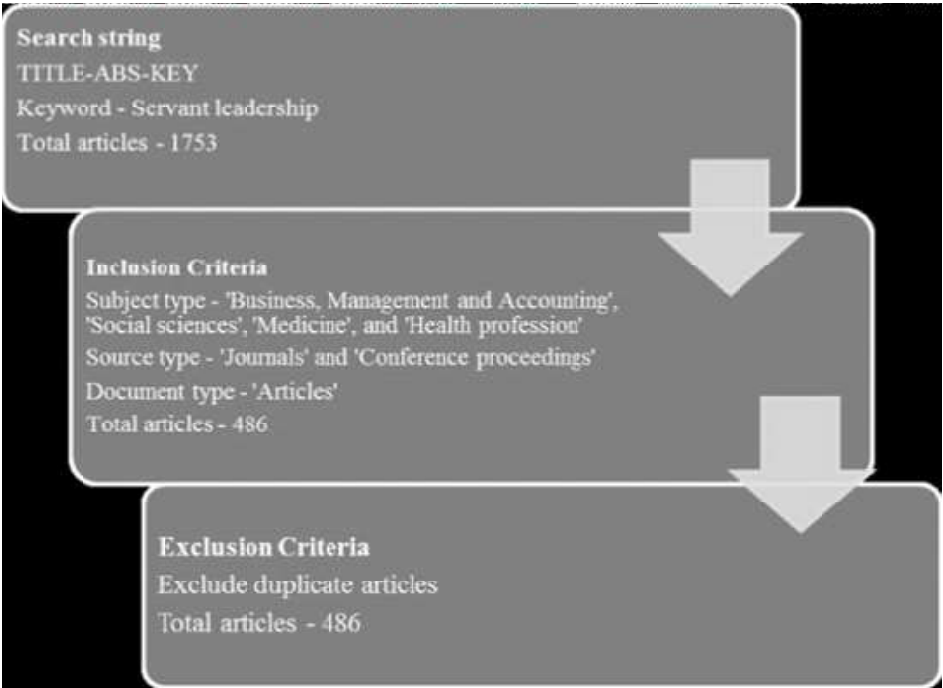


Figure 1.
Inclusion/ Exclusion
criteria

3.2 Bibliometric Technique

Zupic and ?ater (2015) defined "Bibliometrics" as a quantitative tool/measure to analyze the different components of the publications, for example, journal, author, keywords, country, citation and co-author, and so forth. The bibliometric analysis requires representation and mapping software to direct the quantitative analysis (Cobo, López-Herrera, Herrera-Viedma, and Herrera, 2011). Bibliometric analysis has two categories: (1) performance analysis and (2) science mapping. Performance analysis accounts for the contributions of research constituents, whereas science mapping focuses on the relationships between research constituents. (Naveen Donthu et al., 2021). Performance analysis is done by identifying the most contributing constituents like annual scientific production, most relevant sources, authors, documents, countries, keywords, trend topics, and source impact. Science mapping was conducted by analyzing three field's plot, conceptual, intellectual, and social structures representing co-occurrence, thematic map, Co-citation, and collaboration network of authors, countries, and institutes.

Bibliometric techniques	
Performance Analysis	
Annual scientific production (yearwise article publication)	
Top sources (Bradford's Law)	
Source Impact (TC index)	
Prolific Authors (total no. of documentspublished)	
Most relevant Documents (GC index)	
Most relevant Countries (most no. of documents published)	
Most relevant Affiliations (most no. of documents)	
Trend topics (Term frequency per year)	
Science Mapping	
Conceptual Structure(Co-occurrence network of keywords and thematic map)	
Intellectual Structure (CoCitation network of Authors)	
Social Structure (Collaboration network of Authors, Countries, and Affiliations)	
Three-field's plot (Sankey diagram)	

Table 1.
Bibliometric techniques

3.3 Bibliometric Map

The bibliographic information has been attained by using the software Biblioshiny, an R-tool for bibliometrix analysis to analyze and evaluate the bibliographic data through a workflow of data collection, data analysis, and data visualization by retrieving bibliometric maps and tables clarifying the influential major drifts in the literature of servant leadership. A total of 486 SCOPUS-indexed articles were exported and later on filtered on the basis of 'Core Sources' to attain only relevant articles pertaining significance to the research therefore only 162 articles were retrieved. Further, the bibliometric analysis has been conducted to draw the major outcomes relating to major contributors, conceptual, intellectual, and social structures in the literature of SL.

4. Result and Analysis

4.1 Performance Analysis

Performance analysis explains the contributions of research constituents to a given field (Cobo, Lopez-Herrera, 'Herrera-Viedma, and Herrera, 2011; Ramos-Rodríguez and Ruiz-Navarro, 2004). Performance analysis can be found in many studies, even in those that don't include science mapping, since it is a standard practice in research to introduce the performance of different research constituents (e.g., authors, institutions, countries, and journals) in the field, which is much the same as the foundation or profile of participants that is precisely represented in quantitative research yet more systematically.

4.1.1 Annual Scientific Production

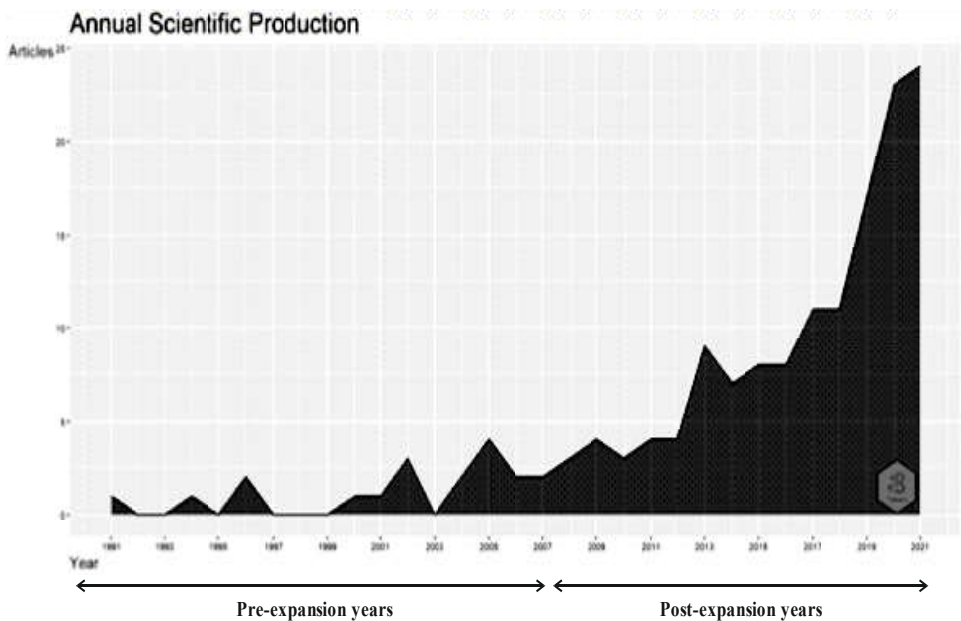


Figure 2.
Annual Scientific
Production

Figure 2 here represents the annual scientific production of articles in the arena of servant leadership over a span of 1991 to 2021 in the core journals adding relevance to the literature, where it can be noticed that starting years had a very slow-paced graph in terms of publications whereas a small spike in the literature can be observed in 2002 but within a year it went through a fallback. Finally, from the year 2004, the graph of articles production steadily increased and maintained the pace. The annual growth rate of scientific production is 14.82%. It can be depicted that the span of 1991 to 2009 is a pre-expansion phase in the literature of servant leadership with articles published ranging from 0 to 5 while the period of 2009 to 2021 is a post-expansion phase in the literature of servant leadership with articles published ranging from 5 to 24. The most significant year for the annual scientific production of articles is 2020 to 2021, where the maximum number of articles got published numbering 24.

Figure 3.
Most Relevant Sources

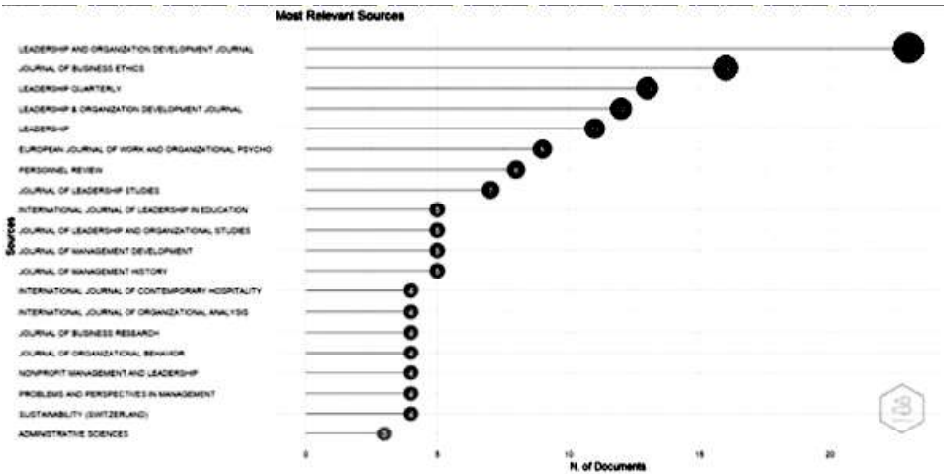
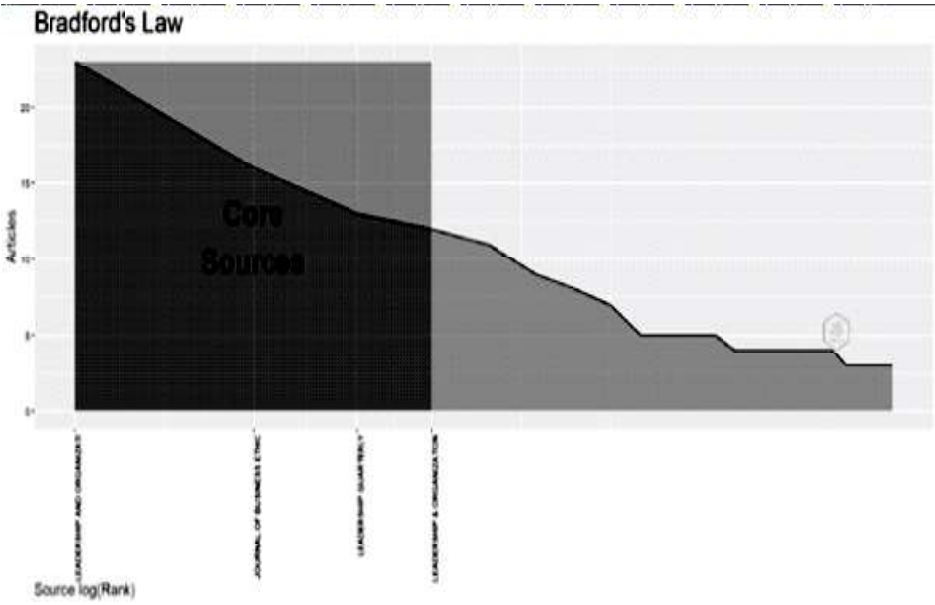


Figure 3 illustrates the top most relevant journals in the field of servant leadership, where it can be concluded that 'Leadership and Organization development Journal', 'Journal of Business Ethics', 'Leadership quarterly', 'Leadership & Organization development Journal' and 'Leadership' are the 5 top most influential journals with a total number of 23, 16, 13, 12 and 11 documents published respectively.

Bradford's Law (Sources)

Bradford's Law gauges the exponentially diminishing returns of searching for references in science journals. Journals in a field can be divided into three parts, each with about one-third of all articles: 1) a core of a few journals, 2) a second zone, with more journals, and 3) a third zone, with the bulk of journals. The number of journals is 1:n:n².

Figure 4.
Bradford's Law



The depiction is based on the source rank per number of articles published under that source, the journals with the highest rank are considered as 'Core Sources'. The rank here signifies the relevance of the work published by journals, the focus here relies on quality rather than quantity. Through figure 4 it can be mentioned that 'Leadership and Organization Development Journal', 'Journal of Business Ethics', 'Leadership quarterly', and 'Leadership & Organization Development Journal' record the highest source rank amongst other journals with 23, 16, 13, and 12 articles which were limited in number but relevant published in the time period of 1977 till 2021.

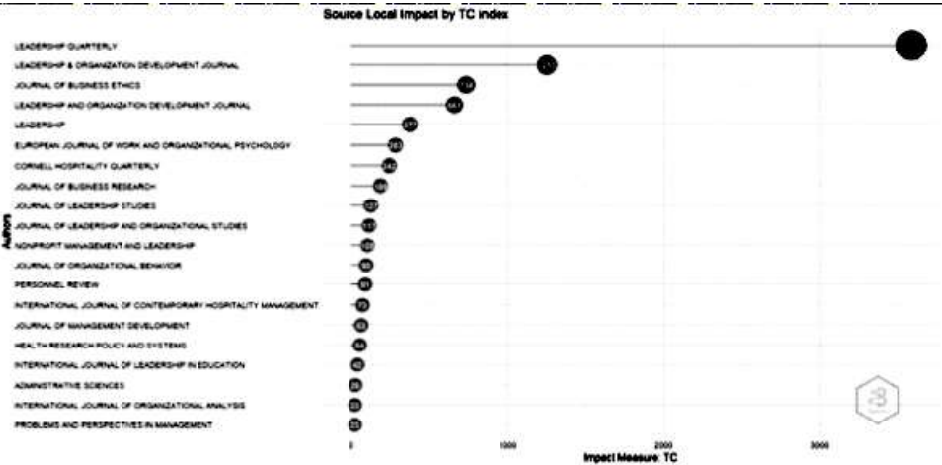


Figure 5.
Source Impact

Source impact describes the influence factor of a particular Journal in terms of Total Citations by authors, researchers, and academicians. Total citations represent the number of times an author cites a particular article in a study. Figure 5 interprets that 'Leadership Quarterly' has the major impact with the highest total citations 3583, the second impactful source is 'Leadership & Organization Development Journal' with a total citation count of 1253. The third most impactful source is the 'Journal of Business Ethics' with total citations of 734 while the least impactful source is 'Problems and Perspectives in Management' with the lowest total citations count of 23.

4.1.3 Major Contributors (Authors, Documents, Countries and Affiliations)

Most relevant Authors

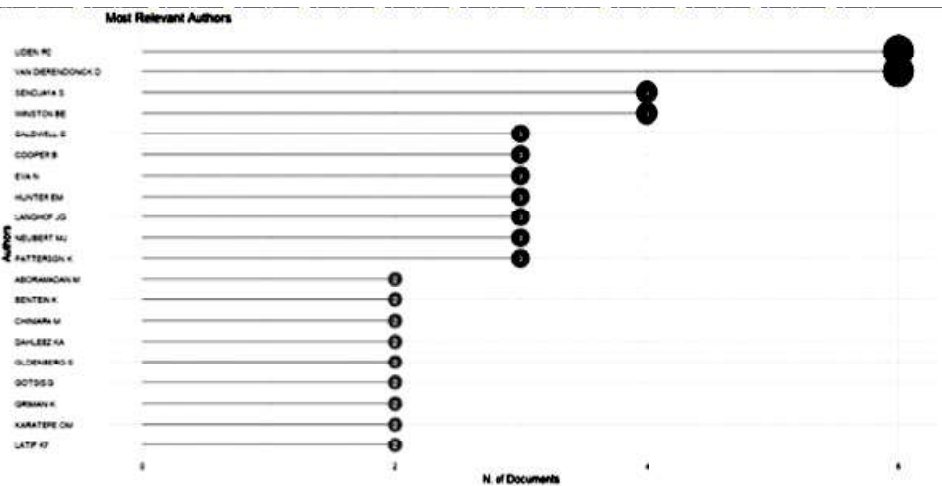


Figure 6.
Most Relevant Authors

As depicted by figure 6, 'Liden RC' and 'Van derendonck' are the two most relevant authors with 6 published articles each in the 'Core Journals' of servant leadership expanding and adding relevance to the literature of SL. While 'Sendjaya S' and 'Winston BE' published 4 articles each in the 'Core Journals' making them significant contributors to the research field.

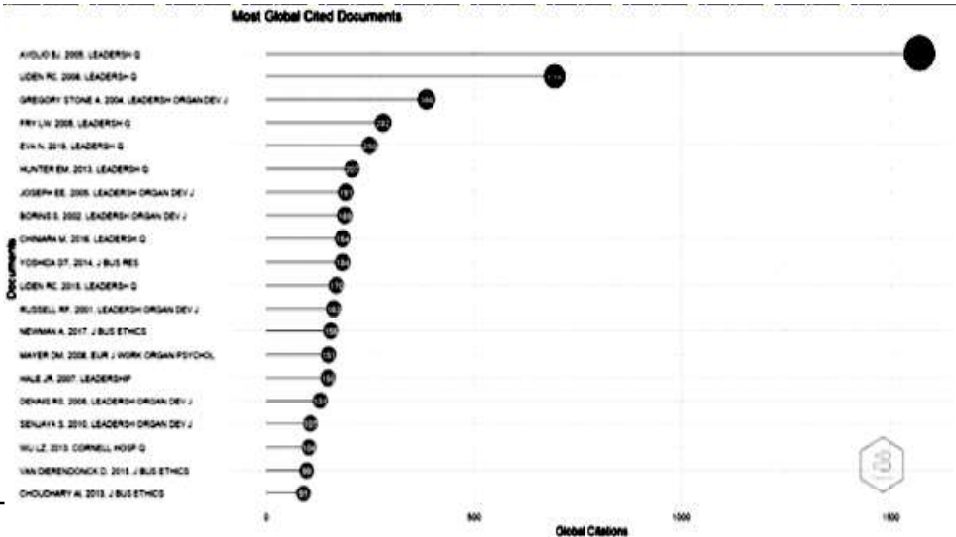


Figure 7.
Most relevant Documents

As depicted by figure 6, 'Liden RC' and 'Van derendonck' are the two most relevant authors with 6 published articles each in the 'Core Journals' of servant leadership expanding and adding relevance to the literature of SL. While 'Sendjaya S' and 'Winston BE' published 4 articles each in the 'Core Journals' making them significant contributors to the research field.

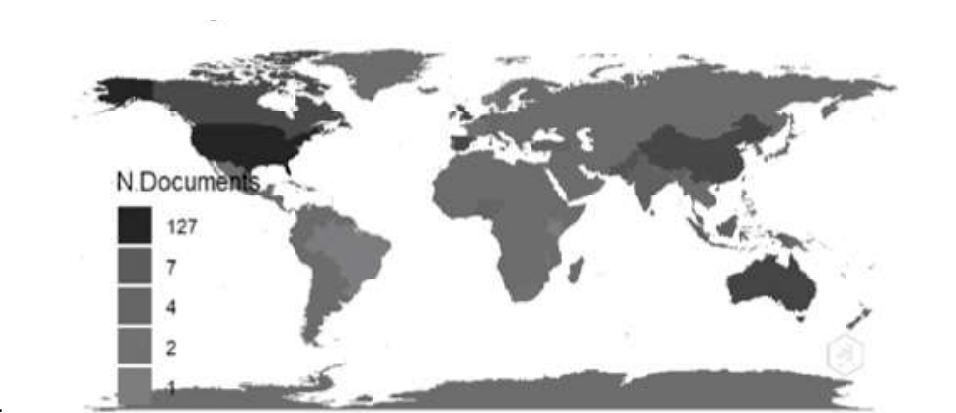


Figure 8.
Country Scientific
Production

The literature of SL has outgrown globally, the most relevant countries in terms of most publications remain the USA, Australia, UK, China, Netherlands, and Canada. These are the major contributors in terms of expanding research in the field. Figure 8 states the 'Country scientific production' over the years 1977 till 2021 in the 'Core Journals' of the area where the USA has published 127 documents, Australia published 7 and the UK published 4 documents respectively, concluding to be the most relevant Countries in terms of major articles publications.

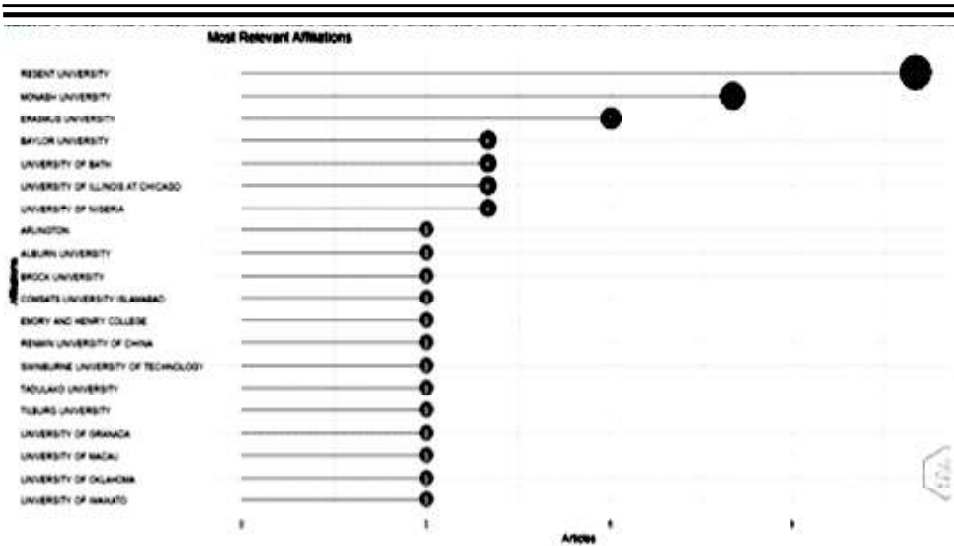


Figure 9.
Most relevant Affiliations

Figure 9 represents that 'Regent University' (11) outstands as the most relevant institution in the SL's literature. While 'Monash University' (8), 'Erasmus University' (6), 'Baylor University' (4), 'University of Bath' (4), 'University of Illinois at Chicago' (4), 'University of Nigeria' (4), 'Arlington' (3) and others come later as relevant institutions in the field. These universities have contributed the most in terms of total scientific production.

4.1.4 Trend topics

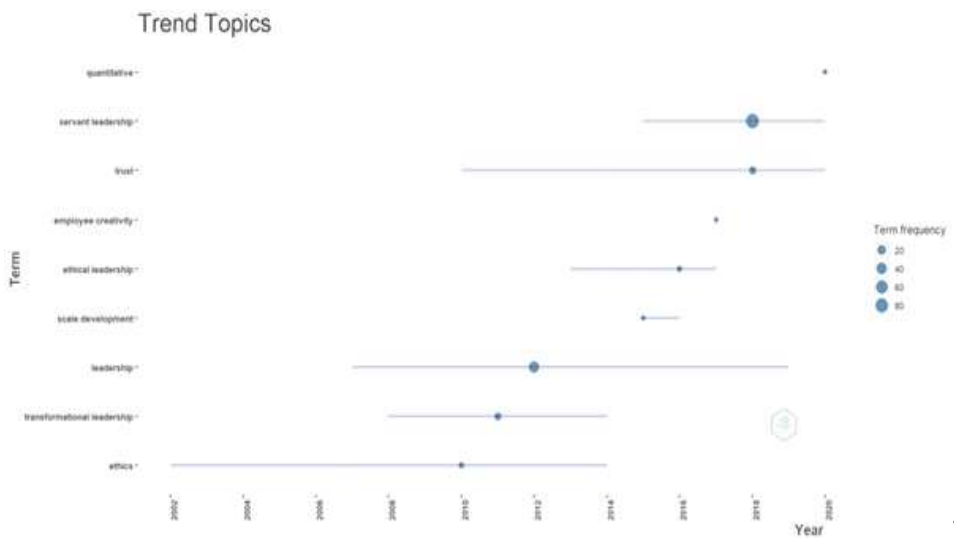


Figure 10.
Trend topics

Figure 10 illustrates trend topics from 2002 till 2020, defining the diversified work conducted in the field. The years 2002 to 2009 noticed negligible research trends, while the year 2010 started recognizing the growing curiosity of researchers in this arena following that 'Scale development', 'Employee creativity', and 'Quantitative' are the least trending topics with 20 as term frequency in the SL literature. 'Ethics', 'Ethical leadership', 'Trust', and 'Transformational leadership' have 40 'term frequency' depicting less interest of the researchers. 'Leadership' has 60 'term frequency' stating good research trends in the year 2012. The most trending topic is 'Servant leadership' in the SL research with the highest 'term frequency' of 80 in the year 2018.

4.2 Science Mapping

Science mapping reviews the relationships between research constituents (Baker, Kumar, and Pandey, 2021; Cobo et al., 2011; RamosRodríguez and Ruiz-Navarro, 2004). The analysis relates to the intellectual interchange and structural associations among research constituents. The strategies for science mapping incorporate citation analysis, cocitation analysis, bibliographic coupling, co-word analysis, and coauthorship analysis. Such strategies, when joined with network analysis, are instrumental in introducing the bibliometric structure and the intellectual design of the research arena (Baker, Pandey, Kumar, and Haldar, 2020; Tunger and Eulerich, 2018).

4.2.1 Three fields plot

The three-field plot in Biblioshiny software is used to outwardly survey the relationship among sources, countries, affiliations, keywords, leading authors, cited sources, and author-keywords, and so forth. The rectangle's height indicates the relationship among different features like countries, sources, prominent authors, and author-keywords, and so forth. The larger, the size of a rectangle shown in the diagram, the denser the relationship between different components (Raman kumar et. al., 2021).

Figure 11.

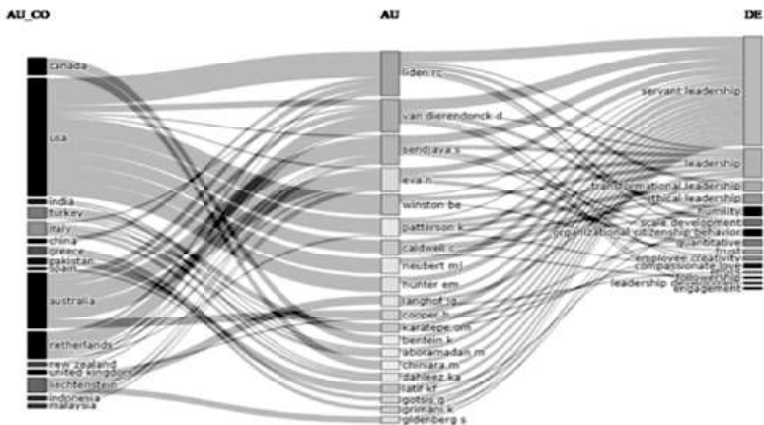
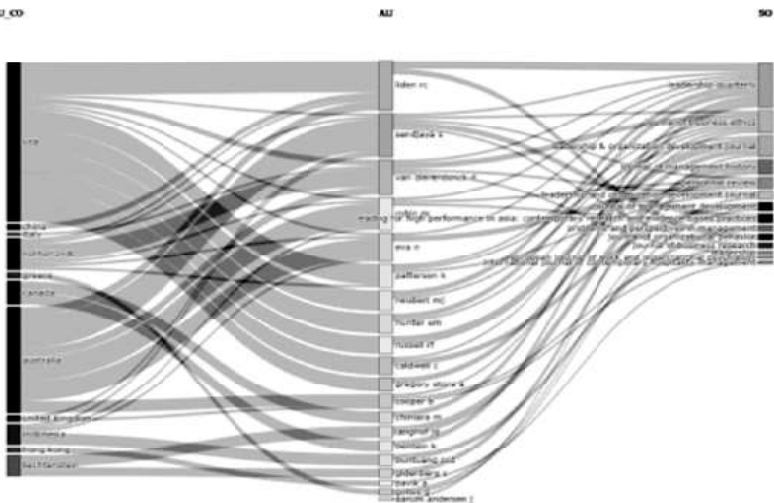


Figure 11 illustrates the three fields plot relationship between countries (left), author (middle), and keywords (right). It shows how different authors from various countries have worked on numerous aspects of servant leadership using different keywords. 'Servant leadership', 'Leadership', and 'transformational leadership' were the most used keywords by Authors 'Liden rc', 'Van derendonck. D', 'Sendjaya S', 'Eva n' and 'Winston be'. On the basis of these keywords major contribution in the SL research is by the USA, Australia, and Netherlands along with their researchers publishing relevant articles in this arena.

Figure 11.1



Through figure 11.1, a sankey diagram discloses the three fields plot analyzing the relationship among three components namely countries (left), author (middle), and sources (right). It shows how multiple authors published their studies in various major contributing sources belonging to different countries. The analysis established most of the work has been published in 'leadership quarterly', 'journal of business ethics' and 'leadership and organization development journal' by 'Liden R.C', 'Sendjaya S.' and 'Van derendonck d.' majorly from USA and Australia. This represents the strong connection among all these components.

4.2.2 Conceptual Structure

Co-occurrence network

Conceptual structures define the co-occurrence of some items, similar to keywords or index words of feature elements articulated in an article. The element substances consist of organizations, titles, authors, or keywords, etc in the literature. It is a quantifiable study of the co-occurrence phenomenon to reveal the content connotation of the evidence. Keywords can summit the exploration limits in examining and directing research areas of interest and growth patterns.

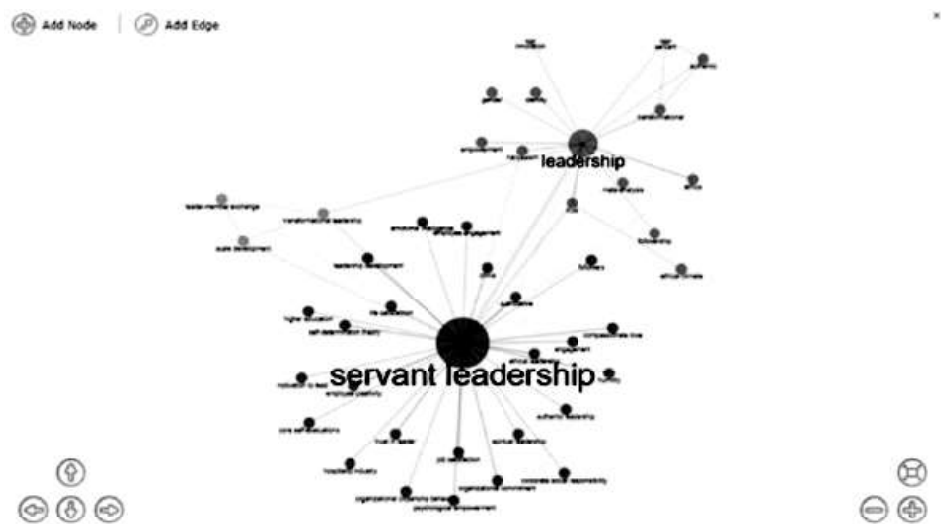


Figure 12.

Figure 12 results in the network representing the occurrences of the most frequently used keywords in the SL literature. The output generated by the software for author keywords co-occurrence divides the total keywords into three clusters. The most occurred keyword is 'servant leadership' falling in cluster 1 (Red colored). Cluster 1 represents 27 nodes showcasing links with other used keywords falling in the same cluster namely 'ethical leadership, leadership development, job satisfaction, quantitative, employee creativity, spiritual leadership, authentic leadership, compassion, compassionate love, engagement, humility, followers, employee engagement' and so on. Cluster 2 (Blue colored) includes 17 nodes representing links with each other namely 'leadership, trust, ethics, empowerment, gender, management, management styles, servant, followership, narcissism' and so forth. Cluster 3 (Green colored) have 3 nodes showcasing link with one another, 'transformational leadership, scale development, and leader-member exchange'.

Thematic Map

Servant leadership literature encountered thematic research over the years. To bring clarity the themes are studied under four categories namely Niche themes, Motor themes, Emerging or declining themes, and Basic themes based on density and centrality. Where niche themes state the specific segments where the SL research is more favorable, motor themes explain the commonly covered areas in the field, emerging or declining themes present the areas of SL that could be growing in terms of researchers' interest or falling due to the same and basic themes define the most fundamental and essential areas of SL literature.

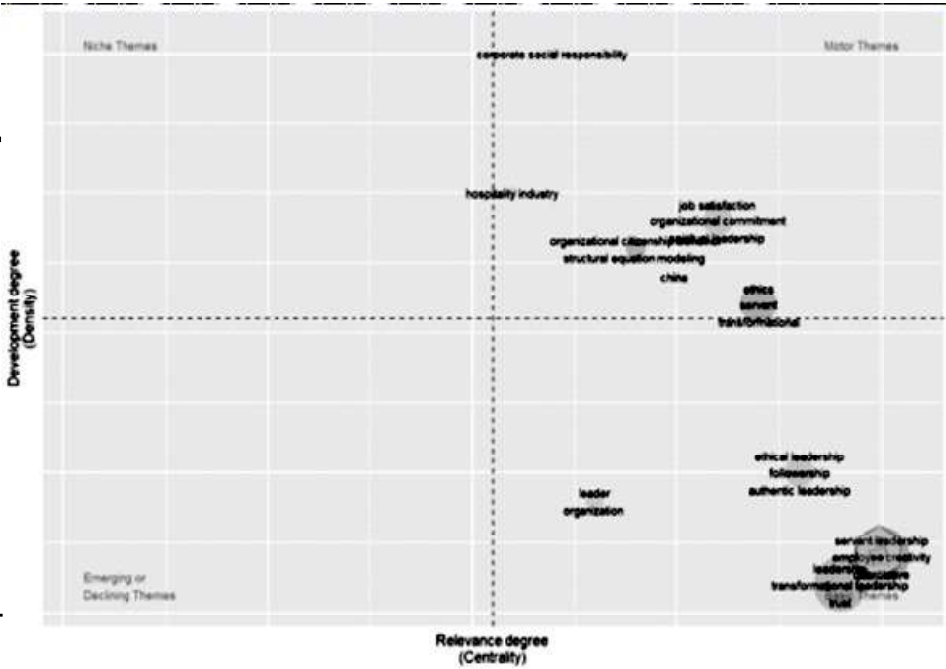


Figure 13.

As shown in figure 13, Niche themes include studies on 'corporate social responsibility and hospitality industry'. Motor themes include 'corporate social responsibility, hospitality industry, job satisfaction, organizational commitment, organizational citizenship behavior, spiritual leadership, structural equation modeling, China, ethics, servant, transformational'. Emerging or declining themes notice no such topics as of now while basic themes include 'transformational, ethical leadership, followership, leader organization, authentic leadership, servant leadership, employee creativity, leadership, quantitative, transformational leadership, and trust'.

4.2.3 Intellectual structure

Co-citation network

It results when two authors or two sources are found related to the reference rundown of a sole publication (Tunger and Eulerich 2018). Along these lines, the CoC analysis is a way to evaluate the relative comparison of different publications with the shared subject, model, procedure, or experimental discipline (Gmur 2003).



Figure 13.

This analysis assists in distinguishing the intellectual structure of the paper. We considered clusters from the CoC network and supported a content analysis to differentiate the intellectual structure of the subject 'servant leadership'. Figure 14 depicts three clusters with different nodes linked with each other resulting in a co-citation network where multiple authors have been co-cited together in the studies. Van derendonck d., 2011-1, Liden rc, 2008, Van derendonck d., 2011-2 and Liden rc, 2014 are the most co-cited authors from cluster 1(Blue coloured). Greenleaf r.k., 1977 and Barbuto, J.E, 2006 are the second most co-cited author falling under cluster 2 (Red colored), and Ehrhart, M.G., 2004 and Walumbwa, F.O, 2010 are the other most co-cited authors representing cluster 3 (Green colored).

4.2.4 Social Structure

In Biblioshiny software 'Social structure' represents the collaboration network of Authors, Institutions, and Countries. With the help of social structure, a collaboration network is formed identifying the shared participation of different variables in the same research arena.



Figure 15.
Author collaboration
network

The major author's collaboration is found in three different clusters, cluster 1 (Red) where Sendjaya S., Eva n, Robin m, and Cooper b. collaborated, cluster 2 (Blue) where Liden RC, Wayne SJ, Liao C, and Wu J collaborated, and lastly, cluster 3 (Green) where Van derendonck d. and Sousa M collaborated to enrich the SL's literature over time (1977 to 2021).

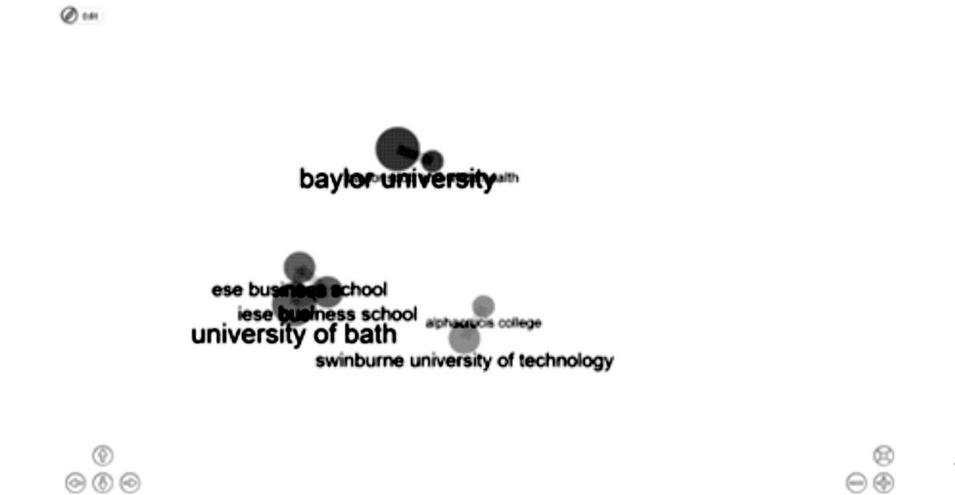


Figure 16.
Institution collaboration
network

Figure 16 reveals that there are three clusters of Institution collaboration network, which have worked together to conduct relevant research in the field of SL. Cluster 1 (Red) shows a collaboration network between 'Baylor University' and 'Baylor Scott & White Health', cluster 2 (Blue) represents a collaboration network among 'University of bath', 'Iese Business School' and 'Ese Business School' and cluster 3 (Green) depicts a collaboration between 'Swinburne University of Technology' and 'Alphacrucis College'.

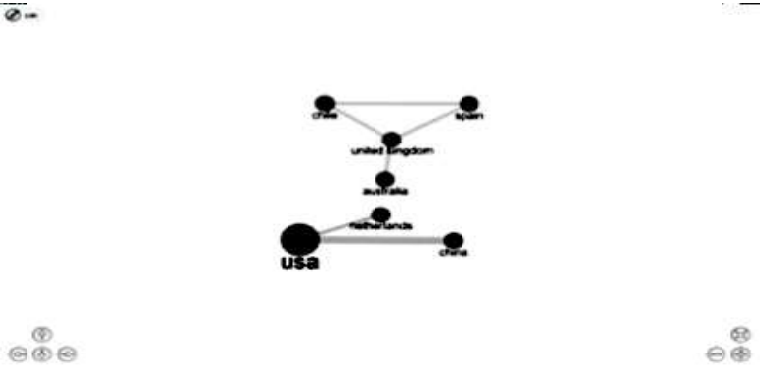


Figure 17.
Country collaboration
network

Countries collaboration network defines the number of countries who have jointly contributed towards the research in the field. Through figure 17, two clusters have been found, cluster 1 (Red) shows the collaboration among USA, China, and Netherlands whereas Cluster 2 (Blue) represents the collaboration among Australia, the United Kingdom, Chile, and Spain. These are the major contributing countries in terms of the most relevant publications in SL's literature.

5. Findings and Discussions

The study thoroughly addressed the aspects of SL as mentioned above, by putting forward the major contributors likewise major authors, journals, countries, and institutions, and emphasized their collaborations in the field through scientific analysis of the SCOPUS database. This article provided wholesome information about the performance matrix using the performance analysis technique and also, defined the network associations among different constituents using the science mapping technique of bibliometrics analysis respectively. Primarily, through performance analysis, the study showcased the current publication drift in the field where results exhibit that the year span of 1991 to 2009 is a pre-expansion phase in SL literature with a lesser contribution in publications while the period of 2009 to 2021 is a post-expansion phase in SL literature with higher publications in 'Core journals' of the field. Bradford's Law specified that 'Leadership and Organization development Journal', 'Journal of Business Ethics', 'Leadership quarterly' and 'Leadership & Organization development Journal', record the highest source rank amongst other journals with 23, 16, 13, and 12 number of limited but relevant articles published in the span of 1977 till 2021 hence can be concluded as 'Core Sources'. Further, 'Leadership Quarterly', 'Leadership & Organization development Journal', and 'Journal of Business Ethics' have been identified as the most impactful sources based on the highest total citations count. Additionally, Countries like the USA, Australia, China, Netherlands, and Canada have published the most relevant articles in this arena. 'Liden RC', 'Van derendonck', 'Sendjaya S', and 'Winston BE' are the most relevant authors with the most published articles in the 'Core Journals' of servant leadership expanding and adding relevance to the literature of it. Documents by 'Avolio BJ, 2005 published in Leadership quarterly' and 'Liden rc, 2008 published in Leadership quarterly' are the most influential documents in SL's research. Further mentioning the trend topics of this field over the years 2010 to 2020, 'Servant leadership', 'Leadership', 'Transformational leadership', 'Trust', 'Ethical leadership', 'Ethics', 'Quantitative', 'Employee creativity', and 'Scale development' proved to be the most stressed and worked topics throughout. Eventually,

through science mapping, the research article defined the 'Three fields plot' where the relationship among countries, authors, and keywords have been specified and thus noticed that 'Servant leadership', 'Leadership', and 'transformational leadership' are the most used keywords by Authors 'Liden rc', 'Van derendonck. D', 'Sendjaya S', 'Eva n' and 'Winston be'. Adding more to it, through co-occurrence analysis of keywords it can be mentioned that 'servant leadership' was the most occurring keyword in SL's research and other frequently used keywords were 'leadership, transformational leadership, ethical leadership, leadership development, job satisfaction, quantitative, employee creativity, spiritual leadership, authentic leadership, compassion, compassionate love, engagement, humility, followers, employee engagement, leadership, trust, ethics, empowerment, gender, management, management styles, servant, followership, narcissism, scale development, and leader-member exchange'. Further, the thematic map of SL's literature has been classified into 4 themes namely Niche themes, Motor themes, Emerging or declining themes, and Basic themes where Niche themes include studies on 'corporate social responsibility and hospitality industry'. Motor themes include 'corporate social responsibility, hospitality industry, job satisfaction, organizational commitment, organizational citizenship behavior, spiritual leadership, structural equation modeling, China, ethics, servant, transformational'. Emerging or declining themes notice no such topics as of now while basic themes include 'transformational, ethical leadership, followership, leader organization, authentic leadership, servant leadership, employee creativity, leadership, quantitative, transformational leadership, and trust'. Moreover, Through co-citation analysis, it is found that 'Van derendonck d., 2011-1', 'Liden rc 2008', 'Van derendonck d., 2011-2' and 'Liden rc, 2014' are the most co-cited authors by researchers. 'Greenleaf r.k., 1977' and 'Barbuto, J.E, 2006' are the second most co-cited authors by researchers or academicians, and 'Ehrhart, M.G, 2004' and 'Walumbwa, F.O, 2010' are the other most co-cited authors in the SL's literature. On the collaboration front authors Sendjaya S., Eva n, Robin m, and Cooper b. collaborated, followed by institutions namely 'Baylor University' and 'Baylor Scott & White Health' shared a collaboration network and the countries that collaborated were USA, China, and Netherlands.

6. Conclusion

Bibliometric analysis is a quantitative research method used to examine patterns in the literature of a particular subject area. Through this study of servant leadership, bibliometric analysis provides insights into the trends, patterns, and impact of research on this topic. Based on a bibliometric analysis of servant leadership literature published between 1977 and 2021, several key conclusive remarks emerge like the number of publications on SL has increased significantly over the past few decades, indicating a growing interest in this topic among researchers. Prominently, the most popular publication outlets for SL research are journals in the fields of leadership, management, and organizational behavior. Interestingly, North America and Europe are the regions where most of the research on SL has been conducted. Moreover, the most cited papers in the SL literature tend to be those that focus on the concept of servant leadership as a distinctive leadership style or approach, and those that explore the relationships between servant leadership and other leadership concepts, such as transformational leadership and ethical leadership. Additionally, there is evidence of a growing interest in the practical implications of SL, including its potential to improve organizational performance, employee well-being, and stakeholder satisfaction. Finally, there is a need for more empirical research on servant leadership, particularly studies that test the effectiveness of SL in different contexts and cultures, and those that explore the relationship between servant leadership and other organizational outcomes. Overall, the bibliometric analysis of SL literature indicates that this topic has generated a significant amount of research interest over the past few decades and that there is still much to be explored in terms of its conceptualization, measurement, and practical implications. Through the findings it can be inculcated that this arena is by far been studied well but still lacks robust literature, focusing that this research article should help future scholars and researchers to understand the latest trends, themes, and scope of leadership. By using Biblioshiny package of R Studio software, a modernized and comprehensible picture of SL's literature

has emerged. The analysis is providing a great visualization of the bibliographical information about the area of research. There is an increase in the number of publications in the past few years, and it shows that this area is in its developing phase. New areas of SL development have been highlighted through this study.

7. Implications

Social Implications

This article will add concise knowledge to the literature on servant leadership. This article can be significant to academicians, research scholars, practitioners, organizations, and business policymakers in understanding the core of servant leadership on a global basis through a systematic literature representation of facts and information. In any case, researchers ought to analyze the possible downsides of servant leadership, survey its validity across industries, as well as recognize the best scenario where it tends to be executed.

Practical Implications

The bibliometric analysis of servant leadership can have several practical implications, including: Identifying knowledge gaps: By analyzing the literature on servant leadership, researchers can identify areas where there is a lack of research and where further investigation is needed. This can help guide future research and inform the development of new theories and concepts related to servant leadership.

Informing practice: The practical implications of servant leadership can be better understood by analyzing the literature on this topic. Such an analysis can provide insights into how organizations can implement servant leadership practices to improve employee engagement, performance, and well-being, as well as enhance stakeholder satisfaction.

Benchmarking performance: By analyzing the bibliometric data, organizations can benchmark their performance in relation to others in the field, identifying areas where they excel and where there is room for improvement.

Enhancing collaboration: Bibliometric analysis can also be used to identify potential collaborators for future research projects and to establish networks of researchers who share common interests in servant leadership.

Facilitating knowledge transfer: Finally, the bibliometric analysis of servant leadership literature can help disseminate knowledge and promote knowledge transfer across organizations and industries, as well as across academic disciplines. This can enhance the uptake of servant leadership practices and promote a deeper understanding of the concept in the broader community.

Moreover, this study prominently pictures the future direction for researchers to study the emerging themes in this area while focusing on core journals, the most cited articles, and the most noteworthy authors. In addition to it, the scientific analysis of SL definitely provides information to academicians, scholars and researchers where to emphasize more in this field which will eventually help this arena to expand in terms of research.

7. Limitations and Future Research Scope

Limitations

The major limitation of the study is that it has considered data from SCOPUS Database only. Future researchers can also consider data from other global libraries like Web of Science, Dimensions, and Google scholar. This analysis is based on the software and algorithm and completely depends on the secondary database which is indexed in Scopus.

Future Research Scope

Through this article, it can be concluded that SL research is in its developing phase. Some relevant work has been done in the field but it is still not evident whether servant leadership is an approach, a model, or a trait. Further researchers should work on this to bring more clarity. Researchers can also decide on a sector-based study on SL, to find where it is best suited. There are multiple areas of SL that can be discovered in terms of employee development. This article can help future researchers in finding out the major contributions and phases of SL all in one place which could lead them to bring forward a more interesting and vast explanation of the topic.

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An Investigation into Indirect Effect of NPA on Bank's Lending Efficiency: A Global Perspective

An Investigation into
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Abstract

Purpose: This study aims to examine the impact of the Gross NPA ratio on lending interest rates, bank capital to assets ratio, broad money (M3), and gross capital formation ratio in selected countries.

Design/Methodology/Approach: A balanced panel data approach is employed, utilizing data from 25 countries over an 11-year period (2011-2021). Five different models are utilized to assess the influence of non-performing loans on the selected variables.

Findings: The findings demonstrate that non-performing loans significantly affect lending rates, real interest rates, and the gross capital formation ratio. The Gross NPA ratio exerts an upward pressure on both lending interest rates and real interest rates as NPAs increase. However, no significant impact is observed on the bank capital to assets ratio and money supply.

Practical/Research Implications: The findings of this study underscore the importance of effective NPA management in the banking sector. Policymakers and financial institutions should prioritize strategies that aim to control and reduce NPAs. By doing so, they can help maintain stable and favorable lending interest rates, which are vital for sustaining a healthy economic environment.

Originality/Value: This study adds to existing literature by analyzing the influence of Gross NPA ratio on economic variables such as lending interest rates, bank capital to assets ratio, broad money (M3), and gross capital formation ratio. The findings emphasize the significance of efficient NPA management in ensuring stable interest rates and overall economic well-being, carrying practical implications for policymakers and financial institutions.

Keywords: Non-Performing Assets, broad money, Panel regression, fixed effect, random effect, interest rates

Paper type: Research paper

1. Introduction

For the banking sector, the NPA is one of the best health indicators. The non-performing loans are one of the major and daunting challenges that have shaken the economies of many developed and developing countries. Any asset, including a leased asset, becomes a non-performing asset if it stops to generate income for a bank. A non-performing asset (NPA) can be defined as a credit arrangement for which the payment of principal and/or interest payment remains due for an indefinite period. NPAs are inescapable burden on the banking sector; therefore robust methods of NPA management are necessary for the success of banks. The key cause of growing NPAs, is a target-oriented approach that leads to deterioration in the quality of bank assets and thoughtful defaults, and improper management of loan accounts. A healthy banking sector is crucial for growth of economic development. Any fluctuation or collapse of banking sector would have a detrimental impact on other industries as well. The level of NPAs presents the reflection of healthy environment and growth in trade and finance (Sahoo and Majhi, 2022). Thus we can say that NPAs affect not only the banking sector but also the major sectors of economy. It can be said that the interaction between macro-environment of economy and micro-macro environment of banking system is a major determinant of interest rate and its spread. Money supply and capital formation are important determinants of interest rates in the economy. Banking and financial institutions promote to maintain GNPA ratio to deposits, risk pooling and diversification, and the distribution of



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loans by allocating them to different sectors of the economy. They pay interest rates for deposits in this process, and charge interest on loans in an unpredictable climate. Demirguc-Kunt et al. (2003) also discussed the question of how financial intermediation costs are influenced by the market structure, regulatory environment and institutional characteristics. In addition, the pressure from both banks and non-banking institutions on competition has increased. In such a dynamic environment, interest rates play an important role in gaining a substantial share of the banking market. To curb non-performing assets (NPAs), it is crucial to implement a multi-faceted approach. Banks and financial institutions should strengthen their credit assessment procedures, conducting thorough evaluations of borrowers' financial health and repayment capacity. Secondly, timely resolution mechanisms, such as bankruptcy laws and asset reconstruction companies, need to be in place to expedite the recovery of NPAs (Manikyamba and Tyagi, 2022).

Several researchers have talked about the association between interest rates and NPAs, and the impact of interest rates on NPAs. In current study we first try to identify the factors we are important in determining interest rates in the economy and further we have calculated the impact of NPAs on these factors. So the current paper seeks to suit a relationship between NPAs and certain indirect variables that reduce banks' lending performance. These factors include both basic factors for banks and factors for macroeconomic policy. We conclude by drawing policy lessons from this debate and propose some steps that can be taken to deal better with future policy making in order to avoid the vicious trap of interest rates, money supply in the economy, capital formation and NPAs.

The article proceeds as follows: Section 2 motivates the structure of our methodology and analysis of relevant literature. Section 3 explains the data, and its source, and econometric methods. Section 4 introduces the empirical model, explains the variables that are used in the empirical model, and addresses the variables. Section 4 displays the summary and conclusion.

1.1 Theoretical Framework

In this section, we design a simple framework to define a number of factors that have been taken to demonstrate the effect on commercial banks' lending ability of the Gross NPA ratio (calculated as a percentage of total advances). If interest and/or principal on a loan are not paid more than 90 days, the loan is treated as non-performing loan, while it is categorized as past due if payment is delayed for a shorter period (Selvarajan & Vadivalagan, 2013). In other works we can say that if a loans stops to produces income in the form of interest, commission or any other due, the loan becomes a non-performing asset. Then these NPAs are referred to as sub-standard assets for a period of less than or equal to 12 months. The assets which remain in the category of sub-standard assets for 12 months are again categorized as doubtful assets. According to RBI "Loss assets are deemed to be unrecoverable and of such low value that their continuation as a bankable asset is not justified, while some salvage or recovery value can exist." In addition, we have defined the relationship between NPAs and various variables that affect commercial banks' lending ability.

Non-Performing Asset and Interest Rates

The interest on a loan can be treated as the price paid by borrower to utilize the borrowed sum. It is calculated as a percentage of the principal. The interest rate that is adjusted against the effect of inflation to disclose the actual cost of borrowed funds by borrower and real yield to the lender (or investor), is called real interest rate. Generally, by attracting more consumers, generous lending requirements and low interest rates help to drive up sales (borrowings). However, this is followed by a greater frequency of bad debt defaults. The effect of interest rates on defaults has been studied by several researchers.

Several studies also confirmed a negative association between risk of payment default and real interest rates (Kaplin, et al., 2009). They suggested that the return on investment (here the interest income) should not be less than cost of capital for the financial soundness of

the company. Therefore, if the interest rate is raised, there is a strong risk of defaults in paying back the additional interest in order to obtain a fair return on investment. On the other hand, if interest rates are low, bank borrowing will rise and the eventual NPAs will further reduce investment returns. So we have tried to evaluate the effect of NPAs on interest rates and real interest rates in this study as they are the most important factor for the profitability of the bank.

Non-Performing Asset and Bank Capital to Asset Ratio

The ratio of bank capital and reserve to overall assets of the bank is known as the bank capital to asset ratio. The bank capital includes funds, retained profits, reserves and provisions, and valuation adjustments etc. while assets include land, general and specific assets etc. NPA triggers assets and the mismatch in responsibility will broaden. The NPAs are responsible for the loss of benefits and the quality of assets. The Narsimhan Banking Reform Committee emphasized on prudential measures to identify profits, classify assets and need for provision as NPAs are inevitable and alarming for the banks. Capital contains tier 1 capital (paid up equity and common stock) which is a joint feature of all financial structures in all countries, and total regulatory capital. The total regulatory capital includes many distinct forms of subordinated debt instruments that need not to be refunded if the funds are needed to retain minimum level of capital (these include tier 2 and tier 3 capitals). Both non-financial and financial assets constitute total assets.

Non-Performing Asset and Broad Money

Broad money (M3) includes the total money circulating in the country and liquid money (such as bank deposits, treasury bills, gilts). In India broad money is defined as the sum of total money supply, total assets that households and business circulate in the way of payments and for investments, such as bank account, and near money (on the basis of liquidity). Munib Badar et al. (2013) found that NPAs have a combination co-integration with the supply of money and the interest rate. Growing non-performing assets contribute to low quality of assets. There is a problem for banks as rising non-performing assets call for interest rate increases while corporate demand for interest rate reduction as it affects the decision to invest in capital in addition to their financial results. Money supply is often indirectly influenced by non-performing assets as a significant determinant of the interest rate. More capital offers lower interest rates and borrowing money, leading to more NPAs. The current research is therefore focused on testing this indirect effect that varies from non-performing assets to the money supply in the economy.

Non-Performing Assets and Capital Formation

The net accumulation of capital for a given economy over an accounting period is the production of capital or capital formation. The term refers to purchases of capital goods such as utilities, machinery, transportation equipment and electricity. More recently, the word 'capital formation' has been used in financial economics in a much wider or more ambiguous context to refer to savings drives, the creation of financial institutions, fiscal policies, public borrowing, the growth of capital markets, the privatization of financial institutions and the growth of secondary markets. In absolutely simple terms it can be termed as mobilization of domestic or household savings into capital or investment. Indian economy has suffered from a vicious cycle of low capital formation due to the increasing NPA crisis. The cycle of economic activities remains in circulation and grows according to the capital formation and credit facilities in the economy. A developing economy is usually seen to have less capital formation and money supply. In such situations commercial banks provide the solution by becoming source of capital for business houses. If the NPAs in the banks increase, the banks suffer from lack of funds for its operational activities and to solve this banks have to borrow for managing its assets and liability mismatches for a shorter period. Finally the banks have to face increased cost and less profit.

2. Review of Literature and Research Gap

This section of the study shows an extensive survey of the literature available on or related to the offered topic for study. Many researches in different countries have been done to find out the major causes of NPAs and its effects (Khemraj & Pasha, 2009; Fofack, 2005; Khan, Siddique, & Sarwar, 2020). Fofack, H.L. (2005) addressed the main causes of NPAs in Sub-Saharan Africa in 1990s when the economy was facing the severe problem of economic and banking crisis while Khemraj & Pasha (2009) conducted similar study for Guyanese banking sector. In their study they concluded the significant positive impact strong currency (change in real effective exchange rate) on non-performing loans. The financial determinants of bad loans at banks in the Indian public sector have also been investigated by Ramesh, K. (2019). He observed that the credit-deposit ratio, loan maturity and ROA had a negative effect on NNPA's, while the operating expenses and capital adequacy ratio had an insignificant impact on NPAs. The priority sector's lending, collateral rates and non-interest earnings have a positive impact on NNPA's. Bardhan (2019) also found out determinants of NPA in Indian context. Dimitrios, A., Helen, L., & Mike, T. (2016) identified the main determinants of non-performing loans in the banking sector of the euro area for the period 1990-2015, using GMM estimates. Some studies also investigate into bank specific and macro-economic determinants of NPAs (Bardhan, 2019; Mishra, Jain, Abid, & RL, 2020). Messai, & Jouini (2013) talk about different micro and macro-economic determinants of non-performing assets. (Goyal et al., 2023) study the causes of non-performing assets (NPAs) in emerging nations are investigated. The study's conclusions showed that loan defaults frequently happen at a lower rate during times of rapid economic expansion, which therefore results in lower levels of NPAs. (Nasreen, Samia et al., 2023) used a sample of 309 banks from 15 Asian nations between the years of 2010 and 2020 to analyze the impact of rules, transparency, and corruption on the performance of the banking sector. (Chandra, 2023) developed theoretical connections between the two main variables, NPA and investment, in relation to the rest of the economy.

Several scholars have also investigated the association between different macro-economic variables and non-performing assets (Singh, 2010; Swamy, 2012). Using a dataset from 2007 to 2013, Vatansever, M., & Hepser, A. (2013) analyzed the relationship between macroeconomic indicators, bank-level variables and non-performing loan ratios in Turkey. In order to shed some light on the nature of the substantial increase in debt accumulated in recent years, Rinaldi, L., & Sanchis-Arellano, A. (2006) the financial fragility of households in a sample of euro-area countries. Sharma, S. et. al. (2019) worked towards assessment and management of NPAs in Indian banking system. Partovi, & Matousek, (2019) studies the efficiency measures in Turkish bank's in handling NPAs and impact of NPAs on the profitability of banks. Several studies also measure the influence of NPAs on banks' operational efficiency, profit making and solvency position (Bawa, Goyal, Mitra, & Basu, 2019; Sharma, Kothari, Rathore, & Prasad, 2020). Bawa, J. K. et. al. (2019) compared and calculated the impact of NPAs on 31 financial ratios of 46 banks. Jayaraman & Bhuyan (2020) analyzed the impact of NPAs and loan write-offs on the profitability of banks. Amin (2019) discussed how the governments handle the emerging problem of non-performing assets in emerging economies with special reference to Bangladesh.

Ozili (2019) in his study has tried to find out the impact of financial development on non-performing assets. The results of Ozili's study indicate that financial growth is positively correlated with non-performing loans (where financial growth is taken as the involvement of foreign banks and financial intermediation). Bank performance, loan loss coverage ratio, competitiveness and stability of the banking system are inversely correlated with NPLs, while banking crises and bank concentration are positively associated with NPLs. NPLs are negatively correlated with regulatory capital and bank liquidity in the regional study, suggesting that less NPLs are encountered in banking sectors with higher regulatory capital and liquidity. The current study presents the opposite angle of Ozili's study where we intend to study the impact of NPAs on the financial and selected variables of the study. From the conclusive summary of related literature, a wide gap can be seen for study on the offered topic. Most of the researchers discuss the determinants of NPAs, bank specific,

internal and external factors and macro-economic variables causing NPAs. The effect of NPAs on the operating performance and profitability of commercial banks in the country is also being studied in several studies. But we find a gap where we see various variables that have a bidirectional effect on NPAs and create a loop that further increases banks' NPAs. So in current study we have tried to find out the factors that have bidirectional relationship with NPAs.

3. Method and Procedure

3.1 Data

We examine the impact of Gross NPA ratio on lending interest rate, real interest rates, bank capital to assets ratio, broad money supply, Gross capital formation (% of GDP). The current study uses the balanced panel data of 25 countries for 11 years extending from 2011 to 2021. The sample countries are developing, developed and the economy in transition phase. The data for current study has been sourced from the official website of the World Bank (The list of selected countries and variables has been attached to appendix-A)

3.2 The Variables

GNPAR: Gross NPA ratio (Gross NPA as a percentage to loan and advances)
 LR: lending Rate (lending interest rate running in the country)
 RIR: Real interest rate (Interest rate after adjusting for inflation in the economy)
 CAR: Bank capital to assets ratio (Ratio of bank's capital and bank's assets)
 MS: Broad money Supply (money supply (M3) data as per World Bank)
 GCFR: Gross capital formation as a percentage of GDP (the proportion of capital formation in comparison to GDP)

3.3 Econometric Model

To find out the impact of non-performing assets on the selected variables of the study, panel data regression models have been used. Panel data is the data which involves the combination of times series and cross sectional data. In any panel data, there may individual effect or time effect or combination of both. The equation for the panel data regression is expressed below:

$$Y_{it} = X_{it} \beta + \alpha_i + \xi_t + \varepsilon_{it} \dots\dots\dots eq(1)$$

Where Y_{it} shows the vector of dependent variable, X_{it} is vector of an observable regressor, β is unknown coefficient, α_i is individual effect, ξ_t is the time effect and ε_{it} shows the vector of error term.

There are various estimations models applied in panel data regression; these are pooled ordinary least square (OLS), fixed effect and random effect model, and dynamic models. Pooling of the data means two or more data set of the same type. It means, in this method, all the observations of the data set are pooled ignoring the dual nature of both the nature of data (cross sectional and time series). In fixed effect model, μ_i is assumed to be fixed parameter and remainder disturbances stochastic with ε_{it} independent and identically distributed IID (Baltagi, 2008). In Random effect model, intercept is varied between cross-sectional data which avoids loss of degree of freedom compared to fixed effect model. This model helps to investigate the differences in error variances. If individual effect u_i (cross-sectional or time specific effect) does not exist ($u_i=0$), ordinary least squares (OLS) produces efficient and consistent parameter estimates. So, the first requirement (for model identification) is to check whether all coefficients are constant across time and individuals. Pesaran CD test is used to check individuality of each cross sectional unit. Next, we check time effect with the help of Wald joint test on time dummies. The general additive effects $\alpha_i + \beta_t$ being a special case of multiple interactive effects appears to be less noticed. But once pointed out, it becomes trivial and obvious (Bai, J. 2009). These additive effects can be removed by the within group transformation (least squares dummy variables).

After applying fixed and random effect models, the Hausman specification test (Hausman, 1978) is applied to compare between them. If the null hypothesis that the individual effects are uncorrelated with the other regressors is not rejected then random effect model is found more suitable and consistent than fixed effect model.

4. Data Analysis

Summary Statistics

Table 1 shows the summary statistics of independent and dependent variables taken for current study (where GNPARG is regressor and LR, RIR, CAR, MS, and GCFRG are dependent variables).

Table 1.
Summary Statistics

Variable	Mean	Median	S.D.	Min	Max
GNPAR	4.90	3.29	4.11	0.0923	21.9
LR	12.6	9.45	11.8	3.29	60.0
RIR	8.54	5.51	10.7	-12.9	52.4
CAR	10.0	9.59	3.38	3.65	21.0
MS	9.65	9.09	5.74	-18.7	26.5
GCFR	24.8	24.0	6.14	12.7	41.1

Source: Authors' calculation

Table 2 shows the results of test conducted to check the common group intercept. The results show that the data is not poolable (reject the hypothesis that the groups have common intercept) so pooled model is not suitable for current data set. If the entire groups are found to have common intercept, ordinary least squares (OLS) produces efficient and consistent parameter estimates.

Table 2.
Testing Group Intercept

Dependent Variable	Test statistic: F(24, 199)	P-value	Decision
Lending interest rate	265.6740	0.00000	Rejected
Real Interest Rate	56.4091	0.00000	Rejected
Bank Capital to Asset Ratio	96.0547	0.00000	Rejected
Broad Money annual growth	3.3916	0.00000	Rejected
Gross capital formation (% of GDP)	33.0025	0.00000	Rejected

Source: Authors' calculation

Table 3 and 4 present the Cross Sectional Dependence or individual effect and time effect respectively. As per the result of Pesaran CD test for cross-sectional independence, the null hypothesis that there is no cross-sectional or individual effect is rejected (p-value <0.05). So it can be said that there is an individual effect of all the countries (countries are different as panel). The time effect has been tested using Wald Joint test. The results of test reject null hypothesis that there is no time effect. So this makes a specific case where variables have both individual as well as time effect.

Table 3.
Pesaran CD Test

Dependent Variable	Test statistic (GNPAR)	P-value	Decision
Lending interest rate	3.72608	0.00019	Rejected
Real Interest Rate	6.38000	0.00000	Rejected
Bank Capital to Asset Ratio	4.83563	0.00001	Rejected
Broad Money annual growth	6.90839	0.00000	Rejected
Gross capital formation (% of GDP)	2.31184	0.0208	Rejected

Source: Authors' calculation

Dependent Variable	Test statistic (Chi-square)	P-value	Decision	An Investigation into Indirect Effect of NPA on Bank's Lending Efficiency: A Global Perspective 93 Table 4. Wald Joint Test for dummies
Lending interest rate	16.4809	0.03599	Rejected	
Real Interest Rate	38.6721	0.00000	Rejected	
Bank Capital to Asset Ratio	26.1417	0.00099	Rejected	
Broad Money annual growth	43.1523	0.00000	Rejected	
Gross capital formation (% of GDP)	19.2417	0.01361	Rejected	

Source: Authors' calculation

As per table 5 we can see that lending interest rate (LR) is significantly impacted by non-performing asset (GNPAR) at 1% level of significance and the positive association indicates the rise in interest rates with increasing NPAs. Again in case of real interest rate (RIR), the impact of non-performing assets is significant at 1% level of significance. Real interest rate shares positive association with non-performing assets which implies the increase in real interest rate with increasing NPAs. We do not find the significant impact of NPAs (GNPAR) on bank capital to assets ratio (CAR). Broad money (MS) is negatively impacted from non-performing asset at 10% level of significance. This negative association implies decrease in broad money with the increase in NPAs. The Gross capital formation (As a % of GDP) (GCFR) is impacted by non-performing assets at 1% level of significance.

Dependent Variable	Model		Coefficient	Std. error	t-ratio	p-value
LR	Fixed	Const	11.3818	0.42320	26.890	0.0000***
		GNPAR	0.255122	0.08119	3.142	0.0019***
	Random	Const	11.3621	2.41046	4.714	0.0000***
		GNPAR	0.259142	0.08040	3.223	0.0013***
RIR	Fixed	Const	6.63213	0.78268	8.474	0.0000 ***
		GNPAR	0.388984	0.15016	2.590	0.0103**
	Random	Const	6.56591	2.14701	3.058	0.0022 ***
		GNPAR	0.402485	0.14455	2.784	0.0054 ***
CAR	Fixed	Const	9.96847	0.18396	54.190	0.0000 ***
		GNPAR	0.00703025	0.03529	0.199	0.8423
	Random	Const	9.88711	0.63908	15.470	0.0000 ***
		GNPAR	0.0236180	0.03482	0.678	0.4977
MS	Fixed	Const	11.4802	1.00917	11.380	0.0000 ***
		GNPAR	−0.373850	0.19362	−1.931	0.0549
	Random	Const	9.96613	0.88106	11.310	0.0000 ***
		GNPAR	−0.0651508	0.12727	−0.511	0.6087
GCFR	Fixed	Const	26.6064	0.57452	46.310	0.0000***
		GNPAR	−0.373632	0.11023	−3.390	0.0008***
	Random	Const	26.3063	1.24105	21.200	0.0000***
		GNPAR	−0.312438	0.10402	−3.003	0.0027 ***

Table 5.
Fixed and Random effect models

Source: Authors' calculation

Dependent Variable	Rho	Hausman test	
		Chi-square	p-value
LR	0.523347	0.158486	0.690554
RIR	0.248306	0.117452	0.731815
CAR	0.507937	5.1056	0.0238487
MS	0.184918	4.48455	0.0342025
GCFR	0.541198	2.69435	0.100704

Table 6.
Resut of rho, Joint and Hausman Test

Source: Authors' calculation

5. Findings and Discussion

The current study unlike existing literature available, explores a different direction of association which studies the impact of NPA on Interest rates. The many researchers have talked about the impacted of interest rates on NPAs (Khemraj & Pasha, 2009; Ng'etich Joseph Collins, 2011; Das & Dey, 2019) while the proposed study has successfully established that there is a bidirectional impacted between NPAs and interest rates. As per the findings the non-performing assets are pushing the interest rates (both lending interest rates and real interest rates) in upward direction with the increase in NPAs. Assuming that NPAs bring decrement in capital and deteriorate assets quality of bank, impact of NPAs on the ratio between bank's capital and reserves (which include owners equity, retained earnings, general and special reserves and provision, and valuation adjustments) and bank's assets was checked. The current research does not disclose any association between NPAs and bank capital to assets ratio. Further money supply is directly linked with lending capacity of a bank and as well as interest rates. More money supply causes decrease in interest rates and increased lending capacity as well as increased borrowings. Several studies explain the bidirectional relationship between NPAs and money supply (Vatansever & Hepsen, 2013; Ng'etich Joseph Collins, 2011). The current study shows that money supply in the economy (broad money-M3) is impacted by non-performing assets in an inverse direction causing decreasing in money supply with the increase in NPAs. Scholars have also investigated the relationship between NPAs and capital formation (Mohnani & Deshmukh, 2013; Arora & Ostwal, 2014). The gross capital formation is not impacted by NPAs as per the findings while gross capital formation as % of GDP is significantly impacted by non-performing assets. The findings of the study are able to serve as literature while impacting the impact of NPAs on variables which are impacting the lending capacity of the banks indirectly.

6. Theoretical Implication

The theoretical implications of this study extend our understanding of the relationship between non-performing assets (NPAs) and various economic variables. By investigating the impact of Gross NPA ratio on lending interest rates, bank capital to assets ratio, broad money (M3), and gross capital formation ratio, this research contributes to theoretical frameworks related to financial stability and macroeconomic dynamics. The study highlights the importance of incorporating NPA management strategies into economic models to accurately capture the interplay between financial health, interest rates, and investment decisions. Overall, the theoretical implications of this study emphasize the need for a holistic understanding of the relationship between NPAs and key economic variables, providing a foundation for future research on financial stability, lending practices, and policy formulation.

7. Practical Implication

The study's practical implications for policymakers and financial institutions include Prioritizing effective NPA management strategies, implementing proactive measures within financial institutions, considering the importance of balanced interest rates when formulating monetary policies to promote sustainable lending practices. Overall, the study provides valuable insights that guide policymakers and financial institutions in managing NPAs, maintaining a healthy economic environment, and fostering sustainable growth.

8. Future Directions and Limitations of the study

The current study provides a scope for cross-country analysis to capture variations across different economies, Comparative analysis of different banking systems, Long-term time-series analysis to observe dynamic effects, Exploration of mediating factors and mechanisms, Assessment of policy measures, and Examination of technological advancements. These directions will enhance understanding of the indirect impact of NPAs on lending efficiency, informing NPA management strategies, lending practices, and financial stability measures.

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Exploring the Impact of AI Technology Adoption on Productivity of Agile Software Development Teams with High Attrition: A Pilot Study

Exploring the Impact of AI Technology Adoption on Productivity of Agile Software Development
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Abstract

Purpose: This study explores the effect of the adoption of AI tools and frameworks on the productivity of Agile software development teams with high attrition rates.

Design/methodology/approach: For this study, uses a combined theory approach to build and test a model for the effects of productivity factors along with the impact of AI technology on to the Agile software development team's productivity having a high attrition rate. A web-based survey is used to collect the sample data, which was eventually tested with the help of SmartPLS using partial least square methods and Bootstrapping.

Findings: This study shows that the adoption of AI technology has a partial mediation effect on the Agile software development teams having a high attrition rate but could help sustain it by automating mundane tasks for predictable outputs.

Research limitations/implications: Limited availability of data regarding factors of productivity, inadvertent sampling bias, and selecting the appropriate size of a data sample

Originality: The study findings shows that the AI technologies and tools, will help teams to sustain their productivity even though there are constraints like high attrition.

Keywords: Agile, Artificial Intelligence (AI), Attrition, Productivity Factors, Software Development.

1. Introduction

Agile Software Development promotes iterative development where highly-collaborative, self-organizing, and cross-functional development teams work together towards target business goals. In recent years, the adoption of Agile methods in practice has increased from 40% in 2007 to almost 97% in 2018 (Hoda et al., 2018). As productivity is a measure of success for system analysis and hence several researchers have worked towards, determining ways to improve it as well as factors affecting productivity improvement (Shah et al., 2015). It is challenging to identify factors influencing productivity at the process level as there could be numerous distinct factors at the numerous levels of the execution (Fatema & Sakib, 2018). As of today, Artificial intelligence (AI) adoption in the software development world is a buzzing term. Artificial intelligence (AI) is increasingly being used in Agile development and other fields. The fast-developing domains of AI are ideal for Agile's speed and efficiency. Recently in post pandemic times, it is observed that these agile software development teams are dealing with high attrition and turn-over rates and which is certainly affecting the productivity of software development team. In this study, explores, whether AI technology adoption would influence the productivity of the Agile software development teams experiencing high attrition rates.

2. Objective of study

The present study investigates the impact of AI frameworks adoption on the productivity of the Agile software development team. To accomplish this a literature review was carried out based on the available literature and then the hypotheses were formulated to investigate the significance and impact of these factors on the productivity of Agile software development teams (Ambler, 2006) In further course, a proposed research model was created with the help



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3. Theoretical Background

Theory of Total Factor Productivity (TFP) is adopted to test the significance of AL tools implantation to improve the productivity in software development context. TFP estimates how much output can be created from a certain number of inputs, which is a measure of productive efficiency. (Comin, 2010) In the classical way, Productivity Theory of Industrial Engineering (PTIE) is focused on the physical productivity that allows a precise problem-solving approach based on cutting-edge technologies and have high productivity rates. (Usubamatov, 2017) The Technology-Organizations Environment (TOE) framework, is used to formulate the proposed model for the study. This study also adopts the technology acceptance model (TAM) that is an information systems theory, derived from the theory of Diffusion of Innovation (DoI) and theory of reasoned action (TRA), to understand the Perceived Usefulness (PU) i.e. a degree to which software developers believe that AI tools adoption would enhance their job performance or productivity. (Katebi et al., 2022)

4. Literature Review

In this study, authors have adopted Kitchenham and Charters (2007) guidelines for conducting a Systematic Literature Review (SLR). Research papers from past ten years from EBSCO, SCOPUS, IEEE Explore and Web of Science database were referred to retrieve a primary data by searching the keywords like- "Agile", "Productivity", "Factors"," contract types", "Artificial Intelligence" etc. Upon excluding duplicate papers, and after applying insertion and exception criteria, relevant Sixty-three research papers articles were selected, close to the research subject (Luke et al., 2004), out of which forty-eight papers indexed in Scopus database, which used for morphological analysis. To achieve a comprehensive search output, an organic search is performed to identify supplementary papers which were cited in previously filtered papers (Zorzini et al., 2015). The paper identified broader key themes , which were categorized in to eight factors or dimensions based on the judgements of researchers and practitioners (Ritchey, 2011). A research model is formed which justify the objectivity clause of morphological analysis and defines its strength (Zwicky, 1967). This review was driven through phased of systematic review protocol and classification framework. The Systematic literature review is one of the crucial scientific activities for reviewing previous research work (Tranfield et al., 2003). We referred to several research papers from the past twenty years with the help of repositories like EBSCO, SCOPUS, IEEE Explore, and Web of Science. After applying insertion and exception criteria we were able to select relevant research articles to receive research work as close as the research subject. To achieve a comprehensive search output, we also performed an organic search to identify supplementary papers which were cited in previously filtered papers (Zorzini et al., 2015). A fundamental classification of referred research articles and journal papers based on the available primary information in which major themes which are emerging out of the review were identified, establishing border dimensions. A literature was referred to get insights regarding measuring agile productivity, the contributing factors, influencing productivity, details regarding the research process in a subject area, and theoretical background supporting research findings. The literature review suggests that, the classification framework revealed that significant work in this area was carried out in many countries. Most of the theoretical research papers were composed of conceptual papers, case studies and review papers These papers were found to be mainly using survey methods, qualitative analysis, and experimental studies. Out of 48 shortlisted studies, research papers were 27 (56%), Conceptual articles were 18 (38%), Case studies were 10 (21%) and reports were 3 (6%). Most of the studies were from Americas (50%) followed by the Europe (25%), and Asia Pacific region (15%), while contribution of the other regions was at last (8%). Considering the publication wise distribution, IEEE has published most studies (27%) followed by Emerald (21%), Springer (15%) and others (13%). When main these of these studies are considered then it was found

that, most of these studies were from project management area (48%) followed by Information Technology Management (27%), Organisational Management (15%) and Strategic Management (6%)

5. Hypothesis Formulation

Several literature reviews list down factors which are having significant impact on software productivity (De Barros Sampaio et al., 2010; Jiang et al., 2007). A detailed review was carried out with an intent to identify factors impacting productivity in software engineering (De Barros Sampaio et al., 2010; Trendowicz & Münch, 2009; Wagner & Ruhe, 2018). Some of the earlier surveys in this field suggested that an extent of adopting Agile development methods, are positively corelated with quality and productivity improvements (Ambler, 2006). Researchers have also noted that there is a certain productivity improvement, experienced by the team deployed Agile methods than productivity of the team using traditional methods (Dybå & Dingsøyr, 2008). Several studies carried out by software engineers and researchers implied that productivity of software development team can improve by implementing best practices like DevOps, AI & Machine Learning, Advanced data analytics & Agile ecosystems (Varma, 2015; Ilieva & Nikolov, 2019; Lui et. al., 2019; Schöttle, 2019). Salient features of the Agile Software Engineering construct are- Requirement Stability, Extensive Release Planning, Feature Driven Development (FDD) Design patterns, Code Reusability and Code complexity. (Damodharan & Muralitharan, 2020; Lliuhin, 2020; Ojha, 2021) By the means of these, a team could achieve Agility in the software development process.

Several studies have advocated how transforming business by adopting several agility principles in various areas of organizational culture, stakeholders, business operations and services will help in improving overall software engineering processes (Beck et al., 2001; C. O. De Melo et al., 2013; Ghayyur et al., 2018) These factors form the Agile ecosystem that consists of Agile business operations, Agile portfolio management, and Agile working culture in the enterprise context and those are being supported by studies exploring the benefits for Agile transformation of portfolio management would help in achieving success (Stettina et al., 2015, Bushuyev et al.,2021) Based on this we could form the following hypothesis as-

H1: There is a significant impact of the Agile Ecosystem on the Agile Software Engineering process;

Previous studies have confirmed that the adoption of application lifecycle management (ALM) tools would help in improving the software engineering process (Özkan et al.,2019; Shaikh et al., 2021). Melo (2013) has stated in the study that Software Methods, and Tools usage are helpful in improving software engineering processes (C. O. De Melo et al., 2013). Later studies have also stated that adopting ALM tools throughout the software development lifecycle would help to achieve agility in software development process (O'Regan, 2021). Similar to the tool's adoption, studies have also indicated that implanting lean practices would also help in achieving agility the in-software development process (Przybylek et al., 2021; Manzoor at el., 2021) in further addition to the lean practices, some studies have also referred to Value Stream Mapping (VSM) which is a lean technique that designs and illustrates each stage of the process. Many lean practitioners consider VSM to be a crucial tool for identifying waste, speeding up process cycles, and enacting process change. As VSM analyses the information flow and focuses on waste removal, it adds to the process agility in context with software development. (Tripathi et al., 2021; Tankhiwale et al., 2020) Hence the following hypothesis is formed-

H2: There is a significant impact of Process Agility on Agile Software Engineering

As many organizations are extensively going for agile methodologies for software development, they should also be focusing on delivery excellence. Delivery excellence is a client-focused strategy for planning, developing, and distributing a steady stream of worthwhile goods and services to users and customers which is necessary for attaining organizational agility. Organizational agility could be characterized by building a capability toward change response and organizational adaptability, Agile business operations and Leadership transformation (Ulrich et al., 2019; Koçyigit et al., 2020; Tallon et al., 2019;

Mrugalska et al., 2019; Akkaya et al., 2020) Hence the following hypothesis is formulated -
H3: There is a significant impact of organizational agility on delivery excellence for Agile software development projects.

These researchers advocated the significance of factors related to people or teams influencing productivity (Brooks, 1975; DeMarco & Lister, 2014). These studies have identified factors associated with several stakeholders which contribute to achieving the delivery excellence for Agile software development projects. Out of these factors, the most relevant factors are as follows - Team's Skill levels (Aghina et al., 2017; Prechelt et al., 2016; Taylor, 2016; Hasnain et al., 2013; McHugh et al., 2012, Digital.ai Team, 2020). Collaboration within the software development team members (L. Holbeche, 2018; Kakar, 2017; Inayat et al., 2015) and rapid feedback from the customers (Iqbal et al., 2019; C. O. De Melo et al., 2013; Cardozo et al., 2010) that impacts delivery excellence function in Agile software development projects and hence the hypothesis would be.

H4: There is a significant impact of stakeholders adopting the Agile principles on achieving delivery excellence in context with Agile software development

Many studies have explained that- requirement stability, complexity index of Software code, and several programming languages will have a significant effect on software development productivity and how adopting to the Agile practices will help to excel in customer satisfaction i.e., delivery excellence. (Beam et. al., 1987; Ahmed et al., 2010; Kumar & Bhatia, 2012; Oliveira et al., 2018) also several researchers have stated that Feature-driven Development (FDD), code reusability, and design patterns will also lead to delivery excellence for the software development process as they would optimise the actual efforts for designing and coding. (Budoya et al., 2019; AlOmar et al., 2020; Mor et al., 2015)

H5: There is a significant impact of Agile software engineering practices on delivery excellence function.

Agile software development methodologies and practices are being rapidly embraced by software development companies all around the world, hence there is unquestionably a need to measure the productivity of the Agile software development process in a changing business environment. (Shah et al., 2015; Yu et al., 1990) A Delivery Excellence is a collective function consists that focuses on customer satisfaction. It can be achieved through Digital Transformation, Design thinking for customers, Continuous Delivery pipeline & DevOps (Pereira et al., 2018; Hechler et al., 2020) Productivity in the context of software development is just the ratio of ROI to cost, but the difficulty here is in identifying an output parameter that is both qualitative and quantitative. According to prior research, measures like the Done Index, Velocity, and Cycle time reduction of Software Deliverables, may be used to determine the productivity of Agile software development. (Ramírez?Mora et al., 2017; Kropp & Meier, 2015) Hence the following hypothesis is formulated-

H6: There is a significant impact of the Agile delivery excellence function on productivity of the Agile software development team.

Many studies puts that by adopting AI technologies will help with effectively managing agile software development projects (Dam et al., 2019; Panesar et al, 2021). Implementation of AI/ML technology would be termed as emerging milestones in software development. (Nath et al., 2018) and once the processes are mature enough for AI application adoption, it is possible to utilise AI to improve internal business processes and productivity of team, Hence it implies that the condition in which, if Agile software development projects have delivery excellence capabilities, it would have a significant impact on AI/ML tools and framework adoption abilities of these projects. Hence the formulated hypothesis is-

H7: There is a significant impact of delivery excellence capabilities of Agile software development teams on their ability to adopt AI tools and framework

Several recent studies have discussed about AI technology having a favourable impact on productivity. (Yang, 2022) The objective of AI adoption is to maximize the advantage of the potential that AI offers in terms of teams' performance and productivity improvement and hence adopting technology may be a crucial tool for any business as AI aids in goal-setting and goal-achievement for both people and organizations. (Ramachandran et al., 2022) which is also supported by the literature regarding Agile software development. Many studies

suggests that the AI tools' adoption will help in Agile software development teams significantly to improve their productivity and performance (Münch, 2022; Ameta et al., 2022) Here, the study has a focus on Agile software development team with high attrition rate i.e., turnover ratio. Workflow disruptions and knowledge and skill deficiencies might result through high rates of attrition within the development teams. These development teams can swiftly adjust to the changes and ensuring that work continues effectively by preserving agility, which reduces the effect of attrition on current initiatives. (Aly, 2022; Pereira et al., 2023) Hence based on the empirical evidences, a hypothesis is formulated as following-

H8: Implementation of AI tools and framework adoption will have significant impact on productivity of Agile software development team with high attrition rates.

6. Research Methodology

This study was conducted in three stages- (A) The objective is formed by reviewing available literature like research papers, books and scholarly articles etc (B) A formed questionnaire for the survey is targeted towards the Agile software development practitioners, and it gathers qualitative data through a web-based survey based on the seven pointer Likert scale with following loadings- 7-Strongly Agree, 6- Agree, 5- Somewhat Agree, 4- Can't Say, 3- Somewhat Disagree Agree, 2- Disagree, 1- Strongly Disagree. The Questionnaire included 39 questions designed for specific process productivity factors of Agile software development emerging out of literature review. For data collection and a convenience sampling method is used to collect responses from respondents working with Agile software development in selected organisations, having added years of experience. Collected data is then analysed using Smart PLS4 data analysis tool.

For the study, the responses collected from 435 participants which were selected from the teams with high turnover rates for last 6 months. The web-based Google form with questionnaire was made available to the participants. through the email notification was sent to intended 600 participants. Agile software professionals for selected organisations, out of which 424 have submitted the survey. Agile practitioners from varied Roles and Professional expertise, were targeted for the study. Out of total respondents, 56 % respondents are Development Team Members (TM), 32% were Scrum Masters/Project Managers (SM/PM), 11% of the participants were Product Owners (PO) and only 1% of respondents were in DevOps Engineer Role. The authors used Cochran's sampling formula to determine the optimised size of the sample size. This study is limited to the members of Indian Agile Software Development teams because of the proximal availability of the authors. Here, a sizable population can be regarded as genuine responders, hence the authors used Cochran's equation in the below-mention technique to determine that a minimum sample size of 385 was needed (Cochran, 1977).

$$n0 = z^2 pq / e2$$

Here, Z= 1.96, P=0.5 and q=(1-p)=0.5 and e=5%, hence the optimum size of the sample will be 385 respondents.

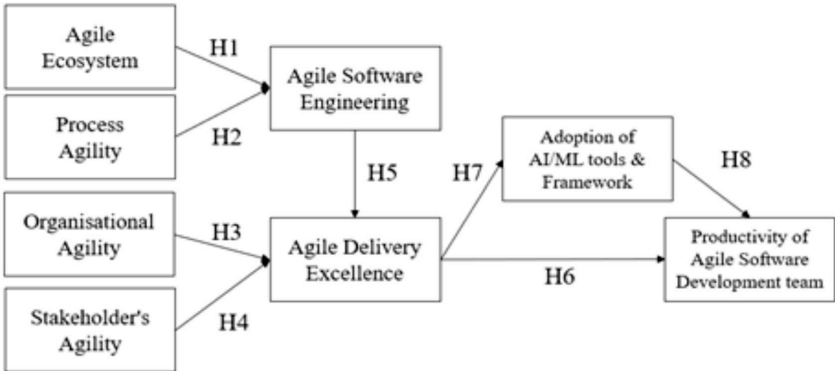


Figure 1.
Proposed Research Model

6.1 Measurement Model

While formulating the measurement model, after evaluating the entire sample, we have eliminated the items with factor loadings <0.6 (Anderson & Gerbing, 1988) After that the factor loadings for the remaining items are computed along with the reliability and validity findings. To establish the reliability in the study model, constructs value for alpha or CR is computed and which is found > 0.7 for all the constructs. Hence the model is reliable (Henseler et al., 2009). As a measure of the convergence of several variables into its fundamental construct, we have used the average variance extracted (AVE) value. Ideally, a construct's AVE value should be > 0.5 to indicate that it is convergent with its respective variables and that the factor is appropriate for the study model (Bagozzi & Yi, 1988).

Constructs	Variables	Factor Loading	Cronbac h's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Agile Software Engineering (ASE)	Requirements Stability (AES1)	0.909	0.869	0.885	0.721
	Extensive Release Planning (AES2)	0.906			
	FDD, Code Reuse & Design Patterns (AES3)	0.828			
	Complexity of Software code, Programming language and Code Size (AES4)	0.745			
Agile Ecosystem (AES)	Agile Culture (AES1)	0.820	0.804	0.822	0.717
	Agile Business Operations (AES2)	0.838			
	Agile portfolio Management (AES3)	0.881			
Organizational Agility (OA)	Change Response and Adaptability (OA1)	0.849	0.802	0.825	0.716
	Agile Operating Environment (OA2)	0.896			
	Leadership Transformation (OA3)	0.791			
Stakeholders Agility (SA)	Team Skills (SA1)	0.758	0.753	0.759	0.670
	Team Collaboration (SA2)	0.851			
	Rapid Customer Feedback (SA3)	0.844			
Agile Delivery Excellence (ADE)	Design Thinking (ADE1)	0.841	0.763	0.765	0.679
	Digital Transformation (ADE2)	0.813			
	Continuous Delivery pipeline & DevOps (ADE3)	0.818			
Process Agility (PA)	ALM Tools Infrastructure (PA1)	0.738	0.798	0.882	0.602
	Lean Process Management (PA2)	0.812			
	Value Stream Mapping (PA3)	0.745			
Adoption of AI tools & Frameworks (AI)	Workflow Automation (AI1)	0.902	0.792	0.801	0.714
	AI based predictive Data Analytics (AI2)	0.911			
	Cloud Computing (AI3)	0.708			
Agile Development Teams Productivity (with high attrition rates) (ADP)	Done Index (ADP1)	0.879	0.845	0.848	0.763
	Velocity (ADP2)	0.879			
	Cycle Time Reduction (ADP3)	0.862			

Table 1.
Confirmatory Factor
Analysis

Note: N= 424, Coefficient of reliability i.e., Cronbach's $\alpha > 0.7$ and CR > 0.8 for all the constructs, which is recommended

The evaluation the model's discriminant validity is performed as below-. The square root of each construct's AVE score is larger than its correlation with other constructs, indicating a strong inter-correlation between the dimensions. As a result, multi-co-linearity is not a possibility, and the model has reliability, convergent validity, and discriminant validity.

Constructs	ADE	ADP	AES	AI	ASE	OA	PA	SA
ADE	0.824							
ADP	0.795	0.873						
AES	0.811	0.819	0.852					
AI	0.750	0.692	0.808	0.845				
ASE	0.708	0.752	0.847	0.842	0.849			
OA	0.698	0.639	0.709	0.672	0.666	0.846		
PA	0.729	0.621	0.708	0.837	0.717	0.671	0.776	
SA	0.581	0.560	0.541	0.503	0.516	0.472	0.508	0.819

Table 2.
Discriminant Validity
Analysis

6.2 Structural Model

To have any significant impact from the dependent variable in this case, the least 10% significance threshold must be satisfied. The Q2 is assessed using the blindfold process, which examines the predictive significance of the model, and the R2 discusses how much variance in the dependent variable can be explained by the independent variable. Here, with the help of R2 variance in the adoption of AI can be determinate.

Endogenous Latent Variables	R ²	Q ²
Agile Delivery Excellence (ADE)	0.632	0.629
Agile Development Teams Productivity with high attrition (ADP)	0.653	0.652
Adoption of AI/ML tools, techniques & Frameworks (AI)	0.562	0.561
Agile Software Engineering (ASE)	0.752	0.751

Table 3.
Predictive Model Analysis

Note: The value of R² > 0.10 , for all the latent variables. Also, the value of Q² is > 0 . This indicate that the model has demonstrates substantive explanatory power and it has predictive relevance.

Further seven hypotheses are examined using a bias-corrected bootstrapping approach, which amplifies our current data into several samples, in order to assess the validity of the route proposed in the model. According to a structural model, all the suggested routes for the model in this study are significant since they have weights larger than 0.20, T-values greater than 1.96, and P values less than 0.05. For the bootstrapping, we have used resampling size as 5000 with test type as two tailed with level of significance at 0.05.

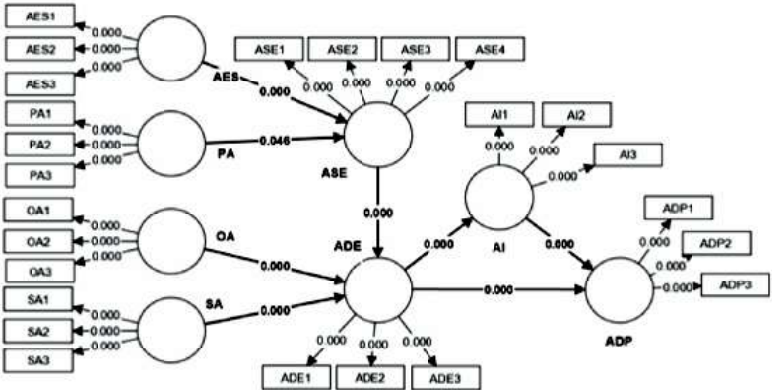


Figure 2.
Structural Model

GBR Vol. 19 104 Table 4. Hypothesis Testing	Path	Path Coefficient	T-Value	P-Value
	AES-> ASE	0.691	18.071	0.000
	PA-> ASE	0.228	6.279	0.000
	OA-> ADE	0.354	8.168	0.000
	SA-> ADE	0.231	5.476	0.000
	ASE-> ADE	0.353	7.662	0.000
	ADE-> APD	0.631	11.669	0.000
	ADE-> AI	0.750	19.415	0.000
	AI-> ADP	0.219	3.951	0.000

In this study, the direct effect without mediation of the designed path is significant ($P>0.005$), however, upon applying the mediation analysis, we found that the AI is mediating between ADE and APD. The direct effect is significant at 0.631 along with the mediating effect of 0.164, which signifies that there is a partial mediation effect between ADE and APD (Zhao et al., 2010).

Hypothesis	Direct Effect			Mediating Effect			Total Effect		
	β Value	Sig.	t- Value	β Value	Sig.	t- Value	β Value	Sig.	t- Value
ADE-> APD	0.631	0.000	11.669						
ADE-> AI-> APD				0.164	0.000	3.792	0.795	0.000	21.749

Note: ADE is Agile Delivery Excellence, AI is AI tools and framework adoption and APD is Agile Productivity of software development teams with high attrition rates. The mediation relationship by AI between ADE and APD is partial mediating as direct effects and total effects are significant along with the mediating effect.

7. Implications

Amongst several limitations of the literature review, limited availability of data regarding factors of productivity is the most prime limitation of this study and hence the SEM model is limited to identified factors only. There could be inadvertent sampling bias and selecting appropriate size of data sample could be other limitations. Another limitation is that there are very fewer case studies available in software engineering literature regarding quantification of affecting productivity factors using methods like structural modelling, and hence as there is lack of evidence from available studies, findings cannot be made applicable to all Software development organizations implementing agile methods. Most of the reviewed studies which were carried out in this context were of qualitative or theoretical in nature and has not provided any quantitative results with a basis. Many studies were limited to very smaller data samples, future studies may collect sizable data samples which will be helpful to appraise for its statistical significance and validity.

7.1 Practical Implications

During Agile software development life-cycle, automating redundant and complicated tasks like code development, documentation, and code testing is possible using AI tools and technologies. As a result of this automation, Agile teams' productivity could be increased. These predictive abilities may be used by agile development teams to determine project schedules, spot possible dangers, and allocate resources appropriately. Teams may proactively handle issues, reduce risks, and maximize project delivery by foreseeing challenges and possibilities. By automating common processes, AI systems can lessen the need for specialized personnel. The team can more efficiently redistribute duties when turnover happens thanks to this automation. In order to properly distribute and balance

duties among team members, AI algorithms may evaluate abilities, availability, and job needs. This ensures continuity and productivity despite of attrition within the team. Predictive analytics performed by AI algorithms enables teams to take pre-emptive action and lessen the effects of high turnover.

Conclusion

The result of this study shows that there is a partial mediation effect of AI between Agile software development process and Agile software development teams' productivity with high attrition rates. The finding reveals that the if projects teams are using AI tools and frameworks, it may improve the productivity of software development teams. This study underlines the various factors that could be affecting the productivity of Agile software development teams. To improve the productivity, team should be looking to implement the AI tools and frameworks throughout the entire software development lifecycle. The study will assist the software engineering teams while planning and strategizing. Based on to the current findings of the studies are is it clear that the AI technologies and tools, digitization would help Agile software development teams to sustain their productivity even though there are constraints. This research indicates that the adoption of advanced technologies like-AI are critical for Agile software development projects in terms of sustaining the productivity especially while teams are facing high attrition but it is not the only factor which will be helpful for improving the productivity of software development team experiencing high attrition.

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Factors Influencing Online Learning and Adoption of Ed-tech: A study of Students Perception and Acceptance

Factors Influencing
Online Learning and
Adoption of Ed-tech:

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Abstract

Purpose: The current research has investigated the antecedent of online learning. The COVID-19 Pandemic brought the most significant change in education toward acceptance of online learning, and educational technology which has become a necessity. Usage of these online platforms saw tremendous spikes in the numbers.

Design/approach/Methodology: To assess the impact of various Ed-tech and online learning constructs on student's perceptions. This study tries to understand student's perceptions of online learning and acceptance of Ed-tech. Data has been collected from respondents (students) of different age groups living in different places of Assam. The sample size was 190 for this research.

Findings: It is indicative from the result of the study that all construct studies in this research significantly affect student's perception of online learning and acceptance of Ed-tech.

Practical implications: This study will be useful in understanding the readiness towards change in Ed-tech. It will also smoothen the implementation of the country's new education policy.

Originality: Educational technology will transform education in the country. Online learning and Ed-tech will play significant role in shaping the future of students and educational institutions as well. The understanding of student's perceptions towards online learning and acceptance for Ed-tech is essential before making any change in educational practices.

Keywords: Covid-19, Education, Ed-tech, Online learning, India

1. Introduction

With epic culture and places of learning like Nalanda, India has a history in the progress of learning and education. Post-independence, India saw a rise in the establishment of universities and institutes like IITs (1951, IIT-K) and IIMs (1961, IIM-C), Medical colleges, and the growth of schools across towns and villages of India. These establishments in schools and colleges grew the learning path among the generations, building an approach to a career for decades. Private schools and colleges flourished side by side, joining hands with government schools and colleges to meet the gap between available seats and students. Soon, the competition to enroll oneself in higher education began with establishments of entrance examinations like IIT-JEE, AIPMT, AIEEE, CAT, GATE, etc. The names kept changing. The same started with the establishment of job examinations like SSC, UPSC, IBPS, Railways, State PSCs, etc. Offline coaching institutes began with a flourishing spree, building an unimaginable hub like that of Kota, Allahabad (Prayagraj), Patna, Delhi etc. Also, due to the increase in the youth in India, there was a gap between number of seats to aspirants for higher education, which saw distance education platforms like IGNOU grow, equally saving both time and cost in an alternative way attain degrees. With technological advancements, MOOCs from both Indian and Foreign Institutes of reputation found a place to connect through sites like Coursera, EdX, Udemy, etc. Skill-based learning adds another



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workforce population, mainly from the IT product and service industry, who regularly need to keep themselves updated with the changing technologies. At the same time, India saw rapid growth in utilizing online resources over the last decade to continue learning. With the increasing penetration of the internet in the last decade in India, it has grown into an enormous industry. The Ed Tech industry. Ed-tech stands for education technology, i.e. the new technological implementations done in the classroom to teach online, and the learners can learn over an online platform, whether with an app or website. Institutions like Byju's becoming the first unicorn in the Ed-tech space in India, the craze for Ed-tech among entrepreneurs and investors is growing. Unacademy, Embibe, GradeUp, Toppr, Vedantu, Meritnation, UpGrad, etc., the list goes on. The latest acquisition WhiteHatJr, live 1:1 online coding classes for kids of Grades 1-12 by Buju's created storm in the space. However, with some aggressive marketing campaigns and doubt about the product model, the campaign was flagged by ASCI for violating advertisements.

The COVID-19 Pandemic brought the most significant change in education toward acceptance of online learning. It became a necessity. Usage of these online platforms saw tremendous spikes in the numbers (Pham, & Ho, 2020). But are these platforms sustainable post-pandemic? What is the acceptance of online learning among parents and students? How connectivity issues, like internet speed, will play in the coming years, with talks of 5G beginning. Questions on emotional engagement and behavioural changes among the learners need to be addressed. There are many barriers as of now. Some of them could be redefining digital citizenship, shifting from coding to computational thinking, teaching the learners AI for the focus of future work, rethinking teacher prep for tech, and the giant question of all: does it improve learning? Understanding the stakeholders as what they look for while choosing an online platform for learning is thus one of the problems that must be achieved by breaking the barriers.

India passed in 2009 an act called the "Right of Children to Free and Compulsory Education Act (RTE)," aiming to have 100% of children of the age group 6-14 years enrolled in school (Sarin, 2019). But concerns remain about post-primary dropout rates, equal access to quality education, affordability, and outcomes. In 2016, according to UGC, India have 751 universities and 35,539 colleges. What more than one-fourth part of the pie of total enrolments of students in the Higher Education System is contributed by the distance education system. "The National Education Policy (NEP)" is also trying to address all these challenges and extend the scope of RTE to aged 3-18 years' students. One of the report's recommendations is to use Ed-Tech to enhance learning through apps, online student groups, and lesson delivery that goes beyond "chalk and talk." Three hundred twenty million students in India were affected by school closures during the COVID-19 lockdown (UNESCO, 2020). On the other hand, just 37.6 million children in 16 states continue their education via various educational initiatives, including online classrooms, radio and TV programs.

The Indian education sector, valued at \$100 billion dollars, was projected to rise to \$180 billion by 2020. The Indian educational system is one of the world's largest. It has the world's largest school-age population, with about 310 million students aged 6 to 17. In 2021 KPMG estimated the Ed-tech space in India to grow to US \$ 1.6 bn by 2021. But taking into account that the pandemic has brought plenty of momentum in India for adaptation of Ed-tech, the Ed-tech market size can be estimated to increase 3.7x in the coming five years in India, from the \$2.8 Billion (2020) to a huge \$10.4 Billion (2025), reports Inc42Plus. At the same time, as per Data Labs by Inc42, between Jan 2014 and Sept. of 2019, more than 4,450 of Ed-tech start-ups were launched in India. However, more than 25% of start-ups have shut while only 4.17% of start-ups have raised funds. Byju's has a grab of 65% of the total funding in Ed-tech start-ups. Until now, start-ups still have trouble producing a reliable revenue source with steady earnings, which is the ultimate challenge.

The remarkable expansion of the COVID19 pandemic continues to revolutionise learning and teaching experiences as well as the larger education landscape. During the pandemic, the dynamics of online education in various contexts have gained considerable scholarly attention in education sectors (AL-Nuaimi, et al., 2022). The rapid adoption of blended or hybrid models by institutions, as well as the extensive use of Ed-tech for course redesigns

and pedagogical reforms, has created substantial issues for both students, parents and academic communities (Doll et al., 2022; Gupta, Mathur, & Narang, 2022; Gupta, 2022). These Ed-tech will continue to have an indirect and direct impact on educational institutions, causing existing course delivery techniques to shift (Moreno-González, et al., 2023; Perez, et al., 2023). Therefore, to understand better, the study aims to evaluate multiple issues and dimensions of online education based on but not limited to affect, learner's perception, perceived learning, belief, price, persuasion, brand, accessibility, and health issues. The study also aims to analyse the acceptance of online learning by students and parents.

2. Problem Statement

With technology, things have changed. Over the last decade, classroom education has also been made available to home on screens through devices such as desktops, laptops, mobiles, and tablets, connected via the internet. But is online learning accepted equally to offline learning? What are the factors that influence using online learning platforms? With the immense rise in the ed-tech space in India, the competition among tech entrepreneurs and businesses is increasing. Knowing and understanding these dimensions are significant to the platform providers, the educators and the learners, and anyone involved in the learning community. Do dimensions such as effect, learner's perception, perceived learning, brand, etc, play and impact directly the usage of online learning? What about the issues such as mental health, physical health, connectivity, learning outcomes, and human connection? The purpose of this research study is to record and analyse the primary research data with study of secondary research to understand the influencing factors and explore them.

3. Objectives

1. To understand and explore the dimensions and issues in Ed-tech and Online Learning.
2. To analyze the perception and acceptance of students and parents towards online learning.
3. To study the dimensions influencing online learning platforms, including ed-tech platforms, and design a model to understand the relationship.

4. Theoretical Background

Several theoretical models have been proposed to investigate and explain the elements that lead people to accept, reject, or continue using new technology (Ajzen 1985; Ajzen and Fishbien 1980). Davis (1989) proposed and developed the technology acceptance model (TAM) and presented a theoretical context that could explain the relationship between attitudes-intention-behavior based on the Ajzen and Fishbien model of Theory of Reasoned Action (TRA). The TAM got empirical validation for its ability to forecast technological reception and adoption in a robust and parsimonious manner. According to the TAM, an individual's behavioural intention to execute a specific task determines their performance of that behaviour. The main determinants of user approval are two specific variables: perceived utility and perceived ease of use. The TAM was developed to forecast the likelihood of pupils or parents adopting new technologies. This model was based on the theory of reasoned action, which stated that behaviour was determined by the intention to execute the behaviour, attitude towards the behaviour, and social pressure to conduct the behaviour (Sheldon 2016). The TAM claimed that by using the model when the technology was first utilised, future use of technology could be predicted (Turner et al. 2010).

The TAM is made up of five variables. These are "perceived ease of use, perceived usefulness, attitude towards use, behavioural intent to use, and actual use". The model's two most important criteria are perceived ease of use and perceived utility (the belief that the technology improves students' learning abilities and academic achievement). TAM's key components are these two variables, together with attitude towards use (Alfadda, & Mahdi, 2021). TAM has developed as a key scientific paradigm for evaluating student, teacher, and other stakeholders' acceptance of learning technology over the years (Davis, 2011). TAM is the most commonly used ground theory in the literature on e-learning adoption (Weerasinghe & Hindagolla, 2017). The user's intents towards using an e-learning tool were

mostly described using or extending the TAM research model with other relevant components. Cheung and Vogel (2013) employed the extended TAM model after Park, Lee and Cheong (2008) tested its use in the educational domain. Given the preceding arguments, it is obvious that current research on TAM application in the educational area is not in its infancy. However, the subject still lacks a thorough research study addressing existing methodologies and applications that underpin TAM and its various forms in educational contexts for a wide range of learning domains, learning technology, and user types (Grani?, & Maranguni?, 2019).

5. Review Of Literature

In recent decades, online learning and online classes are gaining global importance. The shift of "Online class is an Optional" to "Online class is necessary" (Larreamendy-Joems, Leinhardt, 2006). This studied could no longer set a greater example than in the last year. In 2020, lockdown due to COVID created the shift mandatory shifting from offline classes to online classes or blend learning (a mixture of offline and online learning) is not new in the globe, but relatively new in India.

What started as an alternative to clearing doubts from sources such as Wikipedia soon YouTube became the most extensive repository that contained millions of audio-visual platforms for learning online. The most significant change is brought by technology and the internet. In the last decade, in India, with the rise of connectivity through the internet and the availability of electronic devices, such as laptops and smartphones, the trend of using online learning platforms started. It supports are crucial, helping in decision making and empowering peoples (Kumar, & Gupta, 2019; Gupta, & Kumar, 2019; Gupta, Mishra, & Kumar, 2021). The Internet has enabled the delivery of instruction at a lower cost than in face-to-face classroom teaching; thus, it provides more opportunities for learners to take courses (Murday et al., 2008; Kumar, Lochab, & Mishra, 2023; Mishra, & Kumar, 2023). Indian Ed-tech spaces are rising and falling. So what factors contribute to a user's online learning behavior? To understand the factors that played a role influencing in the act of online learning, the literature review is done from the related concepts.

In 2005, Saade, & Kira, 2007 studied factors in online learning. The paper describes the various dimensions to online learning as an exploration into the topic. Through the research, the questions like what factors contribute to the success/failure of online learning? The paper measures the learning outcome and helps to understand students' learning experiences using specific learning tools. In their paper effect and perception were found to have strong measurement capabilities, while motivation was measured the weakest.

Allen and Seaman, 2013 in their paper to study about the online classroom, found out that online classes were not as good as offline classes according to the students. However, this perception improved from 40% of students finding online classes inferior in 2003 to 23% in 2012. Similarly, Busteed and Ogisi 2013 went on to study and analyze the beneficial factors; the research showed that despite the effect on grades, online classes provide ease of scheduling and offer more flexibility compared to traditional teaching methods. However, issues of administration, mental health was studied (Kelly & Rebman, 2013), and results showed influence in online learning. Comfortability (Kunal & Nayak, 2017; Kumar, & Gupta, 2019). was studied, which showed that comfort is accepted in online learning platforms as it reduces factors like traveling and the possibility of bringing the classroom home. Ed-tech growth is fierce in India, and pricing in ed-tech platforms such as Byju's (Kumar, 2020) was studied, to explore a few dimensions. It found Byju's to be leading in the game.

At the same time, the majority of the students felt that online classes were not as effective as traditional in classroom teaching, but they reduced the need for travel, were cost-friendly and offered flexibility in terms of timings of the classes (Charu Bisaria, 2020). However, most of the respondents believed that doubt-solving, teacher-student interaction, and peer interaction was better possible through the online mode. Moreover, courses involving demonstrations such as laboratory-based topics or subjects involving use of blackboards were explained better and more effectively in offline classes. Like every consumer consuming a product, in this study, the act of online learning can be said to be the act of consumption;

the learner, parent or child is the consumer, and the platforms and the learning itself is the product. Thus, using an online learning platform can affect the user, just like a consumer consuming a product. Here the affect that is taken into consideration is the affective component, which is related to the emotion or the feeling of the user (Saadé& Kira, 2006). Which arises from using the platform of how much it is liked. Affect can be said to be an individual's feelings related to emotions such as joy or sadness, comfort, pleasure, gratification, distaste, depression, motivation or hatred that result in a particular behavior (Triandis, 1979). Literature shows the relationship between the factor of affect and behavior. Behavior ultimately influence in user's decision of action (Anisha, &Kalaivani, 2016). Using any product or service leaves us an experience perceived by the user with a sense of either positive or negative. Perception is the way in which it is then regarded individually (Sarma& Agarwal, 2012). Their research found significance in the relationship between learner's perception and its impact on Online Education in an Indian context. The perception comes from the easiness, efforts needed, flexibility or constraints, which then forms on a perception that compares between other alternatives.

Perceived learning is related to the learning outcome, observed by the user which is in intrinsic factor just like the affect and learner's perception. Perceived learning outcome when measured with performance improvement, grades benefit; meeting learning needs, it was observed how understanding plays its significance in achieving them (Faigley, 1990). Fulfilment of them can be connected to be an independent factor influencing in overall online learning. Learners and users with positive learning outcomes have a greater positive attitude for the subjects and courses, resulting in better use of online learning platforms (Saadé, Kira, 2006).

Though not studied as a factor, price is an element which is exchanged, for a deal between two parties: the buyer and the seller, by the buyer in exchange of something from the seller (Ejye, 1997). Price is an extrinsic factor that influences in any buying decision. Exploring price as an independent variable on the using decision of any online learning platform is the dependent variable. Another relationship is price over brand or service, which is preferred more. Earlier studies have showed the relationship of price and its impact on consumer buying behaviour (Al-Salamin& Al-Hassan, 2016). It is taken under a couple of questions to understand purchase in the final intention. Belief plays an important role in the acceptance of something true or false, so strong that is a little hard to break easily. It can be either strong or weak. Self-belief, on the platform and within it, is explored to understand the relationship. Beliefs are thus concerned and formed, playing insights and roles to much existing consumer behaviour research that focuses on decision making (e.g. Foxall, 1983; Hoyer, 1984).

Persuasion on the other hand is extrinsic, which can be due to peer pressure, parents, lack of opportunity. Similarly, brand name impacts the decision. Consumers tend to behave emotionally in buying and using decision. People generally prefer those brands they are emotionally attached to via social preview and advertisements (Malik. M, 2013). Accessibility is the ability or access to use a product or service. The access or non-availability can either trigger a positive emotion or negative emotion (Pirre, 1978). Issues such as internet connectivity, good UI of the platform are explored under the factor (Chahal, 2018). Other factors like internet penetration and ease of online learning in India. Health issues can arise from using a particular service in its way. Just like riding a bike for long hours could lead to back pain, online learning carries certain health issues that can also be seen on online learning platforms (Kelly &Rebman, 2013). Mental health as well as physical health in using online learning platforms electronically can be explored.

6. Methodology

This study utilized a mixed research design. To identify the dimensions that may influence on using online learning, a descriptive study was conducted and the factors involved. The first step is chosen from various secondary research and a few factors. After that, a questionnaire is prepared for pilot testing and it is redesigned to a structured questionnaire for conducting a descriptive study.

The questionnaire has a total of 45 items, which were scored on a Likert scale. Other than

that it contained 11 questions, 5 of which are demographic questions relating to age, gender, income, etc. The survey for the research was conducted among students who were believed to be relevant to qualify answering based on their experience and knowledge and share insights on the factors influencing online learning. The respondents are divided into two categories. The first is student/learner who is directly using the platform to learn. The second category is the parents of kids who are aged below 10 years who are using online learning platforms to teach their kids.

The questionnaire was distributed electronically and collected from 250 respondents, out of which 190 were found valid to conduct the research and taken as the sample size. In data analysis, using SPSS Version 25 and AMOS, confirmatory structural modelling is done to verify the research framework and hypotheses. Primary data collection is done through a questionnaire designed to collect the opinions through Google form. The collected data can be categorized into demographic information, personal preferences and their responses to the various dimensions considered for the study. A seven-point Likert scale is used to collect the opinion of both students and parents using online learning platforms. Seven-point Likert scale indicates one being strongly disagreed and strongly agreeing on the asked question. The sample size considered for the research is 190. Data has been collected from respondents of different age groups living in different places of Assam. The survey was conducted in January-February, 2021. With the various known demographic data, the research chiefly tried to explore some factors to see whether they influence in the usage of online learning platform. Due to limitations of knowledge and study of limited literature review, the factors are limited to 8. These factors are affect, learner's perception, perceived learning, belief, persuasion, brand, and accessibility and health issues. These can be further categorised into two categories, viz. Intrinsic factors and Extrinsic factors, where the former four would fall in the first category, while the remaining four would fall in the second category.

Analysis is made based on the reliability (Cronbach's alpha), model fit (CMIN/DF) value, estimates from the p value and the model diagram.

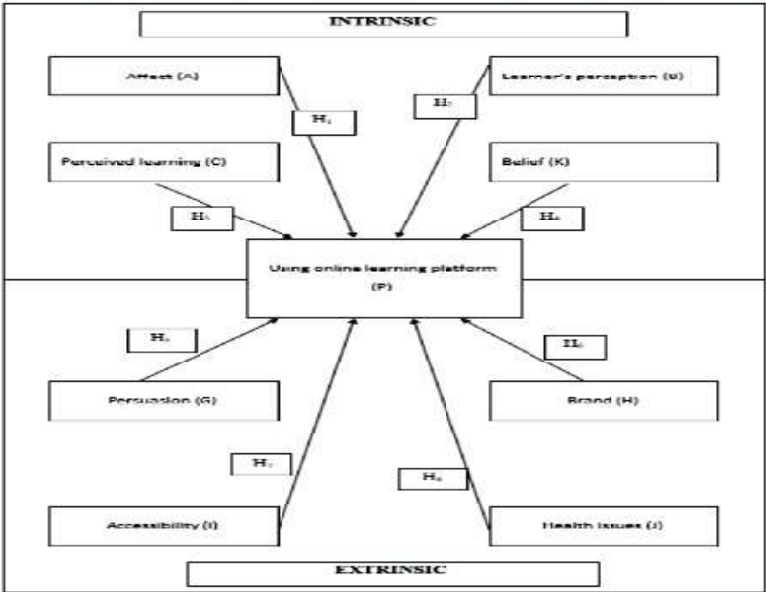


Figure 1.
Theoretical framework

6.1 Hypotheses

Based on the above model, considering that each of these factors influence in the usage of online learning platform, we hypothesized that:

- H1: Affect has direct positive relation with online learning.
- H2: Learner's perception has direct positive relation with online learning.

H3: Perceived learning has direct positive relation with online learning.
H4: Belief has direct positive relation with online learning.
H5: Persuasion has direct positive relation with online learning.
H6: Brand has direct positive relation with online learning.
H7: Accessibility has direct positive relation with online learning.
H8: Health issues have direct negative relation with online learning.

6.2 Analysis and Discussion

A questionnaire on issues and dimensions of online learning in India was electronically distributed among respondents. The valid responses finally screened for the study contained the data from 190 people. The respondents belong to different gender, age, location, occupation and income group. In the questionnaire, questions were asked on personal preferences and also included set of questions related to the various factors taken to study on a 7 pointer Likert-Scale. The responses are summed up and the objective here is to use this data to explore the relation, whether these factors really play a role in the ultimate act of going for online learning.

6.3 Characteristics of respondents and preferences:

		Frequency	Percentage (%)
Category	Students	178	94%
	Learners	12	6%
Gender	Female	112	59%
	Male	78	41%
Age Category	Below 15 years	6	3%
	15-20	21	11%
	21-25	98	52%
	26-30	43	23%
	Above 30	22	12%

Table 1.
Demographic Profile of
respondents

6.4 Place of stay

Respondents from city stands at 77%, from town are 20% and from village is 3%. Amongst 190 respondents, 23% reported monthly income under 25000 INR, 25% reported between 25000-50000 INR. 26% for 50001-75000 bracket; the remaining 26 % reported above 75000 INR.Amongst 190 respondents, the major portion of respondents, around 49% are involved in post-graduation coursework followed by college going students and learners who are looking for a job. Primary student comprised of those who are below 10 years and these responses are filled by their parents. Inference can be made that college going students from the majority of users, followed by school going kids and aspirants looking for a job and preparing various exams, followed by employed personnel looking for improvement in skills. The majority of the respondents (33%) said that they have been using online learning platforms for the last 2 to 5 years, followed by another section (29%) who said that they have been using from last year to a couple of years. Thus it could be understood that COVID Pandemic is not the sole reason of exposure of online learning platform but its usage is seen from earlier. However, a boost of 9+16=25% can be seen in the last year itself. The majority of the respondents said that they use it for one to two hours while the next category said they use it for under an hour. Thus, it can be understood that most respondents use online learning as a blended form of learning with offline learning or clearing doubts.

Frequency distribution based on source of marketing information reveals that Google ads and Social media ads occupy the largest pie of 45% followed by word of mouth at 25% and internet blogs at 24%. Thus, engaging in online advertisements seems to be dominant and impactful. This study asks certain online learning platforms to be marked based on name recognition and usage. Out of them, YouTube, the free platform stands tall on first with everyone recognising the brand name, i.e. 190 respondents shared that they have heard the name, out of which 174 said that they have used the platform for learning from time to time. Based on popularity, YouTube, Byjus, Unacademy, Vedantu, WhiteHatJr, Udemy, Coursera, Up-Grad stands in the top 8. Point must be noted that most of these platforms run ads on Television.

Table 2.
Brand preference

Brand	Heard	Used	Usage (%)
YouTube	190	174	92%
Adda247	85	46	54%
Unacademy	160	78	49%
Testbook.com	89	42	47%
Coursera	107	44	41%
Udemy	109	41	38%
Oliveboard	44	16	36%
Meritnation	56	20	36%
GradeUp	96	31	32%
Cracku	36	9	25%
Byju's	169	41	24%
Datacamp	42	10	24%
Alison	45	9	20%
Toppr	92	18	20%
edX	58	9	16%
Dataquest	39	6	15%
Embibe	35	5	14%
Simplilearn	56	7	13%
UpGrad	105	10	10%
Vedantu	138	13	9%
WhiteHatJr	126	8	6%

However, when it came to usage count, change could be observed from the second as top 8 is seen as YouTube, Unacademy, Adda247, Coursera, Testbook.com, Byjus, Udemy, GradeUp. To understand the ratio of knowing the brand and using it, top 8 usages in form of percentage is studied and found. YouTube, Adda247, Unacademy, Testbook.com, Coursera, Udemy, Oliveboard, Meritnation are in descending order in the top 8. Thus it could be observed that even though the popularity of platforms like Byju's or WhiteHat Jr is one the rise, owing to their high price segments or their perception in the consumer mindset, they have lower usage to knowledge ratio. At the same time, platforms that provide mock exams of competitive exams like Adda247, Testbook, Oliveboard, Meritnation finds a place in the top 8.

7. Rating On Importance

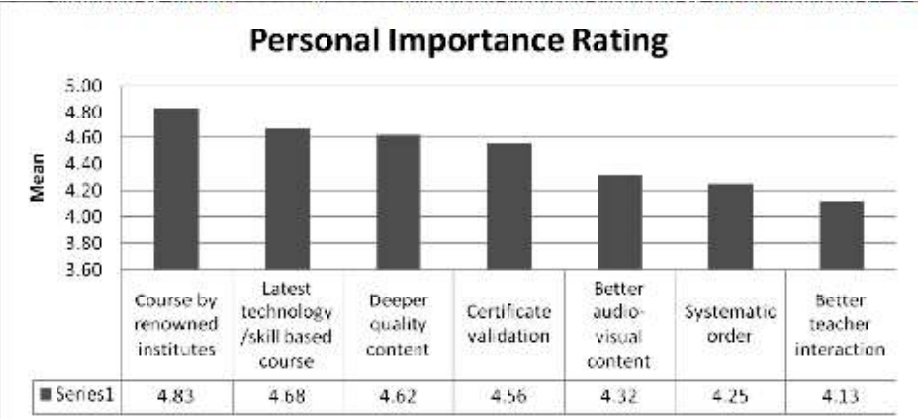


Figure 2.
Order of importance

It shows the order of importance and the purpose of online learning based on the mean of the responses rated by the respondents on a scale of 1-7, one being the lowest and 7 being the highest rating they can rate. Course by renowned institutes such as Havard, Cambridge, etc. available on platforms such as Coursera, EdX, Alison is the most sought out reason, followed by skill based learning, deeper content quality, certificates, audio-visual, systematic order. Teacher interaction is found to be the least; thus lesser human interaction can be said to be an issue in online learning which is also studied in the factors.

7.1 Prime Purpose For Using

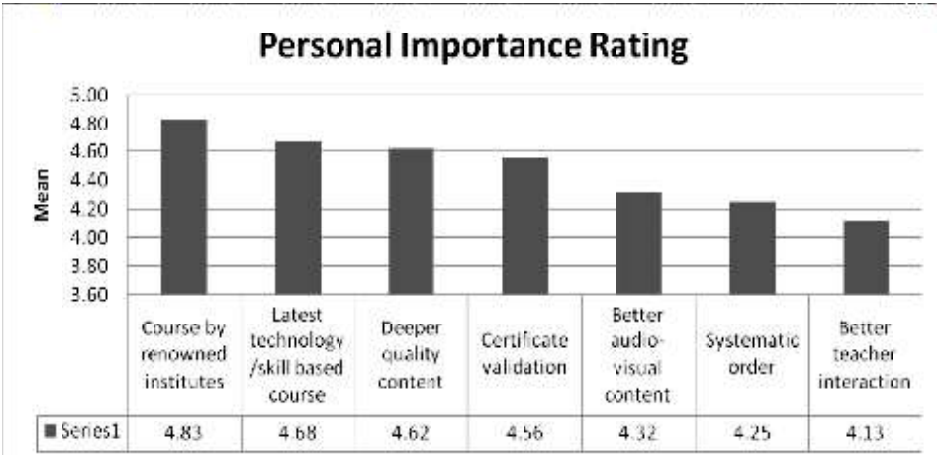


Figure 3.
Platform (Heard, Used)

Fig 3 above shows the order of purpose for using online platforms. Majority of respondents being from university, the purpose for preparation for university subjects stood first, followed by preparation for job exams, skill development etc.

7.2 Reliability values

On a 7 pointer Likert- scale, the responses on the statements were recorded from strongly disagree to agree strongly, 4 being the neutral point. The mean of the responses on the statements and the overall construct mean are found. Here, the traditional system of interpretation is used. Here mean of 0-1 means strongly disagree, 1-2 means disagree, 2-3 means somewhat disagree, 3-4 is neutral, 4-5 is somewhat agree, 5-6 is agree, and 6-7 is strongly agree.

Construct	Question Code	Mean	Cronbach's Alpha	Construct Mean
Affect	Online classes give me the pleasure of comfort and help me overcome my shyness	4.20	0.874	4.40
	The absence of human and social touch like interacting with friends and instructors physically instead of just virtual presence does not impact on my mental well-being and learning	3.95		
	Online learning platforms come with instant gratification that makes me happy	4.33		
	I believe online learning platforms are helping me to learn better and excel in performance	4.59		
	I feel more productive via online learning than offline learning	4.15		
	I believe that using online learning platforms gives me an extra edge among my peers	4.54		
	I am motivated by using online learning platform as it is making me learn a new skill/improve a skill	5.01		
Learner's perception	Online learning platforms are easy to use	5.27	0.731	4.79
	Online learning needs more effort than offline learning	4.57		
	Online classes give us flexibility in terms of timings of classes	5.37		
	Online learning is better than offline learning	3.95		
Perceived learning	It is easier to understand concepts in online classes	4.27	0.820	4.11
	I don't believe there is any opportunity to cheat in online assessment	3.30		
	Clearing doubts in online classes is easier than in normal classes	3.33		
	Online learning meets my learning goals	4.15		
	Audio-Visual content makes me understand better	5.05		
	I find it easy to understand the learning platform strategy aimed at increasing my score	4.54		
Using OLP	I would suggest others for online learning	4.52	0.708	4.52
	I am willing to pay for an online learning course	4.66		
	I am willing to pay more for online learning courses than a comparative offline learning course	3.67		
	I am willing to use online learning platforms	5.24		
Belief	Online learning can never be an alternative to offline learning	4.31	0.731	4.10
	In case of self-paced online program, I hardly procrastinate	4.07		
	Maintaining discipline during live online classes is difficult	4.46		
	There is no difference in the effectiveness of the lectures in online and offline modes	3.45		
	I feel Ed-tech platforms are increasing an unfair competition among its learners	4.22		

Cont.

					Factors Influencing Online Learning and Adoption of Ed-tech: 120
Persuasion	I use the online learning platform because my friend/colleague is using it	4.33	0.735	4.27	
	I am using the online learning platform because the course I am learning isn't available in anywhere else	4.64			
	I am using as my parent/teacher made me to use it	4.25			
	I am using it to get a certificate to list on my CV	4.36			
	Online learning platform encourages me as I get access to foreign university lecturers from top foreign universities	4.86			
Brand	The online platform that I use is because the sales and marketing team showed me its positive effectiveness	3.86	0.733	4.63	
	I sel ected the platform because the online platform is renowned and known to me	4.77			
	I believe that the course content matters more and I switch online platforms for learning irrespective of its brand name	5.13			
	I only choose a platform where the teachers are of premier institutes or top rankers of competitive exams	4.57			
	Marketing campaigns does not influence my selection decision	4.49			
	I enrol myself for a course in an online platform only after good research and I spend a lot of time in researching before selection	4.98			
Accessibil ity	I hardly face internet issues that impact in my learning	3.59	0.71	4.73	
	The user interface of online learning platforms are easy to lear	4.74			
	Online learning helps me saves time	5.11			
	The feedback access p rovided by online learning platforms are significantly better than offline platform	4.84			
	Online learning platforms are broadening the accessibility for the disabled	5.38			
Health issues	Online classes negatively effect on health such as eye fatigue, n eck pain, etc. (hours of being glued to computers/mobiles/tablets)	5.51	0.835	5.38	
	Online learning for long time is depressing	5.44			
	Online learning can lead to a growth of unsocial attitude among learners even when mixed with offline learni ng due to long term habit	5.20			
					Table 3. Reliability values

Since the mean is on the higher side of the neutral point 4 (here, overall mean is 4.40), agreement of affect influencing on online learning can be understood. Since the mean is on the higher side of the neutral, at 4.79, the agreement of learner's perception influencing online learning can be inferred. As the mean is on the higher side of the neutral, at 4.11, little agreement of Perceived leaning influencing on online learning can be said. As the mean is on the higher side of the neutral, at 4.52, the relative agreement of price influencing online learning is understood. Belief varies from person to person. As the mean is slightly on the higher side of the neutral, at 4.10, relative agreement of belief as an influencing factor on online leaning influencing is understood. As the mean is slightly on the higher side of the neutral, at 4.27, external persuasion as an influencing factor on leaning influencing is understood, even though some may prefer not to accept or disclose it. As the mean is on the higher side of the neutral, at 4.63, a moderate relationship of brand of the platform influencing on online learning can be said. As the mean is on the higher side of the neutral, at 4.73, accessibility, such as connectivity and user interface play a strong role on online learning. As the mean is on the higher side of the neutral, at 5.38, health issues is inferred as the strongest issue influencing on online learning.

Construct	Cronbach's Alpha	No. of items
Affect (A)	0.874	7
Learner’s perception (B)	0.731	4
Perceived learning (C)	0.820	6
Using OLP (P)	0.708	4
Belief (K)	0.731	5
Persuasion (G)	0.735	5
Brand (H)	0.733	6
Accessibility (I)	0.710	5
Health issues (J)	0.835	3

Table 4.
Cronbach's Alpha value of
the constructs and no. of
items

The reliability statistics evaluate the degree of consistency among the constructs using the Cronbach's Alpha value. The main purpose is to verify whether the data taken through the questionnaire is reliable to perform the significance test. Cronbach's Alpha value, ranging from 0-1, a value greater than the value 0.700 is considered to be reliable (Nunnally, 1978). The data is coded and analyzed in SPSS Version 25 to check the reliability and is found all of them above the threshold point of 0.700.

The codes used to run the data in SPSS and for modelling in AMOS are already listed in the descriptive statistics. For easy review of the codes, the alphabetical labelling is listed in the brackets in the table below.

9. Result of Structural Equation Model (SEM):

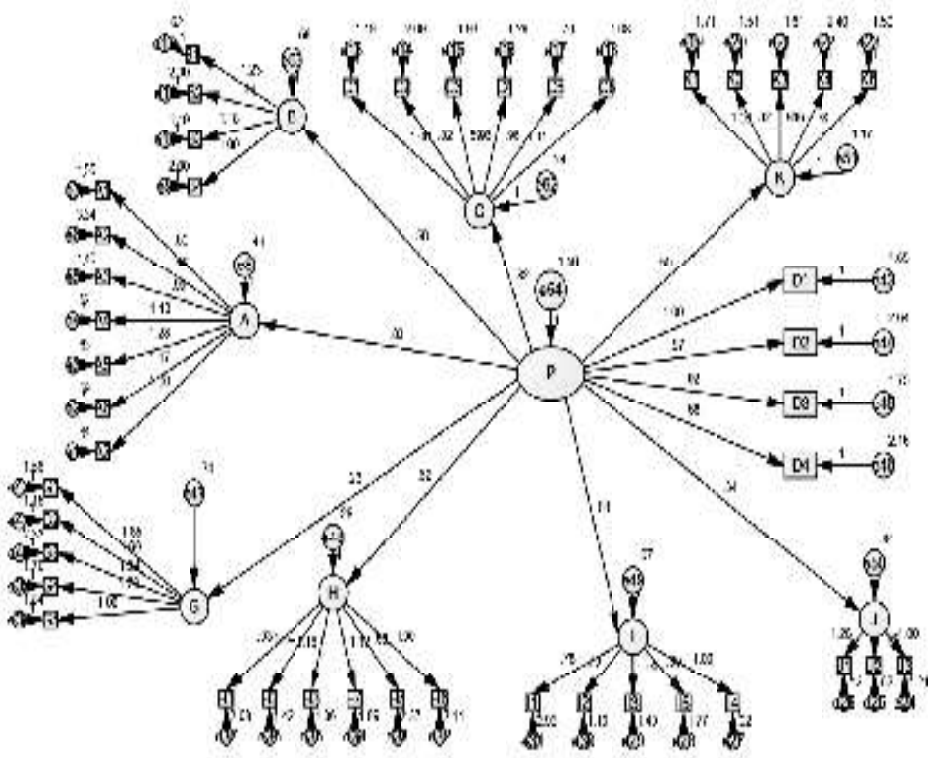


Figure 4.
Structural Equation Model

VALUE	RESULT	<p>Factors Influencing Online Learning and Adoption of Ed-tech:</p> <p>122</p>
Model type	Recursive	
Sample size	190	
Degrees of freedom	937	
Chi-square	3971.678	
Probability level	0.000	
CMIN/DF	4.239	
GFI	0.898	
AGFI	0.887	
TLI	0.901	
CFI	0.911	
RMSEA	0.071	<p>Table 5.</p> <p>Model fit summary</p>

10. Results of Hypothesis

Hypothesis	Hypothesis path	Estimates	Standard error	p	Result
H1	A<---P	0.829	0.093	***	Significant
H2	B<---P	0.232	0.061	***	Significant
H3	C<---P	0.577	0.095	***	Significant
H4	K<---P	0.817	0.097	***	Significant
H5	G<---P	0.503	0.099	***	Significant
H6	H<---P	0.623	0.102	***	Significant
H7	I<---P	0.805	0.09	***	Significant
H8	J<---P	0.337	0.073	***	Significant

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

11. Overall analysis and interpretation

The model fit estimates the probability value which is observed to be significant level (0.05). P values for the independent variables taken as factors to the ultimate using decision of using online learning platforms. The significance shown as *** in the above table shows p value to be less than .05, thus highly significant. This proves our hypothesis that these factors, viz, affect, learner's perception, perceived learning, belief, persuasion, brand, and accessibility and health issues, influence online learning.

On the other hand, the table with CMIN/DF, GFI (Goodness of fit), RMSEA (Root Mean Square Error of Approximation) are used to determine whether the model is fit or not. The CMIN/DF should be under 5.000 to be considered for fit. The analysed value is found to be 4.239 under the threshold level. Thus the model fits. However, the Goodness of Fit Index (GFI) is 0.527, thus is a poor fit. GFI ranges from 0 to 1. Higher is the value of GFI nearer to 1.000, the better. It shows the how well the hypothesized model fits together with the observed covariance matrix. Similarly, the RMSEA value less than .05 is considered fine, 0.05-0.08 is considered satisfactory, 0.08-1 is considered moderate, and greater than 0.1 is considered poor. The observed RMSEA is 0.071 which makes the model poor fit. This is because of not highly reliable responses and lesser sample size. However, as the model fits, the relationship is explored and significance of the factors on the ultimate action of online learning can be inferred. For better model fit, scope lies ahead for conducting similar research with greater sample size.

12. Pearson Correlation

Table 7.
Values from Pearson
Correlation

Pearson Correlation	
	Using Online Learning Platform (P)
Affect (A)	0.521**
Learner’s perception (B)	0.471**
Perceived learning (C)	0.569**
Belief (K)	0.491**
Persuasion (G)	0.282**
Brand (H)	0.525**
Accessibility (I)	0.600**
Health issues (J)	0.270**

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

Correlation is a concept that describes the effect of two or more phenomena occurring at the same time and thus being related. Here in the research, bivariate correlation is done based upon Pearson correlation coefficient. The value ranges from -1 to 1. It is done to study the linear correlation between the constructs and the ultimate intent, i.e. using online learning platform. The values are listed in the table above. Here affect is highly correlated with using OLP showing Pearson coefficient value of 0.521**. Learner's perception is positively correlated with using OLP showing Pearson coefficient value Perceived learning is correlated with using OLP showing Pearson coefficient value of 0.569**. Belief is correlated with using OLP showing Pearson coefficient value of 0.491**. Similarly, persuasion is correlated with using OLP showing Pearson coefficient value of 0.282**. Health issues correlates with using OLP with a value of 0.270**. Brand correlates with using OLP showing Pearson coefficient value of 0.525**. Accessibility is correlated with using OLP showing Pearson coefficient value of 0.600**.

13. Discussion

The purpose of this research is to look into the elements that influence students' opinions and acceptance of online learning and educational technology. The study's findings indicate that all elements have a substantial impact on students' attitudes and adoption of educational technology (Ed-tech). factors such as affect, learner perception, perceived learning, using online learning platform, belief, persuasion, brand, accessibility, and health issues all play important roles in shaping students' perceptions. The technology acceptance model is built on external factors such as: IT infrastructure, educational support system, institutional culture, awareness, ease-of-use, and perceived utility, all of which play a key role in boosting student acceptance of online learning. It is also supported by the findings of earlier studies (Abu-Taieh et al., 2022; Alshehri et al., 2019; Ituma, 2011). The findings of this study indicates that, the majority of students had a favourable perception towards the e-learning system and Ed-tech. A potential justification for the respondents' positive attitudes towards online learning and acceptance of educational technology due to high utilisation of technical support from institutes and fellow students. When it comes to the perception of the various components of online learning and Ed-tech, the results demonstrate that almost all of the students ranked the courses component as extremely valuable and useful. The lecture slides, seminar notes, a study guide, and pertinent articles were among the course content components easily available to students. All of the lecture slides were uploaded prior to the lecture dates. The highest ranking for this component is most likely due to the fact that it helps students prepare for lectures, frees up time for note taking and active participation in lectures, and provides them with catch-up material. Having a favourable perceptions towards online learning and Ed-tech may aid in easier assignment submission, effective time management, and so on. This shows that students will be utilising these components effectively through online learning.

Online learning makes it possible to become updated about each activities done by your

respective subject teacher. Therefore, not only students but also parents are also able to see the progress of their children. In today's time effective monitoring and anytime learning is possible through educational technology. It is available as per your convenient. It is observed that various institutions are running their courses using educational technology effectively and smoothly.

14. Implication

The research has highlighted the factors which affects the perception and acceptance of Ed-tech for online learning. The study has found that there are multiple factors which influences the perceptions of students and parents towards the Ed-tech. This research provides several theoretical and practical implications. First, by offering a comprehensive model that encompasses the most relevant factors of Ed-tech acceptance among students, this research adds to the body of information on educational technology adoption. Second, this study demonstrates that important factors such as affect, learner's perception, perceived learning, using OLP, belief, persuasion, brand, accessibility, and health issues played a significant role in having a positive perception towards online learning and acceptance of Ed-tech. It ensures the continuity of the learning process by using such tools. Third, the study's findings can assist students and in better understanding the process of various Ed-tech applications and deployment. In order to optimise the use of educational technology, institutions should address essential elements linked to online learning. Finally, the findings of the study will help decision makers, educators, and developers in educational institutions ensure that students actively participate in utilising and accepting educational technology.

15. Conclusion

Education is evolving, and technology is bringing new ways of delivering and learning knowledge: online learning platforms including the Ed-tech platforms are one of its gifts. Ed-tech platforms that use technology to change the way of learning are seen as a boon by some, while a bane by others. In this study, trail was made to explore a few dimensions that may influence on the use of online learning and as per our results, they were found to be influencing in a way. However, these dimensions and issues aren't exhaustive; thus, the results may not be generalized for online learning and the globe. Yet, one can infer some degree of relationship and may further study on the same. How will the online learning grow in the next few years is a matter to look upon, as well as its impact on traditional offline classroom learning. In India, online learning is in the growing phase, also in the study it is seen that issues like internet connectivity is still a big concern for online learning. With growth of technology, we may see more forms of blended learning of both offline and online learning and in many cases; online learning may take the lead, replacing the traditional way of learning. What will be the future? Only time will say.

16. Limitations and Scope for Future Research

This study aimed to explain the main determinants of online learning and Ed-tech acceptance in India. The results of the study indicated that Affect, Learner's perception, perceived learning, Using OLP, Belief, Persuasion, Brand, Accessibility and Health issues had primary roles in influencing their perception and Ed-tech acceptance. The findings indicated that all factors had a significant influence towards online learning platform and educational technology acceptance among students. However, this paper has made significant contributions to the existing literature. The limitation of this study was that neither the teachers nor the students were trained to teach and study online as everything was sudden due to the pandemic, thus the results of this study might differ with similar kind of other studies done so far. Other limitation was the time constraint. Further, this study has only focused on students but the results might differ if other set of respondents are also included in the study. In future, the comparative study between the local and international institutions might be conducted to see if there are any differences in students' intentions towards online learning and educational technology acceptance. Future studies can also focus on the differences in enjoyment and learning intentions between students studying in institutions

and schools. Finally, cross-country studies in Asia might help to understand whether the learners' learning styles in different cultures can be one of the reason in their choice of learning mode and educational technology acceptance. The sample was taken from the students only. It may be possible that both of the methods like quantitative and qualitative can be added in future research.

Declarations

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Probing Reluctance to Green Consumerism in an Emerging Economy: An Empirical Evidence

Probing Reluctance to Green Consumerism in an Emerging Economy

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Abstract

Purpose: The paper aims to understand how eco labels influence attitude towards green product purchases. The study progresses to analyze why attitude does not translate to actual purchase behavior even when eco labels transpire green information to customers'. This is done using the Theory of Planned Behavior (TPB)

Design/methodology/approach: The study used partial least square structural equation modeling (PLS SEM) to analyze the statistical data. The TPB was used as the root model to understand the green purchase behavior and how eco labels with product attributes influence attitude towards green products. The variables of TPB namely attitude, subjective norms and perceived behavioral control contributed to the constellation of green product behavior. The questionnaire was distributed using convenience sampling method to 241 youths (university students).

Findings: Firstly, the study successfully established the validity of TPB in the Indian context towards green products. It classifies the model on product, perception and actual level which adds to the better rendition for consumers' green behavior. Secondly, with the addition of eco labels and product attributes of green products improved the prediction power of TPB from 53.1% to 58.5%. Thirdly, eco labels and product attributes came out to be cardinal antecedents to harbor favorable attitude towards green products. The study also found the attitude was not translating to green purchase behavior and mandated further inquiry to the concern. Finally, the study vouches for gender neutrality while promoting green products.

Research implications: Firstly, the study adds to the mounting evidences towards the applicability of TPB towards green product purchase in India. Secondly, the study addresses the importance of ecol labels and product attributes towards harboring favorable attitude towards green products. Finally, unfolds the nuances for the inability to translate attitude towards green purchase behavior.

Managerial implications: Firstly, the study advances the indispensability of eco labels to promote green products. Firms can materialize on this dynamics of information dissemination through eco labels and promote sustainable attitude among consumers'. Secondly, the firms can understand the dynamics of consumer behavior and work accordingly to frame policies conducive towards translating attitude into green purchase behavior. Thirdly, the study strongly documents the need to market green products in a gender neutral manner.

Originality: The study draws novelty on two prospects. Firstly, the study uses eco labels and product attributes as antecedents towards attitude. Secondly, the study also aims to determine the actual green purchase behavior using the TPB model. Thirdly, the study investigates the moderating role of gender towards green product behavior.

Keywords: Eco-label, Product attribute, Green purchase behavior, Theory of planned behavior, PLS-SEM.



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1. Introduction

Consumer purchasing habits are changing as people become more conscious of the importance of sustainability (Forbes, 2020). Stakeholders, buyers, and retailers are under intense pressure to adopt environmentally friendly green practises, particularly in the apparel, textile, and fashion industries (Islam et al., 2020; Shamsuzzaman et al., 2021). Marketers have realised that understanding consumer behaviour for eco-friendly products can help them gain a competitive advantage through sustainable growth (Mukendi et al., 2020; Panda et al., 2020). To reap the benefits of environmental sustainability, the product must be cast in a way that minimises environmental degradation (Yang et al., 2017). Marketers must understand the significance of eco-labeling products in order to target niche markets for growing businesses (Sandvik & Stubbs, 2019).

Literature provides us evidence of a green attitude-behavior gap where favorable attitudes do not lead to actual green purchases (Joshi & Rahman, 2019; Tanner & Kast, 2003; Vermeir & Verbeke, 2008). Previous studies on green products have only considered intentions but ignored green purchase (Joshi et al, 2021: Joshi & Rahman, 2015; Yadav & Pathak, 2016) as they provide mixed results (Akehurst et al., 2012; Young et al., 2010). Therefore current study aims to answer the following research questions Firstly, the study aims to provide a direct link which would add to the body of green purchase literature. Recently, research on green consumption and purchase behavior has rapidly increased (for e.g. Cheung & To, 2019; Leonidou et al., 2010; Pahlevi & Suhrantanto, 2020; Trivedi et al, 2015). Studies have found that even after increased environmental concerns, consumers do not always frame a positive attitude for green purchase (Taufique et al., 2017). Literature has shown that environmental attitude may not fully explain eco-friendly behavior (Gent et al., 2017; Park & Lin, 2018). The customer's willingness to purchase green products remains feeble even after a felt concern (de Waal et al., 2017) and the reason may be due to a felt attempt of being taken advantage of under the garb of 'greenwashing' (Bulut et al., 2021; Kurpierz & Smith, 2020). In this context, the second purpose of the paper is to attempt to minimize such mindset regarding 'greenwash' by examining the role played by product level attributes (eco-label and product attributes) in informing and framing favorable attitude in youths pertaining to green products purchase. Thirdly, the study aims to evaluate the mediating effects of environmental attitude between product level attributes and green purchases, thereby addressing further the attitude-behavioral gap and help consumers embrace green products (Joshi et al, 2021; Yadav & Pathak, 2016). Many studies have held different views when it comes to the role of gender for pro-environmental behavior like females displaying higher intentions than male and sometimes no significant difference being witnessed (Mohai, 1992). There is lack of literature providing behavioral evidence as to why men show less inclination when compared to women towards pro-environmental issues (Desrochers et al., 2019), blurring gender based behavioral orientation regarding green purchases. On these lines, fourthly, the study aims to clear gender based behavioral duality helping green marketers understand the role of gender while purchasing green products. Fifthly, the paper tries to test the pragmatic implications of TPB in a developing country (India) and try to add to its prediction power.

Youth (15-29 years) comprises 27.5% of the population and contributes 34% to India's Gross National Income, highlighting the importance of youth (National Youth Policy, 2014). The reason for focusing on youth was due to the negligence of youth attitude in the green movement (Wray-lake et al., 2010) and the study draws importance because of the growing propensity of youth as future green consumers (Kanchanapibul, 2014).

2. Review of the Literature and Hypotheses Development

2.1 Inclusion of product attributes and eco-label

Product attributes and eco-label have become a pragmatic tool to promote green economy (Kanchanapibul et al., 2014) and green marketing mandates an urgent need to educate consumers' regarding the disastrous effects of non sustainable consumption (Esteves et al., 2017). Limited research has been conducted to understand how eco-label and product attributes influence green purchase (Minkov et al., 2018). It has been seen that lack of

information makes designing of managerial policies and strategic practices misleading (Song et al., 2019). Eco-label reduces such information asymmetries and helps gain a better understanding for selection of a green product (Prieto-sandoval et al., 2016). Although studies pertaining to effects of eco-labels have been conducted pervasively (Streletskaia et al., 2019), various other factors of eco-labels related consumption remain vague (Esteves et al., 2017).

2.1.1 Empirical evidence for including product attribute and eco-label

Product attributes are the components of a product that describes its features (Wintermeier, 2020). Product attributes are very important for framing environmental attitude to purchase green products (Ketelsen et al., 2020). Product attributes motivate consumers' green purchases (Aertsens et al., 2011) for instance a word "green" written appears to trigger green purchases (Schuhwerk & Lefkoff-Hagiu, 1995). In a study related to organic products it was found that product attributes had an impact on green purchases (Chauke and Duh, 2019). Eco-label is an informative tool in green marketing to promote green products and enrich consumers' information (Taufique et al., 2019). The effectiveness of eco-label as a marketing tool can be materialized as it draws a distinguished character of a green product and instills a favorable environmental attitude (Perez & Lonsdale, 2018; Testa et al., 2015). Eco-labels add to the favorable attitude of young generation consumers' (Cerri et al. 2018) and have a positive impact on green purchase behavior (Lehmann et al., 2020). Eco-label had an impact on environmental attitude which was mediated through product attribute and influenced green purchases (Song et al., 2019). Consumers' purchase behavior is known to be guided by eco-labels as it assists consumers' in making green purchases (Sammer & Wüstenhagen, 2006). Information in labeling is a high priority in countries like Germany and France (Herbes et al., 2020) which is apparent in promotional strategies stating eco-labeling is effective to create awareness among green products (Lim, Phang, et al., 2020). Based on the discussion, the following hypotheses were proposed:

H1: Product attribute positively impacts environmental attitude of youths for purchasing green products.

H2: Eco-label positively impacts environmental attitude of youths for purchasing green products.

H3: Product attribute positively impacts green product purchasing among youth.

H4: Eco-label positively impacts green product purchasing among youth.

2.2 Theory of planned behavior

TPB was originally propounded by Ajzen in 1985 and contained three variables namely attitude, subjective norms and perceived behavioral control to collectively predict intentions which later could be predictor of actual behavior (Ajzen, 2002).

Environmental attitude refers to a cognitive disposition by evaluation process of nature with some extent of favor or disfavor (Milfont & Duckitt, 2010) and attitude toward behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in the question (Ajzen, 1991). Subjective norm refers to the belief about whether most people approve or disapprove of the behavior (Ajzen, 1991). Perceived behavioral control refers to a person's perception of the ease or difficulty of performing the behavior of interest (Ajzen, 1991). A purchase is termed as green when the consumer purchases products that are eco-friendly and recyclable (Choi & Johnson, 2019)

Environmental attitude and subjective norms positively impact green product purchase (Nam et al., 2017). Environmental attitude leads to pro-environmental behavior (Mostafa, 2007) and had a positive effect on eco-friendly products (smart home objects) adoption among French consumers (Schill et al., 2019). Environmental attitude is a major determinant in shaping green purchase (Albayrak et al., 2013). Subjective Norms plays an important role in positively affecting green behavior and this relationship has been established in multifaceted fields of studies like visiting green hotel (Verma & Chandra, 2018), organic food purchase (Yadav & Pathak, 2016a) and many more (Sheppard et al., 1988). It was found that PBC was able to predict purchase intention which is a reinforcing indicator for purchases like eco-labeled organic food (Ates, 2021). PBC and environmental attitude were found to be

influencing purchase of eco-labeled foods (e.g., Mohamed et al., 2014), which was positively translating into purchase behavior (e.g., Aitken et al., 2020).

TPB is a cognitive model used in various eco-friendly related research areas like green restaurants (Kim et al., 2013; Moon, 2021; Yarimoglu & Gunay, 2020) smart home objects (Schill et al., 2019), green product (Paul et al., 2016), green purchase behavior (Jaiswal & Kant, 2018), eco-conscious consumer behavior (Hameed et al., 2019), and sustainable green fashion industry (Saricam & Okur, 2019), to quote some, proving its tenuous applicability relating to green products. Lemma discussions, the following hypotheses were posited:

H5: Environmental attitude positively impacts green product purchasing among youths.

H6: Environmental attitude mediates the relationship between product attribute and green product purchasing among youths.

H7: Environmental attitude mediates the relationship between eco-label and green product purchasing among youths.

H8: Subjective norms positively impacts green product purchasing among youths.

H9: Perceived behavioral control positively impacts green product purchasing among youths.

2.3 Gender as a moderator

In a study using TPB among university students to measure the attitude behavior gap in green apparels, gender moderates the association between environmental knowledge and concern for environment (Dhir et al., 2021). Using TPB, in a research conducted to measure intentions of individuals to procure green residence, it was witnessed that influences differed with different gender groups (Wu et al, 2021). Many studies (for e.g. Gifford & Nilsson, 2014; Kalamas et al., 2014; Matthes et al., 2014; Milfont & Schultz, 2018; Milfont & Sibley, 2016) have found females to exhibit greater intentions to buy green products and in a meta survey of 14 countries, a significant difference in gender was found where females displayed a higher degree of green behavior (Zelenzy et al., 2000). Ecofeminism propagates the finding that women dominate men on environmental issues and exert higher pro-environmental behavior (Ramstetter & Habersack, 2020; Sakellari & Skanavis, 2013). On the contrary, men were found to be more pro-environmental than women (Chuvieco et al., 2019; Shi & Song, 2019). Gender neutrality was found in green purchases in a study conducted by Tan & Lau (2010). Guided by the discussion, the following hypotheses were proposed:

H10: Gender moderates the relationship between product attribute and green product purchasing among youths.

H11: Gender moderates the relationship between eco-label and green product purchasing among youths.

H12: Gender moderates the relationship between environmental attitude and green product purchasing among youths.

H13: Gender moderates the relationship between subjective and green product purchasing among youths.

H14: Gender moderates the relationship between perceived behavioral control and green product purchasing among youths.

Refer to figure 1 for conceptual model.

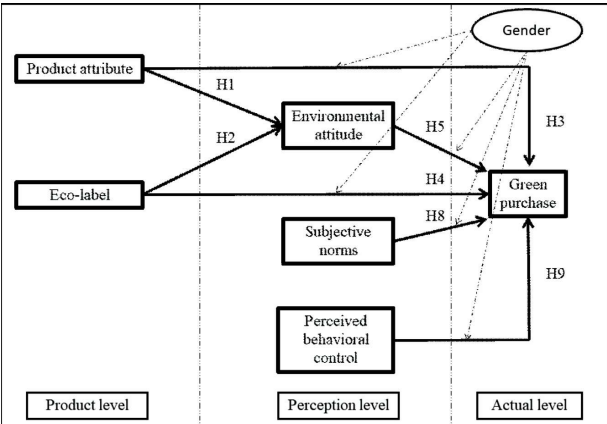


Figure 1.
Proposed conceptual
model

Source: Author's compilation
Note: Product level attributes were added to the original TPB model

3. Research Methodology

3.1 Designing the questionnaire

All the constructs were adopted from relevant literature (Chen et al., 2015; Kim, 2011; Nittala, 2014; Paul et al., 2016; Praxmarer, 2011) in order to achieve the objectives and all constructs were measured using 5 points Likert's type scale.

3.2 Data collection

A pilot study was conducted on 40 responses by university students enrolled in postgraduate courses and the results provided good nomological validity. Convenience sampling approach was used for transpiration of the questionnaires as the method arrests generalized results and the study demanded results from only youth. Convenience sampling has also been used in other studies pertaining to green products (for e.g., Joshi & Srivastava, 2019; Khare, 2019; Sadiq et al., 2021; Yadav & Pathak, 2016) and as our study is also on green products, we adopted the method. Researchers like Chea & Phau (2011) and DelVecchio (2000) have vouched that a young consumers' response is reliable for conducting studies pertaining to green product purchases. The student's ages were first accessed from the university muster rolls before deciding on classifying the age intervals and found that because smallest and highest age of students enrolled were aged between 22 and 29 years respectively, we classified the age group under two intervals having a gap of four years in each. A total of 300 questionnaires were dispatched among university students enrolled in postgraduate courses. The students were informed beforehand about the objectives of the study through a demonstration lecture regarding green products. It was ensured that only those candidates should fill the questionnaire that had atleast procured a green product and 273 responses were received, which construed to a response rate of 91 percent. Stellar response rate may be due to group administered questionnaire which ensured rapid assimilation of data (Alder & Clark, 2006; Rooney & Evans, 2018). Incorrect and missing responses were deleted amounting to 241 usable responses. Using the method of Kline (2011) of having 10 cases per parameter, the minimum sample size of 220 was required for 22 items. Therefore, 241 samples fulfilled the a priori condition for statistical analysis. Also, the obtained responses were higher than the minimum required value of 200 responses (Hair et al., 1998; Kelloway, 1998).

3.3 Socio-demographic data

The classification of gender responses was 135 males and 106 females contributing to 56.01% and 43.98 % respectively. The age group of the respondents were 22-25 age group (number-108, percentage-44.81%) and 26-29 age group (number-133, percentage-55.18%). The household monthly incomes (INR) of respondents were as follows: income group of 45000-65000 (number-39, percentage-16.18), 650001-85000 (number-87, percentage-36.09) and more than 85001 (number-115, percentage-47.71).

Variable	Classification	Frequency	Percentage
Gender	Male	135	56.01
	Female	106	43.98
Age (Years)	22-25	108	44.81
	26-29	133	55.18
Household Monthly Income (INR)	45000—65000	39	16.18
	65001—85000	87	36.09
	> 85001	115	47.71

Table 1.
Socio-Demographic Data

4. Analysis

Partial least squares structural equation modeling (PLS-SEM) was used for the statistical analysis of the data as the technique is capable to counter small sample size (Agarwal and Karahanna, 2000). It is pervasively accepted for predicting novel research models (Zhu et al., 2012), not contingent on strict assumptions of normality of data distribution (Vinzi et al., 2010) and with certain riders is more preferable to covariance based sequential equation modeling (CB-SEM) (Hwang et al, 2010; Wong, 2010). Since the aim of the study was prediction, therefore, PLS-SEM was preferred (Gefen, Rigdon and Straub, 2011).

4.1 Model assessment in PLS-SEM
4.1.1 Measurement model

Internal consistency was established through Cronbach's α and composite reliability which were more than 0.7 (Bagozzi & Yi, 1988; Hair et al., 2012). Convergent validity was established through values of outer loading which was more than 0.7 and AVE values above 0.5 (Bagozzi & Yi, 1988; Chin et al., 1997), refer table 2. The factors had a higher loading on parent construct which satisfied the cross loadings. Fornell and Larcker's criterion was also confirmed with values of latent variables larger than the correlation among the latent variables (Fornell & Larcker's, 1981). Finally, the heterotrait-monotrait ratio of correlations values was less than 0.85 (Henseler et al., 2015), refer table 3. Hence, discriminant validity was established.

Construct	Items	FL	Mean	S.D	Cronbach's α	CR	AVE
Attitude (ATT)	ATT1: I like the idea of purchasing green.	0.879	4.228	0.763	0.826	0.896	0.741
	ATT2: Purchasing green is a good idea.	0.848	4.373	0.816			
	ATT3: I have a favorable attitude towards purchasing green version of a product.	0.856	4.191	0.886			
Eco-Label (EL)	EL1: If possible, I would like to buy products with recycling label.	0.898	4.100	0.896	0.875	0.923	0.800
	EL2: Marketers must advertise the environmental aspects of their products.	0.881	4.228	0.821			
	EL3: Government must make ecolabeling mandatory.	0.904	4.278	0.893			
Green Purchase (GP)	GP1: I make special effort to buy paper and plastic products that are made from recycled materials.	0.803	3.917	0.969	0.879	0.912	0.673
	GP2: I have switched products for ecological reasons.	0.811	3.743	1.006			
	GP3: When I have a choice between two equal products, I purchase the one less harmful to other people and the environment.	0.810	4.062	0.964			
	GP4: I make a special effort to buy household chemicals such as detergents and cleaning solutions that are environmentally friendly.	0.832	3.859	0.971			
	GP5: I have avoided buying a product because it had potentially harmful environmental effects.	0.846	3.846	0.950			
Product Attribute (PAT)	PAT1: Eco-friendly designed product looks appealing.	0.869	3.859	0.895	0.818	0.892	0.733
	PAT2: Eco-friendly designed product looks stylish.	0.862	3.718	0.966			
	PAT3: Eco-friendly product is of good quality.	0.838	4.017	0.892			
Perceived Behavioral Control (PBC)	PBC1: I believe I have the ability to purchase green products.	0.768	3.917	0.884	0.813	0.877	0.642
	PBC2: If it were entirely up to me, I am confident that I will purchase green products.	0.855	4.108	0.823			
	PBC3: I see myself as capable of purchasing green products in future.	0.766	4.129	0.862			
	PBC4: I have resources, time and willingness to purchase green products.	0.812	3.834	0.923			
Subjective Norms (SN)	SN1: Most people who are important to me think I should purchase green products when going for purchasing.	0.839	3.871	0.953	0.855	0.902	0.697
	SN2: Most people who are important to me would want me to purchase green products when going for purchasing.	0.872	3.801	0.943			
	SN3: People whose opinions I value would prefer that I purchase green products.	0.855	3.876	0.898			
	SN4: My friend's positive opinion influences me to purchase green product.	0.770	3.817	0.874			

Table 2.
Constructs, reliability and validity

Note: FL: Factor Loadings; CR: Composite Reliability, AVE: Average Variance Extracted and AVE calculated as $\sum \text{Squared Multiple Correlation} / (\sum \text{Squared Multiple Correlation} + \sum \text{Standard Measurement Error})$.

- a. All Factor Loadings > 0.7 which is favorable (Hulland, 1999)
- b. All Cronbach's > 0.7 indicates indicator reliability (Hair et al., 2012; Nunnally, 1978)
- c. All Composite Reliability > 0.7 and indicates internal consistency (Bagozzi & Yi, 1988; Gefen et al., 2000; Hair et al., 2012)
- d. All Average Variance Extracted > 0.5 and indicates convergent reliability (Bagozzi and Yi, 1988; Chin et al., 1997)

4.1.2 Structural model

Common method bias (CMB) is frequent in self-administered surveys and to tackle it, statistical and process orientation solutions by Podsakoff et al. (2017) was administered. Process oriented solutions data was collected from singular source; a several sources procedure was used. Several rearrangements in the order of items were made to maintain clandestine nature of answers. The Harman's single factor test was conducted and a single factor was able to extract variance less than 50% billing the model free from CMB concerns. The variation inflation factor (VIF) was less than 5 and obviated the data from any multi-collinearity issues (Hair et al., 2021), refer table 3.

Fornell and Larcker's criterion						
	GP	PBC	EL	ATT	PAT	SN
GP	0.821					
PBC	0.669	0.801				
EL	0.653	0.621	0.895			
ATT	0.627	0.666	0.716	0.861		
PAT	0.654	0.594	0.670	0.610	0.856	
SN	0.606	0.635	0.510	0.565	0.654	0.835
HTMT Criterion						
	GP	PBC	EL	ATT	PAT	SN
GP						
PBC	0.790					
EL	0.742	0.740				
ATT	0.735	0.816	0.843			
PAT	0.768	0.725	0.787	0.736		
SN	0.695	0.755	0.585	0.669	0.776	
Collinearity VIF inner						
	GP	PBC	EL	ATT	PAT	SN
GP						
PBC	2.364					
EL	2.682			1.816		
ATT	2.616					
PAT	2.471			1.816		
SN	2.149					
Cohen f ²						
	GP	PBC	EL	ATT	PAT	SN
GP						
PBC	0.080					
EL	0.043			0.375		
ATT	0.007					
PAT	0.045			0.067		
SN	0.023					

Table 3.
Discriminant validity,
collinearity & Cohen f2

- Note: a. The emboldened numbers in the diagonal represent the square root of the AVE of each construct and were greater than its correlation value both in rows and the columns, which established discriminant validity
- b. HTMT values with indices below the higher threshold value of 0.9 (Gold et al., 2001, Teo et al., 2008).
 - c. VIF < 5.0 which obviates the data for any issues of multi-collinearity (Becker et al., 2015)
- In behavioral sciences, the R2 values greater than 0.26 are considered a large effect, 0.13 as moderate effect and 0.02 as small effect (Giao et al., 2020). Based on the above, both green purchase and environmental attitude have strong effect with values of 0.604 and 0.543

respectively. The R2 of green purchase signifies that 60.4% of its total variance may be explained by product attribute, eco-label, environmental attitude, subjective norms and perceived behavioral control while R2 of environmental attitude depicts that 54.3% of its variance may be construed by both product level attributes. The t-value of path (H1: PAT'ATT) was 3.989 with p-value of 0.000 which confirmed the positive relationship between product attribute and environmental attitude. Hence, we failed to reject H1. The t-value of path (H2: EL'ATT) was 9.053 with p-value of 0.000 which confirmed the positive relationship between eco-label and environmental attitude. Hence, we failed to reject H2. The t-value of path (H3: PAT'GP) was 2.411 with p-value of 0.016 which confirmed the positive relationship between product attribute and green purchase. Hence, we failed to reject H3. The t-value of path (H4: EL'GP) was 2.353 with p-value of 0.019 which confirmed the positive relationship between eco-label and green purchase. Hence, we failed to reject H4. The t-value of path (H5: ATT'GP) was 1.13 with p-value of 0.258 which confirmed a non significant relationship between environmental attitude and green purchase. Hence, we failed to accept H5. The t-value of path (H8: SN'GP) was 2.032 with p-value of 0.042 which confirmed a positive relationship between product attribute and environmental attitude. Hence, we failed to reject H8. The t-value of path (H9: PBC'GP) was 3.969 with p-value of 0.000 which confirmed a positive relationship between perceived behavioral control and green purchase. Hence, we failed to reject H9. The -values of the corresponding hypotheses are depicted in table 4.

4.1.3 Mediation and moderation testing

The t-value of mediation path (H6: PAT'ATT'GP) was 1.045 with p-value of 0.296 which confirmed no mediation. Hence, we failed to accept H6. The t-value of mediation path (H7: EL'ATT'GP) was 1.098 with p-value of 0.272 which again confirmed no mediation. Hence, we failed to accept H7 too. The moderating effect of gender on ATT, PAT, EL, SN and PBC was tested which revealed no moderation. The relative statistical indices are depicted in table 4. Hence, we failed to reject hypotheses H10, H11, H12, H13 and H14.

Path coefficient									
(H)	Path	(O)	(M)	(SD)	T Statistics	P Values	LB	UB	Supported
H1	PAT -> ATT	0.236	0.239	0.059	3.989	0.000	0.124	0.354	Yes
H2	EL -> ATT	0.558	0.556	0.062	9.053	0.000	0.433	0.673	Yes
H3	PAT -> GP	0.210	0.203	0.087	2.411	0.016	0.030	0.367	Yes
H4	EL -> GP	0.213	0.210	0.090	2.353	0.019	0.030	0.386	Yes
H5	ATT -> GP	0.086	0.084	0.076	1.130	0.258	-0.058	0.237	No
H8	SN -> GP	0.140	0.141	0.069	2.032	0.042	0.007	0.276	Yes
H9	PBC -> GP	0.274	0.284	0.069	3.969	0.000	0.149	0.422	Yes
Mediation									
H6	PAT -> ATT -> GP	0.020	0.020	0.019	1.045	0.296	-0.014	0.064	No
H7	EL -> ATT -> GP	0.048	0.047	0.044	1.098	0.272	-0.032	0.142	No
Moderation									
	Gender -> GP	-0.037	-0.038	0.042	0.880	0.379	-0.120	0.043	No
H10	ME 1 -> GP	0.094	0.093	0.067	1.404	0.160	-0.040	0.223	No
H11	ME 2 -> GP	0.007	0.000	0.084	0.080	0.937	-0.163	0.167	No
H12	ME 3 -> GP	0.014	0.015	0.076	0.177	0.859	-0.131	0.165	No
H13	ME 4 -> GP	-0.103	-0.103	0.088	1.165	0.244	-0.266	0.073	No
H14	ME 5 -> GP	0.021	0.027	0.067	0.314	0.753	-0.106	0.161	No

Table 4.
Path coefficient, mediation
and moderation

4.1.4 Goodness of fit, effect size and model prediction

The standardized root means square residual (SRMR) values of both the saturated and estimated model were 0.062 and 0.071 respectively which fell between 0 and 1 (Hair et al., 2019). Hence, the model is parsimonious and plausible (Henseler et al., 2016). Blindfolding was run and the Stone-Geisser's Q2 values were greater than zero concluding the model has predictive relevance (Hair et al, 2014). The Cohen f2 values (Cohen, 1998) were examined to decipher the effect size and the values are depicted in table 3. It was seen that PBC, EL and PAT had a small effect size on GP. It was also witnessed that EL had a high effect size on ATT. The TPB model had an adjusted R2 of 0.531 which improved to 0.585 after adding PAT and EL. It has been established that R2 values that surpass 20% are considered stellar in consumer behavior studies (Rasoolimanesh et al., 2017). Hence, the addition of two constructs to the TPB had improved the prediction power of the model.

5. Discussion

The results have shown that environmental attitude could be predicted by eco-label and product attributes in their order of significance respectively. The results draw consonance with the findings of Song et al. (2019) in which eco-label impacted attitudes of young consumers'. Further, findings of Ketelsen et al. (2020) were confirmed that product attributes shaped environmental attitude. Out of the three predictor variables of TPB namely environmental attitude, subjective norms and perceived behavioral control, it was found out that environmental attitude impact on green purchase was rendered insignificant. Perceived behavioral control had a greater impact on green purchase when compared with subjective norms. The positive and significant impact of perceived behavioral control on green purchases draws similarities with findings of Aitken et al. (2020). The finding of subjective norms predicting green purchases resonates with findings of Verma & Chandra (2018).

An insignificant impact of environmental attitude on green purchase was found and environmental attitude did not catalyze as a significant mediator. Many studies have found a palpable attitudinal/green purchase gap in conscious consumers (Aagerup & Nilsson, 2016) which may have had a favorable attitude for product and services but not materialized into green purchases (Anisimova, 2016). It is evident that consumers may not buy a product even though have positive attitudes towards it (Parkinson et al., 2018). Empirical studies have demonstrated that positive attitudes do not translate into green purchase behavior (Morwitz, Steckel & Gupta, 2007). Despite positive environmental attitudes, high willingness to pay extra premiums and intentions to recycle, a few consumers engage in green purchase (Mintel, 2006).

TPB does not resonate with reality in context of green consumption behavior as individuals who express favorable attitude do not necessarily engage in environmentally sensible behavior like green purchases (ElHaffar et al., 2020). The empirical proof of which is pronounced in a research confirming 30% of UK consumers did not engage in green purchases (Young et al., 2010). Also, people who displayed a favorable attitude towards green products had a slender rate of 4-10% purchase (Hughner et al., 2007) and it is essential to narrow the attitude-behavior gap (ElHaffar et al., 2020). Moreover, studies have failed to draw a strong relationship between positive green attitude and actual purchase of green products using both TRA and TPB (Tan, 2011; Joshi & Rahman, 2015). Hence, the literature steadfastly supports the findings of insignificant impact of environmental attitude on green purchase and its failure to act as a mediator.

Gender neutrality was observed with all the independent variables and finds similarities with results of researchers (for e.g. Azila et al., 2021; Sharma & Foropon, 2019) hence did not act as a moderator in the study. Finally, the results have supported the addition of eco-label and product attribute to TPB as it increases the predictive power of the proposed model to 58.5 percent (adjusted R2=0.585) in comparison to 53.1 percent (adjusted R2=0.531).

6. Implications

The findings have highly significant implications that would help marketers, producers and manufacturers to tailor suitable strategies for eco-friendly product manufacturing. Based on the findings, eco-labeling and promotion of green product attributes shall be a focus area for green marketers. Concurrent with the studies pertaining to subjective norms, it is suggested that green marketers shall concentrate on social media green marketing which could help to strengthen the peer influences for procurement of green products. PBC had the highest impact on green purchase and the findings recommend green marketing companies to exert more on framing policies that could help consumers shape their behavior for materializing purchase of green products. Attitude did not have an impact on green purchase and neither acted as a mediator for product attribute and eco-label towards green purchase (Xu et. al, 2020), which raises a concern for green marketers. Also, when consumers' do not find access to green product, their attitude-purchase gap is widened (Nguyen, 2019). There is a huge attitude-actual purchase behavioral gap as its is seen that having a favorable attitude (Trudel & Cotte, 2009) often may not translate into sustainable actions in form of green purchases (Young et al., 2010) and this is a pronounced reason for the failure of green products promotion (Johnstone & Tan, 2015). The greatest implication to marketers is to be wary of proper dissemination of information of green products that could actually translate favorable attitude into actual purchases through change in perceptions. As attitude is not the sole variable for pro-environmental behavior (Bamberg, 2003), consistent with the study, it is suggested to green marketers to adequately ensure translation of attitude into actual green purchases through feedback and feed-forward loops, which could be possible by constant dissemination of eco-friendly information through eco-labels and product attributes. The greatest challenge before companies engaged in green product industry in the Indian sector is to translate the youth's favorable attitude into actual green purchases through a mix of green marketing strategies. Gender neutrality was observed and marketers can focus on unisexual nature of green product marketing.

7. Conclusion and Scope for Future Research

The findings have been instrumental in predicting green products purchase among the Indian youth and it was a novel attempt to include eco-label and product attribute to the TPB. The results have added to the growing body of literature of environmental attitude rendering an insignificant impact on actual green purchases and non-moderating role of gender. The study was able to improve the predictive power of TPB with addition of two new constructs.

The study had some limitations that could be addressed in future researches. Firstly, the study only focused on the youth population in India which may not have a high purchasing power and willingness to pay could be an interesting variable to ponder in further studies. Secondly, the study had bypassed purchase intentions and directly focused on actual green product purchase and may be due to less paying capacity or higher saving tendency, lead to reserved purchase behavior. Both eco-label and product attribute had a favorable impact on attitude but various factors like confusion, trust (Carrete et al., 2012), perceived quality (Gleim & Lawson, 2014, Tseng & Hung, 2013) and egoistic values (Nguyen et al., 2017) could hinder attitude translating to purchase behavior. These variables could be both limitation and avenues for future research. It would also be interesting to analyze the mediating effect of product attribute between eco-label and green purchase (Song et al., 2019). Finally, a recommended scope could be replication of model among the High Net Worth Individuals in urban conglomerates which could have interesting results and add to the literature of green purchases.

Declaration of competing Interest

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

Informed Consent

The authors declare that the data was collected from respondents after their approval and consent.

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Evaluating the Significance of Forensic Accounting in Fraud Detection in the Indian Banking Sector: A Systematic Literature Review

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Abstract

Purpose: The purpose of this paper is to examine the significance of forensic accounting in fraud detection and investigating the fraudulent practices in the Indian Banking sector

Design/Methodology/Approach: This paper review studies conducted on forensic accounting in Indian banking sector to explore the suitability of the same in detection of the occurrences of fraud and investigation of fraudulent practices in the Indian Banking Sector.

Findings: The need to identify and stop financial fraud has never been greater. Even though regulatory agencies like SEBI and RBI attempted to cut down on fraud, their results were unfavourable. Fraudsters nowadays are sophisticated and technologically adept and use novel techniques to commit their crimes. Furthermore, the study highlights Fraud in the Indian Banking Industry. Lastly, the study highlights the Role of Big Data in Influence Practitioners to Use Forensic Accounting for Fraud.

Research limitation/implication: Corporate leaders are ready to avoid committing financial fraud despite pressure from investors, government securities regulators, and exogenous market swings, according to the study's key premise that fraud may be reduced by proactive and intentional action by auditors.

Theoretical implication: Forensic accounting requires knowledge of large data, and should be included in courses for both undergraduate and graduate students.

Practical implication: Forensic accounting is a viable method for exposing bank fraud in India, but more focus should be given to fraud instances where forensic accountants haven't paid attention.

Originality/value: From published literature, it is evident that there is dearth of studies conducted on forensic accounting and detection of frauds in the Indian Banking Sector. The review paper is a holistic study that focuses on forensic accounting, its suitability in uncovering frauds in Indian Banking sector.

Keywords: Bank, Frauds, forensic accounting, banking sector, Accounting Professionals, Detection and Prevention

Type: Literature review

1. Introduction

To keep the economy humming along, credit must be created and made available. The health of the economy requires a dependable and open financial system. Banks are often discovered to be working hand in glove with those who commit fraud, which hurts the economy and the financial stability of the country. The money in deposit accounts is at risk, and the whole financial system loses liquidity when a bank fails (Abdulrahman, 2020). In recent years, India's financial sector has been thrown into chaos due to several bank failures and frauds. Dishonesty at financial organizations including "Punjab National Bank, Punjab and Maharashtra Cooperative Bank, Yes Bank, ICICI Bank, Infrastructure Leasing, and Financial Services (Non-Banking Finance Company), and Dewan Housing Finance Company" sent shockwaves across the financial sector (DHFL) (Lakshmi, 2016). In the aftermath of several frauds and disasters, the ability of auditors and accountants to spot "cooked books" and dubious financials at big banks and financial institutions has come under increased scrutiny. More than ever, it is important to use forensic accounting to look for signs of fraud and figure out who could be behind it. Forensic accountants are accountants that specialize in



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using their knowledge of accounting, auditing, and investigation in legal settings, such as in courtrooms, during discussions, and to mediate disputes (Mangala, 2015).

A "forensic accountant" or "forensic auditor" has a very distinct set of abilities from those of a "regular" accountant or "regular" auditor whose main job is to evaluate the yearly accounts. Money from banks has recently been moved and siphoned off to the fictional accounts of affiliated groups, as shown in the cases of DHFL and Yes bank (Ademola, 2017). As the result, a substantial sum of money is lost, which has severe consequences for the economy. Fraud, in the form of corruption, asset theft, or fake financial reporting, continues to damage the financial system despite ongoing efforts to stamp it out. So that they can prevent "embezzlement, money laundering, and round-tripping" from tax haven nations, banks should seek the advice of "forensic accountants" when dealing with connected groups of businesses (Bhasin, 2015). In 2001, the Reserve Bank of India (RBI) formed the NL Mitra committee, which in 2008 granted formal status to the India Forensic research foundation. The prevalence of such scams has led to the fast rise of the Serious Fraud investigation officer role. India now has many anti-fraud and anti-corruption bodies, including the Central Vigilance Commission, the Economic Offenses Wing of the Central Bureau of Investigation, and the Foreign Exchange Management Act (Singleton, 2010).

A common thread connecting the many bank frauds over the previous several years is the participation of the banks' promoters, managers, and chief executive officers in some way with the perpetrators of the scam. Investors entrust banks with their funds, and the banks in turn lend money to improve communities' physical facilities (Yadav, 2013). The financial system suffers when banks declare bankruptcy. The economic system will suffer as a result of this. Nonperforming assets (NPAs) are on the rise, and institutions like ICICI Bank and Yes Bank are on the brink of merging as a result. NPAs are mostly the result of fraudulent actions by banks, such as making loans to subprime borrowers in return for monetary and nonmonetary incentives. According to data provided by India's Minister of State for Finance, internet theft and ATM fraud cost Indian financial institutions Rs 110 crore in the preceding fiscal year, 2018-2019 (Ehioghiren, 2016).

The necessity for forensic accountants has been bolstered by the sharp rise in computer and internet theft (cybercrime), the ineffectiveness of regulatory bodies in preventing security frauds, and the collapse of several cooperative banks. "what impact fingerprints had in the nineteenth century, DNA had in the twentieth century, similar impact Forensic accounting has in the twenty-first century," said UK Chancellor of the Exchequer and ex-Prime Minister Gordon Brown, referring to the use of forensic accounting in the war on terrorism (Mangala, 2017).

2. Objectives of the Study

The main aim of the study is to evaluate the significance of forensic accounting in fraud detection and investigate the fraudulent practices in the Indian Banking sector. The study also focuses on:

- To examine forensic Accounting concerning a New Paradigm For Niche Consulting
- To focus on the suitability of forensic accounting in uncovering bank frauds in India
- To analyse frauds in the Indian Banking Industry
- To examine the role Of Big Data in Influence Practitioners to Use Forensic Accounting for Fraud Detection.

3. Research Methodology

The notion of this research design is best characterised as a review paper (Petticrew, M. and Roberts, H. (2008)). The major goal of this essay is to explain the importance of forensic accounting in identifying fraud in the Indian banking industry using relevant literature. This study has gone through two steps in its search for forensic accounting papers in accordance with its goal. The first phase entails searching for keywords that include [forensic] and [accounting]; and [forensic accounting and fraud and Indian Banking Sector]. To find pertinent studies, the following databases were searched: Web of Science, Elsevier, Emerald, Scopus, Springer, J-STOR and SAGE Journals are some examples of reliable journals.

A study of forensic accounting journals, special issues, and periodicals that occasionally publish forensic accounting research is also included in this initial stage. The second stage includes a snowball search for the references of all the articles that were found in the previous step. Only English-language articles could be found through the search. The chosen pieces were published during a 15-year period, with the majority appearing in recent decades. The relevant studies were located through the search and rigorously examined. Studies that addressed the forensic accounting profession and frauds in the Indian banking sector were chosen for the review.

4. Literature Review

4.1 Forensic Accounting: A New Paradigm For Niche Consulting

According to Bhasin, (2007), many people believed that it was the job of an accountant to look for signs of fraud or other forms of white-collar crime. There was an expectation that regular audits by both internal and external auditors would help prevent fraud. Shah, (2014) stated that auditors can only verify that a company's books are in line with GAAP, auditing standards, and internal regulations; this is something we know as accountants. That is why there is a whole new branch of accounting dedicated to uncovering fraudulent activities inside organizations. Forensic accounting describes this branch of the profession. Okpako, (2013) analyzed that Sherlock Holmes is universally regarded as the pioneering forensic accountant. Some figures from India's past, though, deserve credit for their contributions. It was Kautilya, in his ancient Indian treatise Arthashastra, who originally mentioned the forty techniques of embezzlement. It was he who first publicly acknowledged the necessity for forensic accountants in the field of economics. Alabdullah, (2014) examined that in the same way, Birbal served as King Akbar's Scholar. He solved crimes using a bag of tricks. Some of his anecdotes provide a glimpse into the Litmus test of inquiry for a fraud examiner.

According to Ocansey, (2017) engagements resulting from disputes or litigation, whether real or potential, are the focus of forensic accounting. In most cases, forensic accountants must provide work that is "forensic," which implies "suitable for use in Court." Joseph, (2016) analyzed that evidence collecting and the deployment of various methodologies, frequently designed specifically for the needs of the engagement, are hallmarks of a forensic investigation. When a case goes to trial, forensic accountants are typically called upon to testify as experts.

According to Okoye, (2013) in addition to the huge international accounting companies, forensic accounting services may be found in many of the smaller regional businesses and independent accounting practices insurance claims, personal injury claims, fraud detection, construction, and royalty audits are just some of the areas that forensic accountants might specialize in. Dianati Deilami, (2018) examined that according to Accounting Today, more than 40% of the top 100 American accounting firms are increasing their forensic and fraud services. Akinbowale, (2021) analyzed that if these numbers are any indication of the situation in India, forensic accounting in India will soon account for a significant portion of CA companies' overall income. In sum, given the present environment of a thriving company and escalating cases of frauds and litigations, these services are in high demand and are being provided at a premium.

According to Bhasin, (2013) employment possibilities in the field of forensic accounting are expanding rapidly. American forensic accountants have found plenty of employment since the fall of Enron and the World Trade Center. But the establishment of the Serious Fraud Investigation Office Behel, (2021) stated that (SFIO) in India represents a watershed moment for the field of forensic accounting in that country. No of our level of awareness, the rising prevalence of cybercrime, the inability of regulators to keep up with security scams, and the collapse of a string of cooperative banks all speak to the need for forensic accounting. Bhide, (2012) examined that amidst the increasing incidence of fraud in India, forensic accountants have become more important. Services such as forensic practice will be in high demand due to the proliferation of government bodies involved in regulation and administration. According to Henry, (2017) changes in auditing and assurance requirements,

as well as in Indian accounting practices, provide more evidence of this trend. If the written tests and practical industry training are updated to better represent the "new knowledge base and skill set" needed by the accounting profession in the current period, then a shift in the curriculum is possible. As a result, "forensic accounting and auditing" should be included as soon as feasible in the curriculum of the ICAI professional examination.

Dubey, (2014) stated that sadly, forensic accounting remains largely untapped in India. In rare instances, Chartered Accountants (CAs) may be enlisted to assist with the aforementioned tasks. Forensic accountants are in high demand in the West at the moment, with potential clients including law enforcement agencies, financial institutions, government agencies, insurance firms, auditing firms, and business courts and regulators. To succeed in the new discipline of forensic accounting and auditing, accounting professionals need to adopt a certain attitude.

Wijerathna, (2020) examined that due to the evolving demands of businesses, the very meaning of forensic accounting is shifting. "the application of financial skills, and an investigative mentality to unresolved issues, conducted within the context of rules of evidence," Bologna and Lindquist said in their definition of forensic accounting. Azadzadeh, (2014) stated that to be effective in this new field, one must be well-versed in finance, grasp the nature of fraud, and be familiar with the realities of doing business and the rules governing their operation. This means that the forensic account has to be well-versed in more than just financial accounting; they also need to know the law, the specific needs of their organization, how to conduct thorough investigations, and how to get along with people.

Chaturvedi, (2015) stated that the definition of forensic accounting is "the application of accounting principles, theories, and discipline to facts or hypotheses relevant to a legal dispute," it is safe to assume that all aspects of accounting are included in this field. While analyzing, investigating, inquiring, testing, and examining problems in civil law, criminal law, and jurisprudence, it is helpful to have a firm grasp of financial concerns. To back up claims in court, forensic accountants do audits, (current year) accounting, and investigation techniques, as defined by Abid. Both litigation services, which acknowledge the accountant's function as an expert adviser, and investigative services, which draw on the accountant's skills and may need proof in court, form the basis of forensic accounting. Experts in forensic accounting are often called upon to aid court proceedings by discussing the facts and patterns of theft or misappropriation of the company or individual assets, drawing on their training and expertise in the field. Also, businesses often hire forensic accountants to go over their books and provide advice on how to better avoid theft and fraud by implementing a more robust system of internal controls and checks. Forensic accountants bring more to the table than just numbers because of their training and expertise.

Table 1.
Chronological
presentation of papers on
Forensic Accounting

S.N	Author name	Finding
1	Akinbowale (2021)	The study shows that forensic accounting and management control can combat cyber fraud. This study suggests that banks should regulate fraud risk management to maintain reputation and regulatory compliance. The banking sector should guarantee that its management control systems and forensic accounting methods for cyber fraud are compatible.
2	Behel(2021)	Forensic accounting is not recognized as a profession due to a lack of regulation and accreditation. However, the activity covers all aspects of fraud risk management and related offenses. It is made by specialists with investigative profiles and a variety of information, skills, and abilities for services including investigations, disputes, expert testimony, and fraud prevention. SFIO in India was a turning point for the discipline of forensic accounting there.
3	Wijerathna (2020)	It is crucial to include forensic accounting in undergraduate and graduate curricula. Furthermore, conventional accounting knowledge alone does not make for a perfect forensic accountant. A forensic accountant should be knowledgeable across many different fields. Auditing, accounting, statistics, information technology, legal regulations, and human skills are some of these crossdisciplinary fields.
4	Deilami(2018)	The need for forensic accounting expertise was brought on by the rise in financial and white collar corruption. According to Accounting Today magazine, more than 40% of the top 100 accounting firms in the US are expanding their offerings to include forensic and fraud services.

			Evaluating the Significance of Forensic Accounting in Fraud Detection in the Indian
5	Henry (2017)	The report concludes that forensic accounting services enable banking firms to explain fraud detection, prevention, and control. Forensic accounting periodically evaluates fundamental banking processes. Increase in hiring of forensic accounting specialists appears to have created an effective system to monitor bank fraudsters. Forensic accounting services have reduced banking fraud.	149
6	Ocansey(2017)	All institutions —anti-corruption authorities and businesses—should create forensic accounting divisions to improve internal controls and ensure thorough investigations to prevent, deter, and discover financial and economic crimes. The Institute of Chartered Accountants and National Accreditation Board should require universities and professional institutions to offer forensic accounting courses to ensure training and awareness. Forensic accounting handles disputes and lawsuits, regardless of legitimacy.	
7	Joseph (2016)	In the banking industry, forensic accounting is a powerful tool for fraud detection and prevention. Therefore, it is advised that, in order to lower the rate of financial crime in the banking sector, there should be increased involvement of forensic accountants in fraud detection. To improve the caliber of accountants graduating from colleges, forensic accounting courses should be offered by institutions.	
8	Chaturvedi (2015)	To undertake an assessment of a company's financial accounts, forensic accounting combines accounting, auditing, and investigative abilities. It appears that forensic accounting offers the necessary remedy for the issue of fraud and financial mismanagement in enterprises.	
9	Azadzadeh (2014)	Forensic accounting's development is strongly tied to legal, economic, and social factors, and the economy and society's growth and transformation will drive it. However, the constraints of law, accounting, and auditing would limit how much they can satisfy public demand, and the availability of forensic accounting in practice is still insufficient, indicating that forensic accounting needs improvement.	
10	Alabdullah(2014)	The study's main findings demonstrated that forensic accounting approaches improve control and auditing agencies' financial misconduct detection. The study suggested adding theoretical and practical forensic accounting classes to university accounting departments' curricula at both the preliminary and advanced levels.	
11	Dubey (2014)	The role of official justice and judiciary experts in handling claims and financial disputes cannot be disputed, but the training and employment of forensic accountants in the legal system as a separate profession may help observe justice in economic crimes, financial claims, and the protection of people's rights.	
12	Shah (2014)	The researcher has sought to elucidate the relevance, necessity, technique of forensic accounting in India. Forensic accounting uses data, knowledge, and accounting system setup to detect and prevent financial wrongdoing. It also deters and warns miscreants that they may be detected and punished.	
13	Okoye (2013)	The study highlights the potential to increase awareness of the value of engaging a forensic accountant and help auditors decide what to do when risk variables suggest a higher probability of management fraud. Involving forensic accountants in the risk assessment process yields better results than consulting them with summary risk assessments and seeking opinion.	
14	Okpako(2013)	Economic and financial crime can be combated through forensic accounting. Regular audits can't find fraud, but forensic accountants can. Legal talents allow them to penetrate an organization, read the books,find proof, and testify. Forensic accounting identifies and eliminates misconduct, boosting firms' reputations. Fraud should be avoided by businesses. Bankers should be honest, objective, fair, and responsible, and governments and regulators should impose forensic requirements.	
15	Bhasin (2013)	The Forensic accountant's position can progressively develop into a crucial element in the Corporate governance system by assisting businesses in identifying and preventing fraud, creating a "positive" work atmosphere, establishing "effective" channels of communication, and being attentive as a corporate "watchdog." We can only hope that FAs will be able to enhance CG scenarios worldwide thanks to their particular knowledge, training, and talents.	
16	Bhide (2012)	Forensic accounting examines a company's financial accounts using accounting, auditing, and investigation abilities. Forensic accountants understand business realities beyond numbers.	
17	Bhasin (2007)	In fact, a forensic accountant will use their accounting, auditing, and investigative chops to look into a company's books. Successful entry-level forensic accountants need a broad base of knowledge (within the subjects mentioned above). Due to the novelty of the field of forensic accounting, efforts should be made to establish uniform terminology through the dissemination of working definitions and the sharing of institutional experiences. Indeed, forensic accounting has great potential as a distinct "niche" in the consulting industry.	

4.2 Suitability of forensic accounting in uncovering bank frauds in India

Gangwani, (2020) defines forensic accounting as the application of financial competence and an inquisitive mind to all pending situations that are envisioned within the framework of trials and discusses studies relating to the definition and description of forensic accounting. According to the author, forensic accounting is focused on the detection and prevention of various types of financial fraud and irregularities. He said that it was a kind of reporting inspection well suited to the public deliberation, debate, and settlement of disputes that characterize judicial procedures. It is commonly understood that forensic accounting implies a scientific method of conclusion because of its focus on providing a legal assessment to provide the greatest degree of confidence to its clients.

According to Dhar, (2010) expertise, integrity, and decency were identified as crucial qualities for a successful forensic accountant in a review of the qualifications needed for the profession. Forensic accountants need superior knowledge and technical chops. The author covered all the bases in terms of the abilities required of a forensic accountant, including the capacity to manage connections, internal control, and communication, as well as accounting knowledge, auditing competence, and familiarity with taxes, finance, and law.

Bhasin, (2007) stated that this decade has witnessed a growth in fraudulent operations throughout the globe, posing challenges for the financial industry everywhere. The author of a study on the implementation of forensic accounting in the banking sector shares his thoughts on the relevance of bank fraud concerns and the reluctance/incapacity of bank staff to combat such crimes. A survey was used to collect data from 253 bank workers for the research. The research found that a lack of knowledge about bank fraud and reluctance toward RBI procedures were major factors in explaining why bank workers did not highlight the growing issue of fraud.

According to Moid, (2016), recent trends in the banking sector and financial services point to an increase in instances of fraud involving the misappropriation of the author's assets. Lack of forensic auditing resources and technological know-how, as well as involvement by concerned management, have contributed to historically high instances of banking fraud. Lohana, (2013) stated that places special emphasis on the systems in place at Chandigarh banks to deal with fraud of different types and the technical promptness with which they handle risks and meet compliance criteria. The study found that the rise in banking frauds can be attributed to several factors, including a lack of managerial attention, complex business situations, and insufficient methods for identifying potential lapses. Lakshmi, (2016) examined that these factors, however, are all amenable to correction through the provision of appropriate training in intelligence gathering and fraud evaluation. While the author acknowledged that forensic accounting's "proactive approach in fraud identification" is a benefit, the "costly and long complex investigation" is negative, making it a significant problem for any business that employs it. The research shows that the usage of forensic accountants by businesses is fraught with both benefits and drawbacks.

Yadav, (2013) stated that "the rampant practice of assets misappropriation," which can take seven different forms (including "stealing," "cash robbery," "cheque tampering," "register compensation," "invoicing," "payroll," "expense reimbursement," and "inventory"), has caused the failure of many financial institutions. Two hundred managers and staff from the three largest Indian banks were selected using a stratified sample approach for the research. The research found that the following actions would help lessen the possibility of bank fraud or risk by keeping an eye on the financial services sector. According to Prakash, (2013) to determine if there is a correlation between forensic accounting and fraud detection, research tests the assumptions that forensic accountants may successfully detect, investigate, and prevent digital banking crime at Nigerian commercial banks. According to the findings, forensic accounting's enhanced internal monitoring and fraud detection skills might be useful for banks. Another study tested assumptions about the impact of forensic accounting, government rules, and inflation rate on the detection of fraud in the UAE banking system. According to the findings, the discovery of fraud is greatly aided by the use of forensic accounting techniques, government restrictions, and rising inflation rates.

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S.no	Author name	Finding	<p>Table 2. Papers on significance of Forensic accounting</p>
1	Gangwani (2020)	Forensic accounting as the use of financial knowledge and an inquisitive mind to all situations that might come up in a trial. It also talks about studies that have been done to define and explain forensic accounting.	
2	Moid (2016)	Theoretical examination of the forensic accountant is watchdog, who may keep an eye on the businesses' financial operations in order to reduce the likelihood of financial fraud in the future.	
3	Lakshmi(2016)	To find any fraudulent activities, forensic accountants need to be skilled at following and analyzing digitalized financial information. In the future, the function of the forensic accountant will be crucial to corporate/public governance since it will ensure the fairness and openness of accounting systems and help avoid corporate crime.	
4	Yadav (2013)	Forensic accounting is a subset of the larger accounting field. It is the application of expert accounting knowledge in legal situations involving potential or on going civil or criminal litigation, including, but not limited to, the application of generally recognized accounting and auditing principles, the estimation of lost earnings, income, assets, or damages, the assessment of internal controls, fraud, and any other situation requiring accounting knowledge.	
5	Prakash (2013)	Research tests the idea that forensic accountants can find, investigate, and stop digital banking crime at Nigerian commercial banks. This is done to see if there is a link between forensic accounting and fraud detection.	
6	Lohana (2013)	Focuses on the systems that Chandigarh banks have in place to deal with different kinds of fraud, as well as the speed with which they handle risks and meet compliance criteria.	
7	Dhar (2010)	A review of the qualifications needed for the job found that a successful forensic accountant needs to have knowledge, integrity, and good manners.	
8	Bhasin (2007)	This decade has seen an increase in fraud around the world, which has caused problems for the financial industry everywhere.	

4.3Frauds in the Indian Banking Industry

According to Srivastava, (2015), there have been several reports of financial fraud in India in recent years. Even though bank fraud in India is often seen as a necessary evil, the dramatic growth in banking fraud after liberalization has given authorities like the Reserve Bank of India reason for considerable worry (RBI). According to the Reserve Bank of India (RBI), "A deliberate act of omission or commission by any person, carried out in the course of a banking transaction or the books of accounts maintained manually or under computer system in banks, resulting into wrongful gain to any person for a temporary period or otherwise, with or without any monetary loss to the bank," is considered fraud.

Khanna, (2009) stated that "public sector banks (PSBs) in India have lost a total of Rs. 22,743 crores due to financial fraud during the last three years". The RBI has taken many steps to reduce the incidence of financial fraud, but although the total amount stolen has decreased, it has climbed over the last several years. The apparent robberies from Syndicate Bank and Indian Bank suggest not just low-level employees but possibly management was complicit. Murthy, (2022) analyzed that this casts a shadow on the efficacy of corporate governance at the very top of the world's most prestigious financial institutions. Additionally, Roy, (2022) examined that non-performing assets (NPAs) have been on the rise, which has had a catastrophic impact on the profitability of PSBs. Risky nonperforming assets (NPAs)

have been linked to several factors, including the global and local recession and fraud. How much a nation produces and consumes is influenced by the health of its banking and financial sector. According to Mayur, (2017) it is an unmistakable reflection of the level of life in the country. Since NPAs are a reflection of the financial difficulty of borrowers' customers or inefficiencies in transmission processes, their presence in the banking system is cause for concern. The authors were primarily motivated to conduct this extensive research on fraud in the Indian banking sector by considering the negative effects of fraud on the Indian economy from a variety of perspectives.

According to Mishra, (2013) following the Great Depression of the 1930s in the United States, the Glass-Steagall Act (GSA) was passed to separate commercial banking from "risky" investment banking to decrease risks to the financial system and address conflicts of interest in banking. Numerous attempts were made to save GSA, but the program was ultimately rendered ineffective and dissolved in 1999. The author argued, during a conference on humanizing the global economy, for more transparency and accountability in international capital markets. Hassani, (2018) stated that to help find, investigate, and fix major financial risks, the World Bank and the International Monetary Fund (IMF) worked together in the mid-1990s to create the Financial Sector Assessment Program (FSAP). A lot of people now support FSAP when it started back in 1999. Saha, (2016) analyzed that massive bank mergers gave rise to the "too big to fail" concept, which in turn encouraged very high-risk financial targets and precipitated the financial crisis of 2008. The DFA has developed new agencies to monitor for and prevent acts of fraud. As part of Dodd-Frank, the "Volcker Rule" forbade commercial banks from participating in "proprietary trading" for financial gain.

According to Kolte, (2019) following the crisis, the IMF has worked to improve the efficacy of the framework used to evaluate risks and vulnerabilities by promoting increased transparency and information sharing, strengthened supervisory and regulatory bodies, and closer international cooperation in the regulation and supervision of financial institutions. Akelola, (2012) stated that both the scope and frequency of financial monitoring were found to be wanting, particularly in nations with really systemic banking sectors whose collapse may precipitate a financial catastrophe. Studies have shown that a credit boom precedes around one-third of all banking crises, suggesting a link between loose bank loan growth practices and financial instability. The Indian banking sector has been troubled by rising nonperforming loans (NPAs) in recent years, creating a self-perpetuating cycle that threatens its long-term viability. In his talk, Chakrabarty (2013) pointed out that although private and international banks have been blamed for the most number of frauds, public sector banks have contributed the most financially.

Mangala, (2022) examined that RBI (2014b) found that public sector banks were under stress due to poor asset quality and marginal capitalization, and the central bank made several suggestions to alleviate this pressure. Public sector banks should be granted better governance and greater autonomy to boost their competitiveness and access to market funding. After the crisis, it was discovered that laws do not seem to be a hindrance to the operating of banks, contrary to the widely held belief that more restrictions would reduce economic prospects.

Banking Regulation and Development Authority of India (RBI) has categorized several forms of fraud based on the provisions of the Indian criminal law and established reporting procedures for such frauds (2014a and 2015a). According to RBI (2015b), cooperative banks were directed to establish a committee to supervise internal inspection and auditing, plan suitable preventative activities, and then analyze the effectiveness of such efforts. This was done to facilitate the board of directors' oversight of fraud. Providing workers with the tools they need to deal with fraud requires objective policy guidelines and a whistleblower policy. The lack of a strong credit assessment system, inefficient monitoring after loan disbursement, and inadequate recovery methods were all identified by Gandhi (2014) as major impediments to resolving the primary causes of rising NPAs. Gandhi (2015) emphasized the need of understanding one's client, one's staff, and one's partners as foundational concepts for combating fraud. He also emphasized the need for constant monitoring and a thorough evaluation process.

S.no	Author name	Finding
1	Roy (2022)	Non-performing assets (NPAs) have been going up, which has made it impossible for PSBs to make money.
2	Murthy (2022)	Rising of NPAs casts doubt on the effectiveness of corporate governance at the top of the most prestigious financial institutions in the world.
3	Mangala (2022)	It was found that public sector banks were under pressure because they had low capitalization and bad assets. The central bank made a number of suggestions to help ease this pressure. Better governance and more freedom should be given to public sector banks to make them more competitive and give them better access to market funding.
4	Kumar (2022)	Even though banks are taking much less risk than they used to, there is still reason to worry. This is shown by the sign of bank stability. In the meantime, banks were worried about how good their assets were. The gross nonperforming asset ratio is a measure of systemic credit risk. RBI predicts that it will be 5.4% by September 2016 and 5.2% by March 2017.
5	Kolte (2019)	After the financial and banking crisis, the IMF has worked to build the framework which can be used to evaluate risks and vulnerabilities more effectively. This can be done by pushing the system for more transparency and sharing of information, stronger oversight and regulatory bodies, and closer international cooperation in the oversight and regulation of financial institutions.
6	Hama (2019)	Gross nonperforming assets (NPAs) are a measure of systemic credit risk. RBI predicts that they will be about 5.4% in September 2016 and 5.24% in March 2017. (2015c). This indicator has shown how stable a bank is. Because of this, financial institutions were worried about the quality of their assets in the same way.
7	Hassani (2018)	In the mid-1990s, the World Bank and the International Monetary Fund (IMF) worked together to make the Financial Sector Assessment Program. This program helps find, investigate, and fix major financial risks (FSAP).
8	Agrawal (2018)	The retail loan segment's share of total NPAs is still a big one. Credit card loans make up 2.2% of this share, which is third after personal loans and home mortgages.
9	Mayur (2017)	NPAs are a cause for concern since their presence in the banking system is a sign that clients are having financial difficulties or that transmission procedures are inefficient
10	Saha (2016)	Massive bank mergers led to the "too big to fail" idea, which in turn led to very high -risk financial goals and the 2008 financial crisis.
11	Gandhi (2015)	Fraud prevention starts with the idea that you need to know your client, your staff, and your partners. He also stressed how important it is to keep an eye on things and evaluate them carefully.
12	Srivastava (2015)	The necessity for forensic accountants and auditors to develop systems and procedures for recognizing, preventing, and dealing with fraud has intensified as a result of the global collapse brought on by the failures of Enron and WorldCom. Financial crimes and fraud, particularly in developing nations where the problem has become widespread, have a major detrimental impact on the development of human capital and infrastructure in developing economies.
13	Lagazio (2014)	Fraud-related advances, which have made up about 67% of all fraud advances in the last four years, pose a direct threat to the financial health of banks.
14	Chakrabarty (2013)	Public sector banks have given the most money, even though private and international banks have been blamed for the most frauds.
15	Mishra (2013)	After the Great Depression of the 1930s in the United States, the Glass -Steagall Act (GSA) was passed to separate commercial banking from "risky" investment banking. This was done to reduce risks to the financial system and deal with conflicts of interest in banking. There were many attempts to save GSA, but in the end, the program was made useless and ended in 1999.
16	Akelola (2012)	Both the size and frequency of financial monitoring were found to be lacking, especially in countries with much interconnected banking systems whose collapse could cause a financial disaster.
17	Moin (2012)	The Reserve Bank of India has found that there are three main types of bank fraud: those that involve deposits, those that involve advances, and those that involve services.
18	Khanna (2009)	“Public sector banks (PSBs) in India have lost a total of Rs. 22,743 crores due to financial fraud during the last three years (2005-2008)”.
19	Gupta (2008)	Frauds with documentary credit (letters of credit) have also been reported, which is very worrying because they could hurt trade. There is a strong link between the growing number of nonperforming loans (NPAs) in public sector banks, the growing number of high -value bank loan defaults, and the suspicion that businesses and high -level bank officials are working together.

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Table 3.
Snippets of Research on
Financial Fraud in India's
Banking System

4.4 Role Of Big Data to Influence Practitioners To Use Forensic Accounting For Fraud Detection

Mittal, (2021) stated that over the last several years, financial institutions have been plagued by an increasing number of instances of financial crime. Stock options scandals, public offering securities manipulations (Hull et al., 2013), the widespread frauds in the mortgage industry that contributed to the major financial crisis of 2007-2008, and the Ponzi decline of CRE valuations are just a few examples. Efiog, (2013) examined that as such, the regulatory bodies pay special attention to the CREL financing sector. One major contrast between

CRELS and other loan types including consumer loans, business, and industrial loans, and residential real estate loans is the kinds of collateral real estate (CRE) that may be used as security for a CREL. Collateral for the loan and principal source of repayment, commercial real estate revenue from rent or sale profits.

According to Gepp, (2018) however, corporate loans do not qualify as CREL, regardless of whether or not they are secured by a mortgage on a piece of real estate, since the source of repayment is the running firm of the borrower, not a financial institution. According to the FDIC, commercial real estate (CRE) loans include "acquisition, development, and construction (ADC) financing and the financing of income-producing real estate" that is leased to third parties. Ozili, (2020) stated that the CREL investment sector is notable for its diversity and multifunctional nature. Despite the worldwide nature of the CREL industry, the author is unaware of a universally accepted definition for this kind of investment. Bassett and Marsh (2017) explain the significance of regulators and banks sharing a common knowledge of CRE to create a reliable data source, for use in locating, for example, CREL concentrations. Accurate data and timely reporting are crucial, as shown by "the global financial crisis of 2008, which was started by a decline in the US real estate market. Six months before Lehman Brothers Holding Inc. filed for bankruptcy, on March 17, 2008, the FDIC published a Financial Institution Letter (2008) warning of a worsening in the CRE market and its potential impact on banks with substantial concentrations of CREL".

Regulatory authorities have a significant effect on the lending practices and risk management of financial institutions. Banks and insurance corporations, two heavily regulated sectors, are also major CREL suppliers. This is why the examination relied heavily on documents from regulatory bodies, especially in the United States and the European Union. According to Sheng, (2017) the United States and Europe are two of the world's most important financial and commercial real estate markets. Science publications from electronic data providers were used to supplement the assessment with regulatory sources.

Kranacher, (2019) stated that all of the regulatory agencies' homepages were evaluated systematically by searching for terms like "commercial real estate lending" and "commercial mortgages." When 33 potential sources were examined, 23 were found to comply with US law. Ten other references are associated with EU law. In cases where data from several regulatory providers within a single nation were found to be similar, only one of the providers was included in the review set. Google Scholar, Science Direct Scopus, Springer, and Core are only some of the electronic databases that yielded 11 relevant results. Moll, (2019) analyzed that there were eleven total sources used, ten of which were published in academic journals and one of which was a white paper written by members of the BoG team. Most of the papers were published between 2003 and 2020. Of the initial set of 44 recognized sources, ten were omitted because they added nothing to the conversation or were unrelated to CREL. This analysis, then, relied on a total of 34 files.

Omondi, (2013) stated that to classify the CREL asset class, people used a coding strategy based on Grounded Theory (Schreier, 2012) to recognize and organize previously unnoticed facets. Based on the work of Kuckartz, a profile matrix was developed for the encoding procedure (2014). The matrix's horizontal lines reflect the study's primary themes and provide an overview of the subjects under investigation. Lawal, (2021) stated that during the second round of record screening, people paid close attention to ensure that all necessary subcomponents were included. Numerous columns of the string represented the various literary collections. The profile matrix's layout provides a synoptic view of the extracted themes across profiles (Kuckartz, 2014). A rating of the sources is part of the data analysis, and it relates to the standards proposed by Okoli and Schabram (2010). Favaretto, (2020) examined that there were four categories created for the data sets. Class 1 materials include laws and regulations, whereas class 2 materials include supervisory sources. At the third level are the most prestigious academic periodicals. The additional data was classified as level 4 data. According to Akhgar, (2015) twenty-three of the sources, or almost two-thirds of the records, fell into the category level 1 and 2 (legal sources), ten records were classified as level 3 (good quality), and one source fell into the category level 4 (very poor quality) (other).

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S.no	Author name	Finding	155
1	Mittal (2021)	Instead of dividing the world by the type of data, big data separates it by intent and timing. In the "old world," businesses routinely "manage out of the rear-view mirror," meaning that by the time transactions are recorded, it is too late to do anything about them. Instead, in the "new world," businesses can use new "signal" data to predict what will happen and take action to improve the situation. Big Data has the capacity to forecast future events in addition to analyzing the patterns of past occurrences.	
2	Lawal (2021)	The need for auditors with Big Data expertise to make business decisions is growing. The authors show that forensic accounting and big data analytics are becoming more and more popular in both practice and education.	
3	Ozili (2020)	Key takeaway is that fraud is complex, and that complexity can have a big impact on how researchers do forensic accounting -based fraud study employing big data and other technological breakthroughs.	
4	Favaretto (2020)	One of the most crucial methods for managing large amounts of data is the use of big data; accounting professionals must utilize its advantages in forensic accounting to find fraudulent activities. Big data is a critical enabler and may be used to improve forensic accounting procedures and applications.	
5	Moll (2019)	As there are unusual examples of merging the many pieces of information and turning them into trustworthy decision factors in a given situation, big data techniques become beneficial. Big data technology would thereby benefit the audit profession, audit research, and working audit professionals.	
6	Kranacher (2019)	The sufficiency, dependability, and relevance of audit evidence can all be improved by big data. Of course, this immediately affects audit quality, especially forensic audit quality. Big data enables forensic auditors to maximize GPS data and gain more reliable data for delivery verification. Therefore, it makes sense that big data plays a significant role in maximizing the role of forensic audit.	
7	Gepp (2018)	Big data can increase the quantity and variety of information that auditors require to find fraud. The analytical process will then be supported, which will affect how well audit results for fraud detection are produced. According to agency theory, big data can help solve the agency problem (fraud), which frequently arises in many sorts of agencies, particularly in governmental entities. So it is clear that big data can really be a useful and successful instrument for fraud detection. Big data is indeed effective and efficient for detecting fraud.	
8	Sheng (2017)	Those who are devoted to lowering the incidence of fraud cases should invest in big data and train auditors to conduct forensic audits in conjunction with big data (via education and training).	
9	Akhgar (2015)	Future public accounting firms and businesses may think about using forensic auditing and big data technology to find fraud. The employment of these technologies and techniques is anticipated to provide a solution for all parties looking for fraud detection techniques that are in fact quite effective and efficient.	
10	Omondi(2013)	Evidence gathered utilizing big data solutions can be quite persuasive, but their strength is increased when paired with the analysis of forensic accounting investigators and expert witnesses who can explain their consequences. In many instances, the successful melding of these two very distinct investigative philosophies can determine a fraud investigation's outcome.	
11	Efiong (2013)	Since even minute variations can be noticed, analyzed, and highlighted as potential fraud activities, fraud detection in the hands of forensic accountants is an innovative technique to leverage trends to stop and detect suspicious transactions and activities. Big data and mining techniques can assist with data management and fraud detection.	

Table 4.
An Overview of How Big
Data Affects Forensic
Accounting Professionals

5. Findings and Discussions

The foundation of a prosperous nation is its thriving economy. Inevitably, economic growth is a driving force that ensures a country continues to function. Since a country's economy is a crucial part of its overall health, any economic shocks should be kept to a minimum. There have been several banking failures and scams in India in recent years, which have threatened the country's financial stability and eroded investor trust. Many bank failures may be traced back to the diversion and siphoning off of money into high-risk ventures, which eventually hurt depositors and financial institutions. According to the Reserve Bank of India's most recent annual report, bank frauds in the country's 2019 fiscal year totalled a staggering Rs 72,000 crore. Forensic accounting is useful in identifying bank frauds, hence this review paper seeks to learn how academics and professionals see its applicability in this area. The tremendous rise in financial scams and white-collar crimes has brought forensic accounting into the spotlight. But it is a mainly unexplored part of India. The mix of accounting, auditing, and investigation abilities generates the specialism known as forensic accounting. Increasing numbers of insurance firms, banks, police departments, government agencies, and other private and public organizations are hiring forensic accountants, creating a thriving job market.

The banking sector in India has seen tremendous change and growth since the liberalization of the economy in 1991. While the banking industry as a whole receives sufficient oversight and regulation, it nonetheless has its problems with unethical conduct, financial crises, and poor corporate governance. The purpose of this study is to examine issues like banking fraud and rising credit card debt from every angle possible, including via primary data collection (interviews) and secondary data analysis (literature review and case approach). There have been many different types of fraudulent activities in the financial markets in recent years, posing difficulties for specialists and auditors whose job is to ensure accuracy and transparency in the financial sector worldwide. The purpose of this paper is to identify how Indian public practice accountants are using Big Data in the context of fraud and forensics.

a. Theoretical Implications

The results of our review have a number of important significance. A forensic accountant cannot be flawless just by having traditional accounting understanding. Instead, a forensic accountant needs to be knowledgeable in a range of disciplines, including auditing, accounting, statistics, information technology, legal standards, and human skills, among others. The main barriers preventing the application of forensic accounting are ignorance and education. Therefore, it is crucial to include forensic accounting in courses for both undergraduate and graduate students. Big data understanding is essential for forensic accountants; hence forensic accounting courses should include extensive data modules.

b. Practical Implications

Businesses of all sizes and in a wide variety of fields and specialisations have fallen prey to financial fraud and scams. India's banking sector has been plagued by failures and frauds in recent years, threatening the country's economy and destroying investor trust. This review paper looks at how a new paradigm in niche consulting might affect the field of forensic accounting. It also shows that forensic accounting is a viable method for exposing bank fraud in India. The government should think about adding more fraud hotlines, enhancing whistle-blower policies, and establishing a forensic accounting department in order to strengthen the public sector's fraud prevention system.

The majority of earlier studies have focused on forensic accounting's theoretical components. Although this is a healthy trend, more focus should be given to fraud instances where forensic accountants haven't paid as much attention.

Also, more study needs to be done on forensic accounting and auditing in the field of education, and forensic accounting in relation to financial collapse cases. They will primarily aid in the creation of forensic accountants to meet industry demand and assist practitioners and regulators in strengthening their forensic accounting knowledge and decision-making. Furthermore, forensic accounting is employed as a post-mortem approach, that is, after the fraud has already taken place. It should instead be used early or be more actively involved

as part of the risk management role.

6. Conclusion and Recommendations

It is clear from analysis of the relevant literature that auditors' negligence and incompetence in identifying fraud is not the main cause of financial crises and financial scams in the business and banking sectors. This is because, in recent years, banks have grown more susceptible to fraudulent shocks such as money or fund siphoning, cybercrime or online theft, and diversion to various fictitious group organizations, all of which damage the banks' image among depositors and result in significant NPAs. Forensic accounting is critical in the battle against financial crime because it helps law enforcement and government accountants to address any gaps in financial reporting. It was found, after an analysis of the study's data, that the following results were consistent with those of other research studies. Seventy-two percent of those who took the survey think that "forensic accounting" is a relatively novel idea in the banking industry.

Forensic accounting has been more well-known in India in recent years due to the frequency of white-collar crimes and the general belief that law enforcement agencies lack the resources to adequately investigate and prosecute such cases. A major international accounting firm thinks there is enough demand for a separate division to focus on "forensic" accounting. All of the major accounting firms, and a growing number of smaller, specialty firms, have established forensic accounting divisions in recent years. To investigate a company's financial accounts, forensic accountants use auditing, accounting, and investigation techniques. Entry-level forensic accountants require a wide range of skills and expertise (within the subjects mentioned above). Given the novelty of forensic accounting as a discipline, practitioners and researchers alike must engage in a round of working definitions and the sharing of professional anecdotes to develop a common vocabulary and frame of reference. Forensic accounting as a distinct "niche" area of consulting has a bright future.

It has been noted that, when comparing the overall number of bank frauds, PSBs do better than PVBs. On the other hand, the overall amount at stake is far more in PSBs than in the private sector. The magnitude of the loans that PSBs make available to their consumers is likely a contributing factor. Due to the high stakes involved and the extended time of CVC's fraud detection process, credit card fraud is the most lucrative kind of financial crime in India. There may be a combination of causes that have led to the widespread nature of financial fraud in India and elsewhere. The widespread occurrence of banking fraud in India and abroad may be attributed to several causes. There is a lack of knowledge among bank staff and clients, a lack of proper tools and technology to identify early warning signs of fraud, a lack of cooperation between various banks in India and overseas, and a loose regulatory framework, among other factors. Many cases of fraud and NPAs are blamed on the lengthy reporting periods required by law and institutional flaws.

The overarching goal of this study was to compare the approaches of organizations with varying levels of CI Maturity to People Excellence, to achieve tangible business benefits. The aim was also to investigate the various perspectives on CIS and its effect on the business. The interview procedure revealed that when executives from various CI Maturity businesses discuss the same aspect, they often have quite different meanings in mind. It begins with a summary of their CI Systems and on to detail various aspects of their People Excellence program. Depending on how far along the CI maturity spectrum a company is, it will have varying levels of People Excellence gaps. Leaders may motivate their teams to accomplish big business outcomes on the CI journey by concentrating on each of these factors separately. These findings suggest that practitioners should consider doing a CI Maturity assessment before developing a Lean RollOut Plan or establishing a Change Management strategy inside their firm.

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Impact of Work from Home on Health and Productivity Level of Women Employees Working in IT Sector

Impact of Work from Home
on Health and Productivity
Level of Women

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Abstract

Objective: This study examines the impact of WFH (occupational and home office environment) on the mental & physical health and productivity level of women employees working in IT sector, Pune.

Methods: A questionnaire was deployed to women employees working in the IT sector, Pune from September 2021-March 2022 and 159 valid responses were obtained. ANOVA tests were used to understand the impact of the WFH (occupational and home office environment) on the mental and physical health and productivity level.

Results: There is a significant impact of WFH (occupational and home office environment) on the mental & physical health and productivity level of women employees. Respondents who received adequate support from co-workers/supervisors, effective cooperation from supervisors and co-workers, clarity in job, flexible working hours, workspace privacy at home, assistance from organisation for home office set up, proper collaboration with the team had better health and increase in productivity level. Decreased health and productivity level was associated with, lack of clarity in job, less support from co-workers and managers, inadequate cooperation from co-workers and managers, strict working hours, poor home office set up, and collaboration with the team.

Conclusion: This study highlights occupational and home office environment factors and its impact on women employees' physical & mental health and productivity level of respondents. This study illuminates that importance of home office set up, lack of support, cooperation, collaboration, clarity in job and poor internet set up are the most important factors that need to be considered by the employers, HR personnel while developing WFH strategies for promoting a better working environment in near future.

Novelty: This study focuses on the problems faced by the women employees while working home and its effect on health and productivity level. This will help government and employers to devise supportive Work from Home policies considering Hybrid model as the option of future work.

Keywords: Work from home, Mental and Physical health, productivity level, women employees

1. Introduction

Remote work which had started as a temporary solution during pandemic, has now become a full-time office norm. Previously work from home was only implemented in a few sectors, few kinds of jobs or under certain circumstances. But during the pandemic many companies believed that there are various jobs, which can be done through work from home. So employers invested fixed cost in setting up work from home/remote systems for their employees, so employers and employees may prefer remote work even post pandemic. Flexibility and autonomy is the major benefit cited by employees and employers relating to remote work with improved work-life balance a result of flexibility and autonomy. (Gardiner et al, 2021)

Based on the studies conducted on remote work, it is suggested that employees prefer to work from home to have a better work life balance, as they can save commuting time, have more flexibility in taking care of their family members, better health, even employees have



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the autonomy to set up their workspaces and work schedules while working from home.(Akhtar et al., 2012).(Chaf et al., 2021)(Beno, 2021). On the other hand, negative effects of remote work include social isolation, threats to career growth, long working hours, "always-on" culture, increased emotional exhaustion, limited support from line managers, no clear boundaries between work and life musculoskeletal health problems etc.(Chaf et al., 2021)(Beno, 2021), (Renzo et al., 2020) (Hafermalz, 2020).. However, health issues are furthermore likely to be impacted for working women who are married with children, as closures of schools, baby crèche and offices of spouses, require working parents to take care of children, and family members, as well as managing house chores. Based on the previous surveys conducted during the pandemic shows that employees who were working from home were not able to mentally detach themselves from work and stick to the work routine. They can't concentrate on work nor on family as both interfere with each other. So, working mothers sacrifice their sleep hours to complete their office related work which eventually leads to health problems. All workers didn't have dedicated workspaces or workspace privacy, they had to share their workspace with children, who attended their school in online mode, spouses/ family members who worked remotely. Women had to shift from one place to another such as the kitchen, sofas, beds etc. As work life boundaries have become blurred, due to the use of technology employees are not able to mentally detach themselves from work (Kutty, 2018). Based on the previous surveys conducted during the pandemic shows that employees who were working from home were not able to mentally detach themselves from work and stick to the work routine. They can't concentrate on work nor on family as both interfere with each other. (Toscano and Zappala, 2020)So, working mothers sacrifice their sleep hours to complete their office related work which eventually leads to health problems.(Yijing et al., 2021) which lead to an increasing chance of work family conflict. (Ustinov, 2020)Similarly, studies have also pointed that employees who are staying alone don't have anyone to share their social concerns or any problems which may contribute to isolation/ depression thus affecting the mental wellbeing of employees (Renzo et al., 2020). The continuous stay at home may cause certain behavioural changes like depression, anxiety etc which may lead to stress which likely can impact the mental and physical health of women employees Employees working from home witness negative emotions and irritability, which were associated with social isolation, anxiety and stress. R, Wang et al., 2021). This in turn influences productivity, work-life balance and well-being. Sedentary lifestyle, consumption of fast/junk food, uncomfortable work environment (chair desk, ergonomics increased in intake of junk foods, lack of communication with co-workers and lack of social interaction are the major predictors of negative impact on mental and physical wellbeing.(Peasley et al., 2020).(Graham et al, 2021),(Pandey, 2020), (Mahdavi and Kelishadi, 2020). (Gardiner, 2021)Similarly, a study in Australia was conducted to examine the impacts of psychosocial and physical hazards on mental and physical health, and to investigate differences in health outcomes between employees, based on gender, age, and job type. in their research suggested that comfortable workstation workers are expected to work extensively with their workstations while working from home, and therefore presented their suggestions for a comfortable workstation (i.e., an adjustable desk and chair to prevent back and joints pain, along with a footrest, and an adjustable monitor screen). (Codd),(Kaur and Sharma, 2020).

Research studies had shown that productivity level has increased while working from home, especially for employees who had a dedicated workspace were able to perform better, as compared to workers who don't have a dedicated workspace.(Awadaa et al, 2021) Few studies have suggested that employees need to have their own home office set up and consider it as their workspace, so that they can focus on work and reduce distraction which will help them to perform better and improve their productivity (Nawaz et al, 2019). In fact, if there is no workspace privacy, there will be lot of distractions and cause conflicts at home and hampers the productivity of employees. Few findings indicated that cooperation and support from co-workers and clarity in job were associated with increased productivity.Similarly, another study revealed that employees who were able to communicate and coordinate with their co-workers, where performing better as compared to those

employees who had difficulty in communicating with co-workers.(Waizenegger et al, 2020)It is important for the organisation to use proper communication technologies to support smooth flow of work.(Rudnicka et al, 2020) There are supporting studies which also showed that proper cooperation and support from supervisors, good home office set up, dedicated workspace are positively associated with productivity. (Russo et al, 2020)

There is a research being carried out in western context, which highlighted the impact of work from home on the health and productivity level of employees who transitioned to WFH during the pandemic, but there is no evidence of research that focused on the impact of WFH on the health of women employees who are working from home. So, this study may enrich the existing literature by providing a gendered based understanding on, the impact of Work from home environment on the health and productivity level of women employees working in the IT sector

An in-depth understanding of the new environmental factors and its relationship with the mental and physical wellbeing is very important to ensure a positive work environment for the employees who will be working from home in future.If employers want employees to continue work from home or even if employees want to continue WFH then this study will providethe insights about the major factors impacting the health and productivity level of women employees. So that the employers or HR personnel can consider these factors while designing WFH policies to ensure smooth flow of work and best working conditions, so that WFH factors on health can be minimised and their productivity can be improved. This paper aims to understand the changes in mental and physical health of women employees who transitioned to work from home and will continue to work from home. It also investigates the impact of home office environment and occupational environment on the mental and physical health of women employees. The paper also tries to understand the impact of home office environment and occupational environment on changes in the productivity level of women employees while working at home.

2. Methods

Objectives of the Study.

- 1. To study the impact of the occupational environment on the mental and physical health of women employees.
- 2. To examine the effect of the home office environment on the mental and physical health of women employees.
- 3. To study the impact of occupational environment on productivity level of women employees
- 4. To examine the effect of home office environment on the productivity level of women employees

Hypothesis of the Study

H01: There is no impact of the occupational environment on the mental and physical health of women employees.

H02: There is no impact of a home office environment on the mental and physical health of women employees.

H03: There is no impact of from the occupational environment on the productivity level of women employees.

H04: There is no impact of the home office environment on the productivity level of women employees.

Participants and Procedure

The list of companies from Software Technology Parks of India, Pune was obtained for the study, Primary data was collected from the women employees working in the IT sector through an online questionnaire circulated through emails. The period of data collection was from September2021 to March 2022. Respondents were screened based on the question asked, whether they were Working from home.

Instrument Development

Reliability and validity of the Questionnaire was established. Cronbach alpha value was found to be 0.8 and the validity was established by talking to 2 professors and 3 Associate Professors working in State Private Universities of Maharashtra, India

The questionnaire consisted of Likert-type, dichotomous, and open-response questions. Respondents responded to questions based on office home environment factors, occupational environmental factors, mental and physical health and productivity level. Data collected focused on, home office environment, occupational environment, work life balance and productivity level of respondents.

Section A: Questions on occupational environment (11 Questions)

1. To what extent did you get support and cooperation from your managers and co-workers while WFH?
2. To what extent were you able to collaborate with the team while WFH

Section B: Question on home office environment (4 Questions)

1. Did you get assistance by the organisation proper home office set up?
2. Is there workspace privacy while working from home?

Section C: Questions on Mental and Physical health (7Questions)

1. MR Questions on Physical health and mental health were asked
2. To what extent your mental wellbeing is affected while working from home

Section D: Questions on productivity level

1. To what extent were you able to complete your task on a given time?
2. To what extent where you able to take decisions while working from home?

Participants and Procedure

Primary data was collected from the women employees working in the IT sector through an online questionnaire circulated through emails and social media links through snowball sampling method. The period of data collection was from October 2021 to March 2022. Respondents were screened based on the question asked, whether they were Working from home. A total of 250 questionnaires were distributed, 203 responses were received, of which 42 were incomplete, having not responded to a few of the questions.

3. Measures

Occupational Environment

Participants rated their cooperation fromco-workers compared to prior WFH using a 5-point Likert-type scale, from 1 (Very High Extent) to 5 (Very low extent) with 3 indicating the same level of communication as prior to WFH. The same scale was used for other questions like cooperation from your supervisor, Support from co-worker, Support from supervisor, flexible working hours, collaboration with team, always on culture even after normal working hours, Home Office Environment

Participants were asked to respond on home office environment questions. The questions asked were, the remote system set up by the organisation, workspace privacy at home, is leaving space and working space separate, home office set up assistance provided by the organisation- furniture like (adjustable chairs), interpersonal relations with family members at home.

Physical and Mental Well-being

Respondents were asked to rate their overall physical and mental health status prior to WFH on a 5-point Likert-type scale, from 1 (much lower) to 5 (much higher) with 3 indicating the same as before WFH. Various physical health issues were provided as options: Cardiac problems (chest pain /BP), Gastrointestinal issue (less appetitive, bloating /gas related issues/indigestion, Headaches, Fatigue /tiredness, Hormonal imbalance / gynaecology problem Ortho / Muscular problems, any other Various types of mental health issues were also provided as options: Anxiety, Depression, Insomnia, Mood swings, Isolation and Loneliness.

Productivity Level

Respondents were asked to rate their productivity level based on these questions: Planned

work completed on time, able to complete work effectively and efficiently, meet deadlines, able to take work related decisions on time. Likert-type scale, from 1 (Very High Extent) to 5 (Very low extent)

4. Results

Descriptive statistics were calculated for all Occupational Environment, Home Office Environment, Work Environment, mental and physical health, and productivity level of women employees

Participant Characteristic

The demographic characteristics, 78% of the participants were married and 22% of the participants were unmarried, 56% of the women employees reported having children. Respondents were working at different levels, 12% were working at senior levels, 49% were working at middle level and 29% of the respondents were working at lower levels.

Descriptive statistics

Frequency distribution for work environment, numbers of hours worked prior to work from home, 40% worked for less than 9 hours, 52% of the respondents worked for 9-10 hours, mode, 5% worked for 10-11 hours and 3% worked for more than 11 hours a day. Frequency distribution for working hours while working at Home, 20% worked less than 9 hours, 35% worked for 9-10 hours, 23% worked for 10-11 hours and 22% worked for more than 11 hours. Frequency distribution for increased workload while working at home showed that 68% of the participants said workload increased while working at home. 39% of the respondents had to work on holiday or weekends, while working at home, 30% of the respondents had to work sometimes on weekends or holidays while working at home 31% of the respondents were not working on weekends or holidays while working at home. Frequency distribution for Occupational environment, 39% of the respondents had job clarity same as prior to WFH, but 17% of the respondents had no job clarity while working from home, 42% of the respondents couldn't communicate effectively with their co-workers and 48% couldn't communicate effectively with supervisors while WFH, 57% didn't get support from co-workers, 41% didn't get support from supervisors, 40% respondents had flexibility in working hours. Frequency distribution for Home office environment, 23% of respondents didn't get assistance for remote set up, 27% didn't had workspace privacy, 55% didn't had separate living space and working space, 74% didn't get support from organisation for furniture set up. Frequency distribution for adverse impact of health while working at home, 68% of the participants physical health (headaches, fatigue, backache, neck pain, gastrointestinal problems and muscular problems was adversely affected due to Work at home and 32% didn't face any adverse effect due to work at home. 51% of respondents' mental health (insomnia, depression, anxiety, loneliness etc) was adversely affected due to work at home, 49 % of the respondents didn't face any adverse effect on mental health, Frequency distribution for preferred mode of work: 56% of the respondents reported hybrid mode of work, 28% reported work from home and 16% reported to work from office.

5. Results

H01: There is no impact of the occupational environment on the mental and physical health of women employees.

ANOVA test was applied to find the impact of the occupational environment on the physical and mental health of women employees who transitioned to WFH during Covid 19 pandemic. For respondents having job clarity, there is a significant impact on the physical health (p value=0.00) and mental health (p value = 0.00), effective communication with the co-worker had a significant impact on the physical health (p value=0.00) and mental health, (p value = 0.00), effective communication with the supervisor had a significant effect on the physical health (p value=0.00) and mental health (p value = 0.00), Support from Co-worker had a significant impact on the physical health (p value=0.00) and mental health (p value = 0.00), support from boss/manager also had a significant impact on the physical health (p value=0.00) and mental health, (p value = 0.00), flexible working hours had a significant impact on the physical health (p value=0.00) and mental health (p value = 0.00),

Analysis of Variance						Impact of Work from Home on Health and Productivity Level of Women
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value	
Regression	54.095	1	54.095	50.453	0.000	
Residual	169.405	158	1.072			

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Table 8.
Support from Co-worker on MentalHealth

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	46.289	1	46.289	41.271	0.000
Residual	177.211	158	1.122		

Table 9.
Support from Immediate Supervisor on Physical Health

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	46.289	1	46.289	41.271	0.000
Residual	177.211	158	1.122		

Table 10.
Support from Immediate Supervisor on Mental Health

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	35.332	1	35.332	28.464	0.000
Residual	192.401	155	1.241		

Table 11.
Flexible Working Hours on Physical Health

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	31.937	1	31.937	25.899	0.000
Residual	191.133	155	1.233		

Table 12.
Flexible Working Hours on Mental Health

Source: Data Collected from Primary Source

H02: There is no impact of the home office environment on the mental and physical health of women employees.

ANOVA test was applied to find the impact of the home office environment on the physical health and mental health of women employees. For respondents who got remote set up by organisation there is a significant impact on the physical health (p value=0.00) and mental health (p value = 0.00), similarly workspace privacy had a significant impact on the physical health (p value=0.02) and mental health, (p value = 0.025), furniture set up by organisation, there is no significant effect on the physical health (p value 0.06 and mental health (p value = 0.80), interpersonal relationship with family members, there is a significant impact on physical health (p value 0.00) and mental health (0.00).

ANOVA Table Remote Set Up on Physical Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	38.150	1	38.150	31.734	0.000
Residual	189.944	158	1.202		

Source: Data Collected from Primary Source

ANOVA Table Remote Set Up on Mental Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	31.192	1	31.192	25.627	0.000
Residual	192.308	158	1.217		

Source: Data Collected from Primary Source

ANOVA Table Workspace Privacy on Physical Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	13.001	1	13.001	9.550	0.002
Residual	215.093	158	1.361		

Source: Data Collected from Primary Source

ANOVA Table Workspace Privacy on Mental Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	7.037	1	7.037	5.136	0.025
Residual	216.463	158	1.370		

Source: Data Collected from Primary Source

ANOVA Table Furniture Set Up on Mental Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	4.796	1	4.796	3.394	0.067
Residual	223.297	158	1.413		

Source: Data Collected from Primary Source

ANOVA Table Furniture Set Up on Physical Health

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	0.087	1	0.087	0.061	0.805
Residual	223.413	158	1.414		

Source: Data Collected from Primary Source

Analysis of Variance						Impact of Work from Home on Health and Productivity Level of Women 169 ANOVA Table Interpersonal Relationship At Home on Physical Health
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value	
Regression	20.498	1	20.498	15.601	0.000	
Residual	207.596	158	1.314			
Source: Data Collected from Primary Source						

Analysis of Variance						ANOVA Table Interpersonal Relationship With Family Members on Mental Health
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value	
Regression	28.329	1	28.329	22.934	0.000	
Residual	195.171	158	1.235			
Source: Data Collected from Primary Source						

H03: There is no impact of support from the occupational environment on productivity level of women employees.

ANOVA test was applied to find the impact of the occupational environment on the productivity level of women employees. For respondents having job clarity, there is a significant impact on the productivity level (p value = 0.007), similarly respondents haing effective communication with the co-worker had a significant impact on the productivity level, (p value = 0.00), effective communication with the Supervisor had a significant effect on the productivity level (p value = 0.00), Support from Co-worker had a significant impact on the productivity level (p value = 0.00), support from boss/manager also had a significant impact on the productivity level, (p value = 0.00), flexibility in working hours had a significant impact on the productivity level, (p value = 0.00),

Analysis of Variance						ANOVA Table Job Clarity on Productivity Level
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value	
Regression	8.768	1	8.768	7.545	0.007	
Residual	183.607	158	1.162			
Source: Data Collected from Primary Source						

Analysis of Variance						ANOVA table communication with supervisor on productivity level
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value	
Regression	57.739	1	57.739	67.758	0.000	
Residual	134.636	158	0.852			
Source: Data Collected from Primary Source						

ANOVA table support from co-workers on productivity level

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	57.739	1	57.739	67.758	0.000
Residual	134.636	158	0.852		

Source: Data Collected from Primary Source

ANOVA table support from managers/ boss on productivity level

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	66.480	1	66.480	83.433	0.000
Residual	125.895	158	0.797		

Source: Data Collected from Primary Source

ANOVA table flexible working hours on productivity level

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	18.478	1	18.478	16.608	0.000
Residual	172.452	155	1.113		

Source: Data Collected from Primary Source

H04: There is no impact of the home office environment on the productivity level of women employees.

ANOVA test was applied to find the impact of the home office environment on the productivity level of women employees. For respondents who got remote set up by organisation there is a significant impact on productivity level (p value = 0.00), similarly workspace privacy had a significant impact on productivity level, (p value=0.004), separate living space and workspace had a significant effect on the productivity level, (p value = 0.064), furniture set up by organisation, there is no significant effect on the productivity level (p value = 0.719), interpersonal relationship with family members, there is a significant impact on productivity level (p value = 0.00)

ANOVA table remote set up on productivity level

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	44.536	1	44.536	47.597	0.000
Residual	147.839	158	0.936		

Source: Data Collected from Primary Source

ANOVA table workspace privacy on productivity level

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	9.688	1	9.688	8.378	0.004
Residual	182.687	158	1.156		

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	4.160	1	4.160	3.492	0.064
Residual	188.215	158	1.191		

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ANOVA table separate
living space and
workspace privacy on
productivity level

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	0.158	1	0.158	0.130	0.719
Residual	192.217	158	1.217		

ANOVA table furniture set
up on productivity level

Source: Data Collected from Primary Source

Analysis of Variance					
Source	Type III SS	df	Mean Squares	F-Ratio	p-Value
Regression	13.682	1	13.682	12.098	0.001
	178.693	158	1.131		

ANOVA table
interpersonal relationship
with family members on
productivity level

Source: Data Collected from Primary Source

6. Discussion

We aimed to examine the effect of occupational environments and home office environments on the mental & physical health and productivity level of the women employees working in the IT sector who transitioned to WFH.

Results based on the study revealed that there is a significant impact of work from home (occupational and home office environment on the health of women employees. ANOVA test results showed that factors of occupational environmentsi.e. poorcommunication with co-workers and manager/boss, poorsupport from co-workers and manager/boss, lack of job clarity, non-flexibility in working hours, poor collaboration with the team members and always on culturewere associated with poor mental and physical health and adequate support from Co-worker/manager, effective communication with Co-worker /manger, flexibility in working hours and job clarity, proper collaboration with team members, workspace privacy at home, interpersonal relationship with family members at home were positively related with better health. The respondents who didn't get support from co-workers, were not able to take decision on time, had to spend more time in front of the computers till the work get over which results in long working hours. Health issues like ortho problems, weight gain, gastrointestinal, back pain, hormonal imbalance etcwere associated with long working hours .Always on culture in front of computers, due to lack of support and inadequate communication with co-workers and colleagues may be directly linked to an increase in health issues. Adequate communication with colleagues and collaboration with the team were positively related to better health butless communication and poor cooperation from supervisors had a significant impact on the mental status of respondents. Respondents who don't have workspace privacy at home spend long Working hours as they must share workspace with others and adjust, which is also linked to increase in health issues. Statistical tool ANOVA was conducted to find the impact of occupational factors and home office environment factors on the productivity level of women employees. Results showed

that there is an overall increase in the productivity level while working from home. Increase in productivity level was associated with job clarity, support from manager/ boss and co-workers, effective communication with co-workers and managers, flexibility in working hours and collaboration with team members. Support from boss and co-workers were positively associated with meeting the deadlines and completing the work effectively. Respondents who had proper communication with co-workers and boss where able to take decisions on time and complete the work effectively. Home office environment also had a significant impact on productivity level. Respondents who had workspace privacy while working from home can focus on work, be away from distractions which enhances their productivity. Interpersonal relationships with family members also had a significant impact on the productivity level. Respondents who didn't have workspace privacy, there were lot of distraction from family members which may lead to interpersonal conflict which is also associated with decrease in productivity level. Remote set up by the organisation with proper internet connectivity also had a significant impact on productivity level as they were able to work smoothly.

7. Conclusions

Most of employees, who were working from home, reported an improved health and increase in productivity level, but there were few respondents who had increase in health problems and decreased productivity level while working from home. The major reason for decreased health was: no proper communication with co-workers and supervisors, less support from Co-workers and managers, no job clarity, rigid working hours, no workspace privacy, less assistance provided for remote setup by the organisation and poor interpersonal relationship with family members. The women employees who got support from co-workers and managers, had effective communication with co-workers and managers, had job clarity, had flexibility in working hours, workspace privacy at home, got assistance for home office set up from organisation, good interpersonal relationship with family members, their productivity level had increased and had a better mental and physical wellbeing. The employers should be sensitive to understand the issue of the women who have faced health problems and decreased productivity levels due to lack of support from the organisation while working from home. This study can provide the key factors that need to be considered while developing WFH strategies for promoting a better health wellbeing in near future. Organisation give more importance for coordination and communication by investing in technology which can help in more smooth communication and coordination, so that employees can focus on their work and will be able to complete their task on time. Based on this research paper, organisation can work on Hybrid work Model as an sustainable option , so that they can overcome the challenges faced by the women employees while working from home.

Limitation of the study

Women employees of the IT sector were too busy, so the researcher could only obtain limited information from some of the respondents. Some of women employees were little hesitant to give true information about their health, relationship with their boss/manager and workspace privacy. As they were working in the same organisation, they were little reluctant to share about the support provided by the organisation as few of them were giving neutral answers.

Industrial relevance of the study

This study will provide the organisation with the key factors that need to be considered while devising Work from Home strategies to reduce the negative impact of WFH on the health of women employees. This study will also help the government and employers to devise Hybrid model as the option of future work to have a sustainable and supportive work environment, as from this study the most key factors that is affecting the women employees can be taken into consideration and incorporated into the Hybrid model to solve most of the WFH problems

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The Impact of Workplace Spirituality on Quality of Work-life, Job Satisfaction and Job Involvement: A Study on Higher Education Sector

The Impact of Workplace Spirituality on Quality of Work-life

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Abstract

Purpose: In the present times, academicians, practitioners and researchers are finding spirituality in the work-place, as a vital topic for studies. Therefore, important insights are being showered through these studies. In the same way, This paper's aim is to analyse the impact of workplace spirituality (WPS) on job satisfaction (JS), job involvement (JI), and quality of work life (QWL). Moreover, it checks the mediating role of QWL in the relationship between WPS and JI.

Design/methodology/approach: Through online questionnaire surveys, a sample of 257 respondents was gathered from the college lecturers in Delhi-NCR and analysed on IBM AMOS 23.0 using SEM.

Findings: The results suggested that WPS significantly influences JI, job satisfaction (JS) and QWL. On the other hand, Quality of work life does not mediate the relationship between WPS and JI.

Practical implication: The findings propose that the human resource department or top management must work on bringing workplace spirituality practices at the colleges.

Social Implications: Enhancing Spirituality at the Workplace not only keeps an employee contented but also makes the society a better place to live in, by increasing helping hands for each other, bringing loyalty to the organization, and ultimately the growth of individuals along with the firm. Therefore, this research paper motivates to bring workplace spirituality practices for employees.

Originality/value: The study provides a vital input to the literature by exploring the influence of WPS on QWL, JS, and JI. Also, the mediation of Quality of Work-life on the relationship between Workplace spirituality and Job Involvement is clarified.

Keywords: Workplace spirituality (WPS), job satisfaction (JS), job involvement (JI), quality of work life (QWL)

Paper type: Research paper

1. Introduction

In today's busy life more than half of the population is working. Among this population, most of the time spent by them is at their workplace. The life of the present generation is very hectic that half of the day or more than half of the day is spent at his/her workplace. This busy schedule of people not only influence their physical strength but their mental robustness also suffers. To work properly, up-to-mark and effectively and efficiently, it is important for the supervisors to maintain and take care about the, mental and physical stress of the employees. This may not only improve the efficient and effective working of employees but the loyalty and confidence towards their organization will also be influenced. Burrack (1999) came forth with a few inquiries based on experience: Why am I carrying out this work? What does this piece of work mean? Where will it transport me? What is the purpose of my presence in this company? By making the employees aware of all the inner-self-related replies, these questions aid them in pursuing their jobs. The answer of these questions will also help the employees to reduce the level of dissatisfaction and resolve the health issues, as Galinsky et al. (2005) reported that in USA, 44% of the workforce feels



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overburdened for their work which results in ill-health and high level of dissatisfaction. To deal with the situation of dissatisfaction, employees nowadays are getting influenced towards meditation, self-reflection, spiritual practices, wellness programs in association with good diet, taking participation in sports and exercises at work (Toma et al., 2022; Dehler and Welsh, 1994).

In this era of globalization, the development is very important. The development of organization and development of employees is inter-related. If there will be some development of employees then the development of organization automatically takes place, and vice-versa. For the growth of employees, it is necessary for them to have some good ideas that may motivate the employee itself and to organization also. Inside feelings may get effected with the spirituality of the personnel. Spirituality impacts one's thoughts, feeling and peace of mind. Also, there is a link between employee involvement and workplace spirituality(WPS) that is favorable (Tony, 2023).

The previous researches have studied the impact of WPS on variables like Job Involvement(JI) and Job Satisfaction(JS) (Zhang, 2020). Furthermore, Eliyana and Sridadi (2020) also studied the influence of WPS on JS and discovered a positive association between the two variables. However, the previous studies did not study the effects of WPS on QWL. Therefore, in order to bridge this gap, a further move is taken by the authors by analyzing the mediating impact of QWL between WPS and JS. This study also tries to understand the effect of WPS on JI. The present study is the first research, as per the researcher's knowledge, which studies the combination of workplace spirituality, QWL, JS and JI on teachers of higher education colleges of Delhi. As already stated the mediation impact of QWL is the novelty of this study.

This study aims to fill these vital gaps and fulfill the following research objectives:

2. Objectives of the Study

- 1. To study the influence of WPS on the QWL.
- 2. To study the influence of WPS on JS.
- 3. To study the influence of WPS on JI.
- 4. To study if QWL mediates the relationship between WPS and JI.

3. Literature Review
Workplace Spirituality and Quality of Worklife

According to May et al., (1999) The term "quality of work life" refers to attractive working conditions. By offering benefits, job stability, and possibilities for professional advancement, workplace conditions also support and foster employee satisfaction levels. Employees, labor, or human resources are vitally important to any firm. Human resources will only be content their positions if they are at ease with the work lives that they lead.

QWL is something which tries to create a balance between need of the individual and need of the organization. Many dimensions, nowadays are unidimensional in nature i.e., either they will take care of employees or focus will be on organization. However, according to Martell & Tyson (1983) QWL is a dimension which deals with both the dimensions i.e., on employees as well as on organisation. A positive association between WPS and QWL was also promoted by Marwan et al., 2019.

To improvise the QWL "Hawthorne experiments" were also conducted. The Western Electric Company consists of numerous employees. After having all the benefits like pension, health benefits and much more, the employees were not satisfied. In lieu of this, Elton Mayo, a social-scientist, conducted research on employees to find out the reasons behind this dissatisfaction. The research was done, as the workforce at organizations have a crucial role and their satisfaction level is depicted by the QWL they are going through. There are so many theories and experiments done on employees which depicts that QWL a crucial role in the life of employees as well as organization. With this the researcher hypothesized:

H1: WPS significantly influences QWL.

Workplace Spirituality and Job Satisfaction

WPS with JS, is a correlation which has gained a very keen attention in academia. The relationship is already proved by many researchers (Fatima et al., 2017; Chawla & Guda , 2010; Hassan et al., 2016; Pawar, 2009; Belwalkar et al., 2018; Marschke et al., 2011; Van Dar Walt & De Klerk, 2014; Zerach & Levin, 2018; Zaidi & Durrani, 2019). When an employee feels that he is not over-burdened and stress level is also not so high i.e., there is eustress among employees, they feel more satisfied at their workplace. WPS is considered as an indicator of job satisfaction (Garg et al., 2019). Moreover, a study on education department was conducted (Hojjati and Hamidi, 2015) which laid down a promising association between workplace spirituality and QWL.

Ashmos and Pratt (2010) has laid down three main spheres of WPS and job satisfaction i.e., self-transcendence (connection with something which is greater than a person), holism and consonance (a standard of knowing one-self, originality and balance), and broadening and development of the personnel (the self-actualization). Miliman et al., (2003) undertook a study on the employees who were doing their jobs on part-time basis and explored that some aspects of spirituality have a pragmatic significant effect on JS. The theories explain that as the employees will get satisfaction among their jobs, the quality of their work life will also increase and vice-versa. With this the researcher hypothesised:

H2: WPS has a significant influence on JS.

Workplace Spirituality and Job Involvement

JI is a principal component in the life of an individual, who is pursuing job. Individuals show their talent in their jobs. According to Brown (1996), if a worker is engaged in their work, it indicates a state of positive involvement in which workers are motivated by their emotional condition as well as by feelings of affection and sympathy. It is a distinct from of organisational commitment, as it means the feeling of an employee towards organisation as a whole instead of their own job.

JI is an emerging construct in the domain of Organisational Behaviour. the term JI was coined by Lodahl and Kejner (1965). From the side of the employee, job involvement depicts three aspects i.e., personal growth, feeling of pleasure and goal-oriented behaviour within their workplace. Moreover, from the side of organisation, it is taken as a necessary step towards employee motivation, which provides the competitive advantage to the organisations (Latha, 2012). The previous researchers have confirmed a strong association between WPS and JI. As stated by Mahipalan et al. (2018), WPS has an impact on JI among the Generation Y employees and therefore WPS is considered to be a vital element for enhancing job involvement.

Above we have discussed the power of control of workplace spirituality on different variables. However, the study also probes the mediating impact of QWL on relationship between WPS and JI. Some studies laid down in this direction are depicted, for example, Permarupan et. al. (2013) suggested that three dimensions of QWL namely, working conditions, opportunities at work and organizational climate are related to job involvement. Moreover, organizational climate was found to be the strongest predictor of job involvement.

So, there are minimal studies available which depicts the effect of WPS on JI. Relation of QWL is studied with JI but the influence of QWL on job involvement is rarely studied. With the assistance of this, the researcher hypothesised:

H3: JI is significantly influenced by WPS.

Mediation of QWL

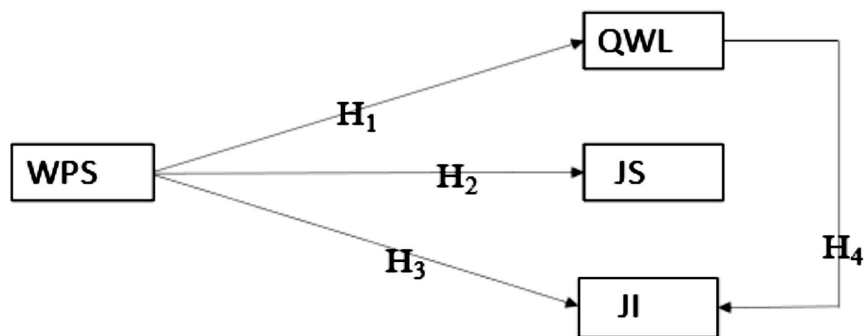
QWL tells about the employee as the center of attraction instead of the work completed by him/her. QWL is coming out as a very trending notion nowadays. Mainly it defines the ways through which the firms can provide the comprehensive welfare of an employee rather than just concentrating on the professional facet. QWL is connected with a number of unprejudiced organizational circumstances and procedures which allows the employees to think that they are practically shielded, contented and have good opportunities of evolution and progress

as a separate individual, by Ahmad (2013) .Workplace spirituality can in turn result in a better Quality of Work- life, as spirituality at workplace means extending a helping hand to a colleague, having loyalty towards one's work and organisation, having a meaningful work to be performed ultimately resulting in having a contentment at the workplace and eventually leading to better outcomes. QWL has been used as a mediator in the associations between employee performance and spiritual leadership. The results suggested that if the mediation is through higher QWL, then higher spiritual leadership will result in better employee performance by Pio (2022). In this research paper, we will be using QWL as a mediator in the relationship between WPS and JI.

H4: QWL mediates the relationship between WPS and JI.

As stated by the gathered literature and the proposed conceptual framework, hypotheses depicting the association between variables WPS, job satisfaction, QWL and JI, were suggested accordingly. The association model among variables is illustrated in figure 1.

Figure 1.
Theoretical framework and
hypotheses



Source: Author's compilation

4. Methodology

Participants

With the assistance of convenient sampling, data was collected from the higher education sector. The main sample of the study consists of teachers of higher education sector. The teaching faculty, currently working in the colleges of Delhi-NCR were asked to fill the questionnaires through online mode. The questionnaires were distributed to them through various social networks i.e., WhatsApp and Facebook. The population considered is teachers as workplace spirituality is not much explored among them. A total of 300 questionnaires were dispensed over three months and after that a response which were received were 257. However, 15 were not included for further analysis, as they were not correctly filled. Among the participants majority of the them i.e., 70% were females and 30% were males. Moreover, participants aged between 30-40 years (38.5%) were married also (81.5%). Mostly participants were between the age bracket of 40-60 years (61.5%) and were earning above Rs. 80,000.

Measures

With the exception of the work satisfaction scale, which was on a scale from 1 = very dissatisfied to 5 = very satisfied, all of the other measures in the current survey employed a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. Scale reliability was checked and accepted at 0.952, as endorsed by Nunnally et al., (1967) that reliability exceeding the value 0.70 is acceptable. The measures were taken from previously developed scales.

Workplace Spirituality: Twelve items of WPS were taken from Ashmos and Duchon (2000). A sample item is "I look forward to coming to work."

Quality of Worklife: Eight items of QWL were adapted from Sirgy et al., (2001). The example of an item is "I feel physically safe at work."

Job Satisfaction: Eight items of job satisfaction were adapted from the Minnesota satisfaction scale (1967).

Job Involvement: Five items of job involvement were adapted from Kanungo (1982). A

sample item is "I have very strong ties with my current job, which would be very difficult to break."

The validity soundness of the questionnaire can be measured by using Principal Component Analysis (PCA) (Cavana et al., 2001). In order to test PCA two tests should be applied i.e., Bartlett test of sphericity was used along with Kaiser-Meyer-Olkin (KMO). The test of sphericity for all the items of the questionnaire which is a statistical test for a was found to be significant ($p=0.000$) and the values of KMO were found to be in the admissible range of 0.5 and 1.0. (Table 1).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.909
Bartlett's Test of Sphericity	Approx. Chi-Square	2637.766
	df	465
	Sig.	.000

Table 1.
KMO and Bartlett's Test

5. Data Analysis and Data Findings

To validate the proposed model which underlies the relationships of our hypotheses SEM has been applied by using IBM AMOS 23.0. Every item had measurement loadings that were higher than .70. The items which had factor loading below .70 were dropped from the questionnaire and were not considered further for the study. The hypothesized model had a satisfactory model fit, ($p < 0.001$; $\chi^2/df= 1.521$, AGFI=0.900, CFI= 0.971, RMSEA= 0.046, GFI=0.927, NFI=0.922) (Hu and Bentler, 1999; Hooper et al., 2008; Hair et al., 2010). Convergent validity was ensured because the average variance extracted for each component was over 0.50. (Fornell and Larcker, 1981). The overall satisfactory fit for the model was in support, which allows the researcher to carry forward the study for structural model.

6. Structural Model and Hypotheses Testing

The hypothesised model demonstrated a good model fit of the gathered data ($p 0.001$; $2/df= 1.497$, AGFI=0.901, CFI= 0.972, RMSEA= 0.045, GFI=0.927, NFI=0.922) (Hu and Bentler, 1999; Hooper et al., 2008; Hair et al., 2010). Table 2 illustrates a summary of the regression coefficients for the paths and their statistical significance. Table 2 shows that workplace spirituality influences quality of worklife (H1 supported), job satisfaction (H2 supported) and job involvement (H3 supported). However, the factor that is influenced strongly by workplace spirituality is job involvement.

Hypotheses	Path	Estimate	S.E.	C.R	p-value
H ₁	WPS→ QWL	.914	.104	8.786	0.000
H ₂	WPS→ JS	1.005	.099	10.120	0.000
H ₃	WPS→ JI	1.034	.135	7.670	0.000

Table 2.
Relationship Between Wps, Qwl, Js And Ji

The model was run with the ML (Maximum Likelihood) estimation model to study the mediation effect. The direct and indirect paths show the mediating relationships among various variables. Table 3 shows that WPS positively influences JI (direct effect) and when QWL enters in the association between WPS and JI than also workplace spirituality significantly influences JI. As suggested by Barron and Kenny (1986) there are some constraints that must be satisfied for mediation impact. In the first condition, the influence of independent variable on dependent variable should be present (absence of mediating variable). This condition is fulfilled as the impact of WPS on JI has been established above.

The impact of independent variable i.e., WPS on mediating variable i.e., quality of work-life is also established above. Moreover, the mediating impact of QWL on association between WPS and JI also came out to be significant. Moreover, if zero falls between LLCI and ULCI than there is no mediation effect and if zero does not falls between LLCI and ULCI than there is presence of mediation effect. However, in the present study the LLCI (Lower Limit Confidence Interval) is -.223 and ULCI (Upper Limit Confidence Interval) is .104 which shows that zero falls between LLCI and ULCI which depicts that there is no mediation effect (Barron and Kenny, 1986) of QWL on relationship between WPS and JI. With this the study rejects H4 which shows that QWL mediates the relationship between WPS and JI

Table 3.
Direct And Indirect Path
Of Wps And Ji As Qwl
Enters

Hypothesis	Path	Direct Effect SE (p-value)	Indirect Effect S.E. (p-value)
H ₄	WPS → JI	1.034 (0.000)	.024 (0.000)

7. Discussion

The results of this research offer a very helpful vision for teachers of higher education colleges. The present research tried to explore the factors which are influenced by workplace spirituality. The association uniting workplace spirituality and quality of worklife was found in the present study (H1 accepted). So, the research depicts the clear result of influence of workplace spirituality on quality on worklife. This describes that as the spirituality at workplace increases, quality of worklife is also influenced. A positive relationship between two is laid down in the present study, which describes that as spirituality takes an uptick, quality of worklife also show rise. The positive relationship between WPS and quality of worklife, along with relationship with colleagues and other variables, was also depicted among (Jin and Lee, 2020).

Present study also explored the positive and significant influence of WPS on JI. This depicts that as WPS increases among the teachers, they will get more and more interested and involved in their jobs (H3 accepted). It shows that as more spiritual thoughts arise, the teachers will get more good ideas, as they will be welcomed by the top-level management, hence, they will get more involved towards their job. The significant influence of WPS on JI is also found is previous studies (Van der Walt, 2015).

This research also concluded that WPS positively influences JS. With the help of this the present study supports the H2. According to Suherman et al. (2023) spirituality lead towards job satisfaction of employees. This helps to prove that as spiritual thoughts pop up among the teachers, they will be more inclined towards satisfaction towards their job. The associations between WPS and JS was lauded by various authors (Chawla, 2010; Aftab et al., 2022; Usman and Danush, 2010; Krishnakumar and Neck, 2002).

Moreover, the mediating impact of QWL on relationship between WPS and JI came out to be insignificant. This implies that quality of worklife does not mediates the connection between WPS and JI and came out to be insignificant among higher education teachers of Delhi-NCR. However, there is literature where QWL is found to be positively influencing JI (Permarupan, 2013). Permarupan, 2013 found the positive relationship between QWL and JI. But the present study found that there is no mediation impact of QWL on relationship between WPS and JI (rejecting H4).

8. Conclusion

In conclusion, this research paper sheds light on the crucial topic of WPS and its impact on JS, JI, and QWL. The study discovered that WPS has a favourable effect on these three outcomes. The findings suggest that organizations should consider implementing workplace spirituality practices to improve the well-being of their employees and ultimately contribute to the growth of people as well as organization. This study did not find evidence for the mediating role of QWL in the connections between WPS and JI, however, the overall findings provide valuable insights for practitioners and academics alike. The study advances our

understanding of WPS and reinforces the need for more investigation in this field.

9. Practical Implication

The practical implications of this research paper suggest that organizations should consider implementing workplace spirituality practices to uplift the well-being of their workforce. The findings propose that the human resource department or top management must work on bringing workplace spirituality practices at the colleges. Such practices could include encouraging meditation, providing a quiet space for reflection, and promoting a sense of community among employees. By doing so, organizations can create a energetic work culture, amplify employee engagement and satisfaction, and ultimately contribute to the growth of both individuals and the organization. Therefore, the practical implication of this study is to motivate organizations to bring workplace spirituality practices for employees. Furthermore, While this study focuses on college lecturers in Delhi-NCR, the findings can be applied to employees in other organizations as well. Therefore, the practical implication of this study is to encourage organizations to adopt workplace spirituality practices that are tailored to their employees' needs, which can result in increased employee satisfaction, loyalty, and productivity.

10. Social Implication

From a societal perspective, enhancing spirituality in the workplace can lead to increased altruistic behaviour among teachers or employees of any other sector, which can contribute to building a more compassionate and supportive community. By promoting a culture of mutual respect and cooperation, workplaces can foster a feeling of belonging and social connectedness, which can help to mitigate the negative consequences of social isolation and boost overall contentment. Moreover, the research suggests that workplace spirituality practices can help to cultivate a sense of commitment towards the organization, which can contribute to the growth and success of the company. This can lead to a favourable effect on the local economy and give rise to the overall prosperity of the community. Overall, the societal implications emphasize the relevance of creating a work culture that fosters spiritual growth and well-being, which can have far-reaching benefits for both employees and the broader society.

11. Limitation and Future Scope of Study

Future studies can use the study's shortcomings as recommendations. The researchers, in future can conduct the study on any other segment of employees. Only the mediation impact has been checked, further moderation can also be studied. The demographics of the study can also be related with the variables in future. The major research limitation came out is the rejection of H4 i.e., QWL does not mediates the link between WPS and JI. In the present study, researcher has not explored the reasons behind it, which can be done in future. Further, the same study when carried out in other areas and other segments, than it should be laid down whether the results are in contrast or contrary with the present study (regarding mediation results).

Research showed that demographic variables like, gender, age, work experience and position of job or the marital status held by an individual is positively related with personal factors (Sharma & Misra, 2022). So, a study on demographic variables can also be explored further on relationship between WPS and job involvement. Use of technology make a person more anxious, tired and fatigue (Sarangal & Nargotra, 2022), which can be overcome by WPS. Hence, the study of WPS with use of technology in today's era can be studied further.

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