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Bharatiya Shiksha Shodh Sansthan
Saraswati Kunj, Nirala Nagar, Lucknow-226020 (Uttar Pradesh)
Ph. No. 0522-2787816, E-mail: sansthanshodh@gmail.com
Website : www.bssslko.org.in

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अर्द्धवार्षिक शैक्षिक शोध पत्रिका
भारतीय शिक्षा शोध संस्थान द्वारा प्रकाशित

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इस शोध पत्रिका में लेखकों द्वारा व्यक्त विचार, निष्कर्ष आदि उनके अपने हैं। ये विद्या भारती एवं भारतीय शिक्षा शोध संस्थान की नीतियों के परिचायक नहीं हैं। यदि किसी लेखक की प्रकाशित सामग्री से कापीराइट नियम का उल्लंघन होता है तो इसके लिए लेखक स्वयं उत्तरदायी होंगे। प्रकाशक अथवा सम्पादक मण्डल इसके लिए किसी भी प्रकार से उत्तरदायी नहीं होंगे।

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विषय-सूची / Contents

शोधपत्र / Research Articles

सम्पादकीय / Editorial

This issue of **Bharatiya Shiksha Shodh Patrika** comes at a significant moment in the long and esteemed history of our journal. We would like to present our perspective to the distinguished readership of this publication. On April 19, 2024, we received an email at our official email address. The email communicated the discontinuation of our journal from the UGC CARE list, which has caused considerable concern within our organization.

In response to this development, Bharatiya Shiksha Shodh Sansthan has promptly reached out to the UGC CARE committee, requesting a review of their decision. We have presented substantial facts and figures supporting the continued inclusion of our journal in the UGC CARE list. With the measures taken by us, we remain optimistic that the matter will be resolved favorably.

As of now, the final decision regarding the continuation of our journal on the UGC CARE list is still pending. However, many papers submitted between October 2023 and April 2024 have undergone the review and revision process and were accepted before the critical date of April 19, 2024. To ensure that this issue aligns with UGC CARE's requirements, only those papers that received acceptance on or before this date have been included. These authors can, therefore, claim UGC CARE status for their published work in this issue.

This edition comprises forty four papers that met these criteria. Papers accepted after April 19, 2024, following rigorous review and revision, will be featured in our next issue. We trust that you will find this issue intellectually enriching and informative. A brief description of some of the studies published in this issue is given here which is based on the objectives and findings of the research articles of the contributors.

In a study, conducted by Kumari Jyoti, Research Scholar and Dr. Rajesh Ekka, Assistant Professor, Department of Education, BBA University, Lucknow, the authors tried to investigate the effectiveness of self-help groups in fostering self-reliance, self-confidence and decisionmaking capacity among women in Bihar. The findings of the study showed that there is a significant association between Districts and Variables related to self-confidence, Decision making Capacity and Self-reliance indicating regional disparities. Further both self-confidence and decision making capacity were found to have a significant impact on self-reliance of the participants. The findings suggest that there is a need for targeted interventions to enhance self-confidence and decision making capacity of marginalized women through self-help initiatives.

Now a days several studies are being done in the area of Artificial Intelligence (AI). In this context Neha Prajapati, Assistant Professor, Chameli Devi Institution and Dr. Karan Verma, Assistant Professor, Swami Vivekananda Institution presented their research paper "Transformative Impact: Analyzing the Integration of Artificial Intelligence in Internet Banking". The study aimed to uncover the profound changes brought by A.I. to traditional banking approaches. Further their research examined the diverse outcomes resulting from the integration of Technology in Banking sector. A profound transformative impact of Artificial Intelligence was found on internet banking across various dimensions. The Integration of AI has significantly enhanced operational efficiency, minimized the error rates and reduced the transaction processing time. However ethical issues should be kept in mind while integrating AI in Internet Banking.

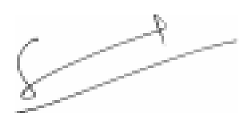
Ms. Nita Vaghela, Research Scholar, Faculty of Social Work, Parul University and Dr. Satish Kumr Bodla, Department of Social Work, Kurukshetra University, Haryana in their study Examined the Psychological Stress and coping strategies in caregivers of children with intellectual disability. The results of the study indicated significant Emotional, Physical and Financial Strains, emphasizing the need for inclusive education. Study also emphasized that there is an urgent need for enhanced societal support and resources to assist families for improving the well being of caregivers and the children with intellectual disabilities.

Now a days much emphasis is being laid in improving the mental helth of teachers and students, Mental Health is a "person's emotional, psychological and social well being that enables people to cope with stresses of life, realize their abilities, learn well and work well and contribute to their community". In their study "Mental Health of Senior Secondary School Students in Relation to Some Personal Variables", Mr. Bhupendra Narayan Basunia, Research Scholar and Dr. Jakir Hussain Laskar, Department of Education, Aliah University, Kolkata found significant differences in the Mental Health of Senior Secondary School Students in relation to their Gender, Locale, Socio-Economic Status (SES) and type of Family variables.Findings of the study suggest that there is a need for periodic stress management programmes for reducing the level of stress in students to improve their mental health.

A teacher's task is to help his students in developing maturity in personality and aim at inculcating those Values and Life Skills in them which may enrich and refine their life. By developing essential life skills the students will be able to deal with demands and challenges of day to day life. Keeping this in mind Karabi Kalita, Research Scholar and Dr.Ritomoni Bordoloi, Assistant Professor, Department of Education, Krishna kantaHandique State Open Unviersity, Assam conducted a study titled, "Empowering Educators: Exploring Life Skills in B.Ed. Trainees" which aimed at empowering the life skills of in-service teacher trainees pursuing B.Ed. programme and was also aimed to find out differences in life skills of teacher-trainees in terms of Gender and Educational Qualifications. The findings reveal that mean scores of different life skills of in-service teacher trainees pursuing B.Ed. course fall under below average category. No statistically significant difference in life skills was found between male and female in service teacher trainees as a whole. However statistically significant difference was found between teacher trainees, having Graduate and Post Graduate degree with regard to three life skills. Findings of their study suggest that Life Skill Orientation Programmes should be organized by the institutions from time to time to orient the teachers so that they may be able to deal effectively with the challenges of modern times.

All other studies published in this issue of the journal contribute significantly in the field of Social Sciences. However it is not possible to describe all the studies due to paucity of space. We hope that published articles shall be useful and significant for University/College teachers and Research Scholars.

Suggestions of the readers are invited.



(Sunil Kumar Pandey)
Chief Editor

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An Analysis of Sukanya Samriddhi Account Scheme's Growth

*Ms. Jyoti Rani, **Dr. Monika, ***Dr. Pushpdeep Dagar

Abstract

Financial Inclusion is a step toward inclusive growth and helps in the overall economic development of the weaker section of the population. It is essential for the upliftment of the poor and deprived people as it provides financial services at affordable prices. Indian Government announced many social security schemes with an aim to involve the underprivileged part of society in the mainstream. Public Provident Fund, Senior Citizen Saving Scheme, and Sukanya Samriddhi Account Scheme come under the social security schemes, and each has been framed for a specific purpose. Sukanya Samriddhi Account Scheme is a small saving scheme specifically for a girl child's welfare, which helps to create funds for future requirements mainly for a girl's education and marriage expenses. This scheme serves two purposes, firstly working in the direction of financial inclusion and secondly helping the parents in shaping their daughters' future. This study aims to analyze the growth pattern of SSA and the contribution of Haryana state to SSA. With the help of secondary data, study concludes that the amount of investment under the SSA is increasing on a year-o-year basis but at a decreasing rate. Government action is recommended to make the improvement in this scheme and to spread awareness about the scheme as well.

Introduction

Investment generally refers to the expenditure of money in the hopes of producing more money. Investment relates to the concept of postponed consumption, which entails buying an asset, taking out a loan, or putting money in a bank account to generate future profits. It is the commitment of funds saved from present consumption to receive some advantages in the future. As a result, it is a reward for patiently waiting for money. Investing is the process of putting money into an asset in the hopes of capital growth, dividends, or interest earnings. The safety of the principal amount, liquidity, income, stability, appreciation, and last but not least, easy transferability are the main characteristics of an investment. People put their money into things like stocks, bonds, fixed deposits, national savings certificates, life insurance plans, provident funds, pension schemes, and other things like small saving schemes. All investors who choose to invest do so in the above-mentioned avenues, which are available to them based on their risk-taking attitude and capacity to tolerate risk. There are many small saving schemes which are launched by the Indian Government which encourage people to save and invest. There are 3 categories of small saving schemes i.e., post office deposits, social security schemes, and saving certificates. Social Security schemes include Sukanya Samriddhi Scheme, launched under the "Beti Bachao Beti Padao" campaign. This scheme is mainly framed for the benefit of the girl child.

Research Objectives

- To measure and analyze the growth pattern of the Sukanya Samriddhi scheme from 2015 to 2023.
- To study the contribution of the Haryana state in Sukanya Samriddhi Account Scheme.

Relevance of the study

In the present scenario, high-profile weddings of wealthy and famous people create unattainable standards for the middle classes and the poor to follow, leading to unnecessary societal pressures. The prime motive of investment in the SSA scheme is the creation of wealth for the future of the girl child-for education, marriage, and health needs. Educated, employed, and empowered

* Research Scholar, Baba Mastnath University, Rohtak
** Assistant Professor, Baba Mastnath University, Rohtak
*** Assistant Professor, Govt. PG College for Women, Rohtak

women are likely to display a greater inclination toward educating their daughters. This study is intended to assess the performance and growth of this scheme. This assessment is important to know how well this scheme is performing, and what Government can do to improve the scheme so that more people can be engrossed in this scheme.

Theoretical Background

The Sukanya Samriddhi Account (SSA) was announced by India's Prime Minister on January 22, 2015, with the slogan 'BETI BACHAO, BETI PADHAO' (saves and educates the girl child). The SSA's goal is to make the world a better place for girl children. The Sukanya Samriddhi Account Scheme was launched by the Honourable P.M. Sh. Narender Modi Ji on 22nd January 2015 in Panipat, Haryana. This is a significant part of the 'Beti Bachao, Beti Padhao' (BBBP) campaign. This scheme attempts to address the decreasing Child Sex Ratio (CSR) and related concerns of girls' and women's empowerment throughout their lives. The scheme's main goals are to avoid gender-based sex discrimination, to secure the girl child's survival and protection, and to promote the girl child's education and participation.

Literature Review

Satyanarayana, D. (2023) measured the effectiveness of SSY in all states of India. It was found that Uttarakhand, Himachal Pradesh, Karnataka, and Tamil Nadu are some of the states that have more registered accounts in the 0-10 age group per 1000 persons in comparison to national average. Rajasthan, Uttar Pradesh, Jammu & Kashmir, Gujarat, Madhya Pradesh, Assam, West Bengal, and Bihar have less account per 1000 individuals in the 0-10 age range when compared to national average. Deepikasri, M., Karthika, R., Malarkodi, R., Tamil Elakkiya, U., and Kumar, Y.P. (2022) assessed the performance of Sukanya Samriddhi yojana at the post office, it was found that majority of respondents were satisfied with the scheme. Sale S.M., and Godbole J.A., (2021) have observed that the factors that influence the opening of Sukanya Samriddhi Accounts, as well as respondents' perceptions and satisfaction, have been discovered. From the researcher's point of view, SSY is a brilliant scheme for financial independence for the girl child. Ray M., and Shantanu R., (2020) found that a total of 13 factors were used to assess respondents' awareness. In comparison to Sukanya Samriddhi Account, respondents are more aware of the Public Provident Fund. The majority of investors were aware of the tax advantages of both schemes. Shivani, R. *et al.* (2020) evaluated thatthe deposit period ranked as the first factor and child education ranked second to influence the investor to open an account under this scheme. The foremost shortcoming of this scheme is that premature withdrawal of the whole amount is not permitted. There is a substantial difference between the gender of the investor and awareness of the SSY account. Unnisa S. (2020) concluded that the majority of the depositor are highly satisfied with the features of this scheme. This is having a higher interest rate than all small saving schemes. Amount at maturity will make the girl child financially strong. Since this scheme is specifically framed for girl child will help in Improving gender inequality. It is found that customers prefer Post Offices to banks.

Research Methodology

This study is empirical and analytical in nature. The present study is based on secondary data which is collected through the official Govt. website www.nsiindia.gov.in, Post office website, Journals and Newspapers, etc. Analysis of data is done through the trend line and R-squared value, which shows the growth pattern of the scheme over a period of time. Also, the percentage method is used for analysing the contribution of Haryana state in SSA.

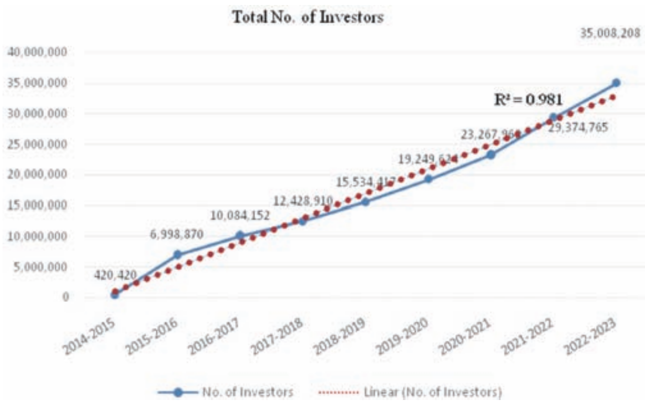
Analysis of Data

Table 1: No. of accounts and amount deposited in the Post office and Banks under Sukanya Samriddhi Account Scheme

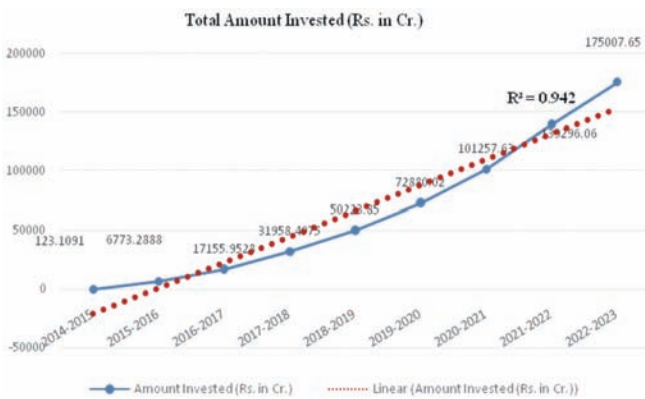
Year	No. of Investors	Amount Invested (Rs. in Cr.)
2014-2015	4,20,420	123.1091
2015-2016	69,98,870	6773.2888
2016-2017	1,00,84,152	17155.9528
2017-2018	1,24,28,910	31958.4975
2018-2019	1,55,34,417	50223.85
2019-2020	1,92,49,624	72880.02
2020-2021	2,32,67,968	101257.63
2021-2022	2,93,74,765	139296.06
2022-2023	3,50,08,208	175007.65

Source: nsiindia.gov.in

Graph No. 1(i)



Graph No. 1(ii)



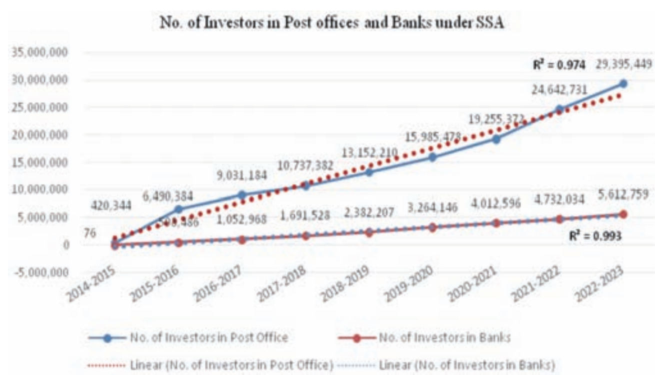
The table no. 1 and graph no. 1(i) and (ii) depict the Sukanya Samriddhi Scheme's aggregate growth pattern, which is positive in terms of both the number of subscribers and the amount invested in this scheme. A linear trend line is showing an increasing trend at a steady rate. The R-squared value in the case of the number of investors is 0.9812 which is near 1 which means the trend line is more reliable and it is a good fit and the R-squared value in the situation of the amount of investment is 0.9421 which is also a good fit of the line to the data. People have faith in this scheme as compared to other investment options since it is a risk-free govt backed small saving investment scheme and it builds the fund for the future of the girl. Indian people are more concerned and worried about the education and marriage of their daughters. This scheme helps to get rid of the burden on the parents' minds.

Table 2: No. of Investors in Post Office and Banks under Sukanya Samriddhi Account Scheme

Year	No. of Investors in Post Office	No. of Investors in Banks
2014-2015	4,20,344	76
2015-2016	64,90,384	5,08,486
2016-2017	90,31,184	10,52,968
2017-2018	1,07,37,382	16,91,528
2018-2019	1,31,52,210	23,82,207
2019-2020	1,59,85,478	32,64,146
2020-2021	1,92,55,372	40,12,596
2021-2022	2,46,42,731	47,32,034
2022-2023	2,93,95,449	56,12,759

Source: nsiindia.gov.in

Graph No. 2



The table and graph no. 2 demonstrate the increasing trend in the number of accounts opened under the scheme. There is a large gap between the number of accounts opened in the Post Office and Banks under SSA. No. of accounts opened under Post office are greater than Banks. Since people can open their accounts in any branch of a post office, sub-post office, or head office. But in the case of banks, accounts can be opened in those branches of banks which are authorized by the Government of India to provide the facility of the Sukanya Samriddhi Account Scheme. Both trend lines, taken separately, exhibit increasing data with good R-squared values 0.9741 and 0.9937 which are closer to 1, which indicates an almost perfect line-to-data fit.

Table 3: Amount invested in Post Offices and Banks under Sukanya Samriddhi Account Scheme

Year	Amount Invested in Post Office(Rs.in Cr.)	Amount Invested in Banks(Rs.in Cr.)
2014-2015	122.1826	.9265
2015-2016	5473.4966	1299.7922
2016-2017	13339.7954	3816.1574
2017-2018	24069.6773	7888.8201
2018-2019	37044.02	13179.83
2019-2020	52263.22	20616.80
2020-2021	70818.95	30438.69
2021-2022	96862.72	42433.34
2022-2023	117723.03	57284.62

Source: nsiindia.gov.in

Graph No. 3

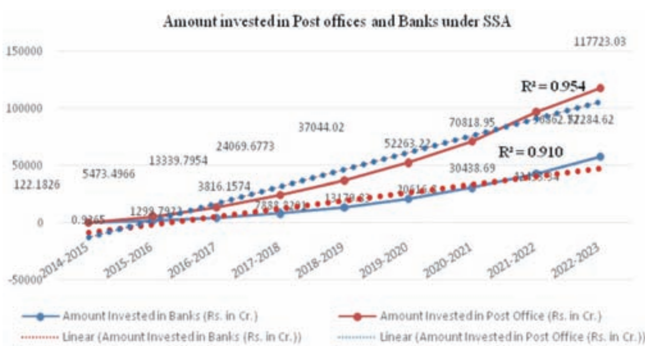


Table and Graph No. 3 signifies that the amount of investment under the SSA is increasing on a year-o-year basis. The amount of investment in the post office is greater than the investment in banks due to the difference between the number of accounts opened in post offices and banks. India has the widest network of post offices in the world, so it is easy for people from rural and urban areas to access the post office to open an account. Both trend lines are exhibiting an upward trend and R-squared values are 0.9545 and 0.9104, respectively, indicating a reasonably good line-to-data fit.

Table 4: Contribution of Haryana in Total number of Accounts opened and Total amount of investment in India

Year	Percentage of No.of Investors	Percentage of Amount of Investment
2014-2015	1.19	2.00
2015-2016	2.99	4.35
2016-2017	3.35	4.40
2017-2018	3.64	5.08
2018-2019	3.65	5.13
2019-2020	3.56	5.27
2020-2021	3.34	5.26
2021-2022	2.98	5.10
2022-2023	2.46	4.48

Source: nsiindia.gov.in

Graph No. 4

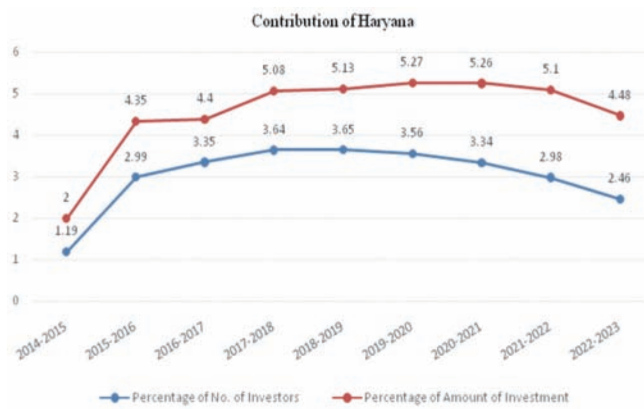


Table and Graph no. 4 represent how much Haryana state is contributing to the total number of accounts opened and the amount of investment in capital formation through the Sukanya Samriddhi Account Scheme. Percentage of the number of investors has taken town turn after 2019-2020. The reason might be the sex ratio at birth, the child-sex ratio at birth in Haryana was only 876 per 1000 in 2015-16. Due to lower SRB (sex ratio at birth), Haryana was amongst the worst state in terms of SRB, after this programme it gained some points and jumped to 922, but dipped down to 917 in 2022 and to 906 in 2023.

Discussion

This study has been done to assess the growth pattern of the Sukanya Samriddhi Account Scheme and it's a good scheme for small investors as the minimum amount of deposit is nominal. Data analysis portrays that more people are investing in this scheme as this is a risk-free govt. scheme and has a higher return rate amongst all small saving schemes but the scheme is not performing as per expectations. Since there is uncertainty about the future interest rate and few rules are rigid. Investors are preferring post offices over banks. The findings are related to the study done by Satyanarayana, D. (2023) an analysis of Sukanya Samriddhi yojana (SSY) and Unissa, S. (2020) on the performance assessment of the Sukanya Samriddhi Account Scheme at the General Post Office.

Conclusion and Implication of the Study

The purpose of the scheme is to empower women by providing social security to the girl child and to improve gender inequality and it is attaining its purpose to a certain extent. The study found that the amount of investment under the SSA was increasing in the initial years but after that, it is increasing but at a decreasing rate. There might be multiple reasons; one of them could be that in July 2018 Government reduced the minimum deposit amount to Rs. 250 which earlier was Rs. 1000. Another could be that the interest rate of the scheme is decided by the Govt. every quarter, which has been reduced to 7.6% which initially was 9.1%. It is evident that there is uncertainty regarding the interest rate of the scheme as it is decided by the Govt. Few people are not aware of the amendments made in the rules of the Sukanya Samriddhi Account Scheme. The long lock-in period and rigid rule for premature withdrawal also cause less investment in this scheme. It is suggested on the basis of the analysis of the study that Govt. should put more effort to strengthen the scheme and the Central bank should work in the direction to keep interest rates steady, to fascinate more parents.A village and remote-level awareness campaign should be launched by banks and post offices to raise awareness of the benefits of investing in this scheme so that the objective of the scheme can be achieved successfully. In the context of Haryana State, where sex ratio is the worst among all the states of India, the study found that the contribution of Haryana state in the Sukanya Samriddhi Account Scheme is going down after the year 2019-2020. It means that Govt. of Haryana should take strict actions and involve the people from the root level to improve the growth pattern of this scheme.

References

Angamuthu, B. (2019). Customers' Perception towards Sukanya Samriddhi Account Yojana (SSAY) in the selected Banks. *SJCC Management Research Review,* 9(2), 51-65.

Baburaj, D. (2019). An Analysis of Satisfaction towards Sukanya Samriddhi Yojana (SSY). *Journal of Emerging Technologies and Innovative Research (JETIR),* 6(5), 333-338.

Deepikasri, M., Karthika, R., Malarkodi, R., Tamil Elakkiya, U., & Kumar, Y.P. (2022). A Study on Performance Assessment of SSY at Post Office with Special Reference to Tirunelveli District. *International Journal of Advanced Research in Science, Communication and Technology (IJARSCT),* 2(1), 493-498. https://doi.org/10.48175/568

Rajesh, M., & Chandrashekhar, R. (2019). An Assessment of Parent's Preference towards Sukanya Samriddhi Yojana,74-79.

Ray, M., & Shantnu, R. (2020). A Comparative Analysis on the Awareness in Small Savings Scheme with Reference to Sukanya Samriddhi Account and Public Provident Fund. *Journal of Development Research,* 13(4), 53-61.

Sale, S.M., & Godbole, J.A. (2021). A Study of Awareness of Sukanya Samrudhi Yojana Special Reference to Aurangabad City. *International Journal of Scientific Research in Multidisciplinary Studies,* 7(7), 47-50.

Selvakumar, R. & Chellasamy, P. (2019). Evolution of Sukanya Samriddhi Yojana (SSY): National Scheme for Financial Inclusion in India. International *Journal of Research in Engineering, IT and Social Sciences,* 9(5), 347-351.

Shivani, R. *et al.* (2020). Impact of Sukanya Samridhi Yojana with reference to the Nilgiris. *Purakala,* 31(6),177-181.

Satyanarayana, D. (2023). A National Scheme For Financial Inclusion in India: An Analysis of Sukanya Samriddhi Yojana (SSY). *Paripex Indian Journal of Research,* 12(8), 74-76.

Unnisa, S. (2020). A Study on Performance Assessment of Sukanya Samriddhi Yojana at General Post Office. *IJESC,* 10(2), 24729-24733.

Vani, U., & Ramya, K.P. (2019). Customer Preference Towards Sukanya Samridhi Scheme in Coimbatore City. *International Journal of Management, Technology and Engineering,* IX(1), 448-455.

https://www.nsiindia.gov.in/

https://www.indiastat.com

http://www.dhsprogram.com

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www.timesnownews.com

https://economictimes.indiatimes.com

https://www.findeasy.in

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Exploring the Techno-Pedagogical Skills among English Pedagogy Teacher Trainees of Secondary Level

*Komal Shukla, **Dr. Subhash Misra

Abstract

The incorporation of technology in education has become ever more prevalent, necessitating a deeper understanding of the skills required for effective teaching, particularly among English Pedagogy Teacher Trainees of the secondary level. With the advent of digital tools and resources, educators must possess Techno-palagogical skillsto navigate the complexities of modern classrooms. However, the specific skills within the Technological Pedagogicaldomain that are most essential for English Pedagogy Teacher Trainees remain underexplored. Thus, this study seeks to address this gap by conducting a comprehensive investigation into the most important Techno-Pedagogical skills among teacher trainees specializing in English pedagogy ofthe secondary level.

This study employs a survey method within the framework of descriptive research, utilizing primary data. Data collection utilizes the self-developed tool 'Techno-Pedagogical Skills Scale'. The sample consists of 540 English Pedagogy Teacher Trainees of secondary level from Lucknow district, where Institutions were selected randomly and participants were selected purposely. Data analysis involves frequency analysis and exploratory factor analysis conducted using SPSS version 25.

The results revealed that the most important Techno-Pedagogical Skills among English Pedagogy Teacher Trainees of Secondary Level differ across the type of Institution, Gender, and Locale of the respondents.

Introduction

The landscape of education, particularly in language learning, is undergoing a dramatic shift. The pervasive presence of technology in our daily lives necessitates a corresponding evolution in pedagogical approaches. Recognizing this shift, the concept of Technological Pedagogical and Content Knowledge (TPACK) (Shulman, 1987) has emerged as a framework for preparing teachers to effectively integrate technology into their teaching practices. TPACK emphasizes the interplay between three core knowledge domains: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) (Mishra and Koehler, 2006). However, TPACK remains a broad framework, and there's a growing need to delve deeper into the specific technological pedagogical skills (TPS) that are most crucial for English pedagogy teacher traineesofthe secondary level. These technological pedagogical skills (TPS) include within its domain the Info-Savvy Skills, Techno-Pedagogical Integrating Skills, Techno-Management Skills, Techno-Living Skills & Techno-Special Skills.

While TPACK provides a valuable foundation, focusing solely on its three core domains might not sufficiently equip teachers with the varied skills needed to navigate the complexities of modern classrooms. Technology is constantly evolving, and new tools and applications are continuously being developed. Effective integration goes beyond mere familiarity with specific technologies - it requires a deeper understanding of how technology can be used strategically to enhance specific pedagogical approaches and ultimately promote student learning in the context of English language acquisition.

This study aims to investigate the most important Technological Pedagogical skills (TPS) among English pedagogy teacher trainees ofthe secondary level. We argue that a focus on specific skills within the broader TPACK framework offers a more targeted approach to preparing future teachers for success. By identifying the most critical TPS, teacher training programs can tailor

* Research Scholar, Department of Education, Babasaheb Bhimrao Ambedkar University(Central University), Lucknow, India
** Assistant Professor, Department of Education, Babasaheb Bhimrao Ambedkar University(Central University), Lucknow, India

their curriculum to ensure English pedagogy teacher trainees possess the necessary skillsto integrate technology effectively into their teaching practices.

This core exploration particularly of Technological Pedagogical skills is necessary on many grounds. Firstly, TPACK doesn't explicitly address the specific technological skills required for tasks such as creating interactive multimedia presentations, utilizing online collaborative platforms for language learning activities, or leveraging digital assessment tools for formative feedback. These skills, while falling under the umbrella of TPACK, represent a more practical and actionable set of competencies needed for effective technology integration. Secondly, the specific pedagogical approaches employed by English pedagogy teacher trainees of secondary level differ from those used in other subject areas. Understanding how technology can be used to support the development of reading, writing, listening, speaking, and critical thinking skills in a language learning context requires a comprehensive understanding of both pedagogy and technology.

Investigating the most important Technological Pedagogical skills for English pedagogy teacher trainees has significant implications for teacher training programs. By identifying the specific skills that are most beneficial for them at the secondary level, these programs can be optimized to ensure these teacher trainees are well-equipped to leverage technology effectively in their classrooms. This, in turn, can lead to a more engaging and effective English language learning experience for secondary school students.

In light of the above discussion it can be said that, while TPACK offers a valuable framework for understanding technology integration in education, a focus on specific Technological Pedagogical skillsamong the English pedagogy teacher trainees of secondary level provides a more targeted approach to preparing future teachers. By identifying and fostering the development of these crucial skills, teacher training programs can empower these teachers to harness the potential of technology and significantly improve the learning experience for secondary

Justification of the Study

This study holds paramount importance in shedding light on the multifaceted nature of Techno-Pedagogical Skills among English Pedagogy Teacher Trainees of secondary level. Through a comprehensive examination of the most important factors of these skills, the research aims to provide invaluable insights into the complex interplay between technology integration and pedagogical practices within the field of English education. By considering variables such as institutional affiliation (private vs. government-aided), gender, and geographical location (urban vs. rural), the study seeks to unravel the diverse contextual factors shaping Techno- Pedagogical skills development among English Pedagogy Teacher Trainees of secondary level.

Understanding the importantTechno-Pedagogical skills in different institutional settings, such as private and government-aided institutions, is crucial for tailoring professional development programs and policy interventions to meet the specific needs of English Pedagogy Teacher Trainees of secondary level within these diverse organizational contexts. Similarly, exploring gender dynamics in these skills development offers insights into potential disparities, and preferencesof male and female English Pedagogy Teacher Trainees of secondary level, thereby informing efforts to promote gender equity and inclusivity in technology integration initiatives.

Moreover, the urban-rural dichotomy presents unique challenges and opportunities for English Pedagogy Teacher Trainees in developing Technological Pedagogical skills and integrating technology into their teaching practices. By examining the factors influencing these skills in urban and rural settings, the study aims to inform targeted interventions aimed at bridging the digital divide, enhancing access to technology-enabled learning experiences, and fostering equitable opportunities for professional development among English pedagogy teacher trainees of secondary level across geographical boundaries.

Overall, this research holds significant implications for enhancing teacher education programs, professional development initiatives, and educational policies aimed at fostering Techno-Pedagogical skills among English Pedagogy Teacher Trainees of the secondary level. By unravelling the intricate complexities of Technological Pedagogical development and considering diverse contextual factors, the study endeavours to contribute to the advancement of technology-enhanced teaching and learning practices, ultimately striving to enhance educational outcomes and opportunities for students in secondary-level English classrooms.

Statement of the Problem

The statement of the problem stated as "Exploring the Techno-Pedagogical Skills among English Pedagogy Teacher Trainees of Secondary Level."

Operational Definitions of the Key Terms

- **Techno-Pedagogical Skills-** It pertain to the individual's skill to comprehend the operational functionalities and applications of technology within the teaching domain and the skills relevant to various teaching methodologies and practices. The Technological Pedagogical Skills of Teacher Trainees of English Pedagogy of Secondary level in this study encompasses only Info-Savvy Skills, Techno-Pedagogical Integrating Skills, Techno-Management Skills, Techno-Living Skills & Techno-Special Skills.
- **Teacher Trainees of English Pedagogy of Secondary Level-** A teacher trainee of English Pedagogy of the Secondary Level is a professional who trains aspiring teachers to effectively instruct English language and literature to students of secondary level.

Objectives of the Study

- **Objective 1:** To identify the most important factors of Techno- Pedagogical skills among Government-aided and Private Institution's English pedagogy Teacher Trainees of the secondary level.
- **Objective 2:** To identify the most important factors of Techno-Pedagogical skills among Male and Female English pedagogy Teacher Trainees of the secondary level.
- **Objective 3:** To identify the most important factors of Techno-Pedagogical skills among Urban and Rural English pedagogy Teacher Trainees of the secondary level.

Delimitation of the study

- The scope of the study was confined to Teacher Trainees specializing in English Pedagogy of the secondary level.
- The study focused exclusively on the Lucknow districts only.
- The study focused only on five dimensions under the Technological Pedagogical Skills, namely- Info-Savvy Skills, Techno-Pedagogical Integrating Skills, Techno-Management Skills, Techno-Living Skills & Techno-Special Skills.

Methodology

The methodology employed in this study is the survey method, under descriptive research a widely utilized research approach that allows for the collection of data from a sample population to draw insights and make inferences about a broader target group.

- **Population :** The population of the study includes all Teacher Trainees of English pedagogy of secondary level in the Lucknow district of Uttar Pradesh.
- **Sample :** The primary objective of this study was to identify the most important factors of Techno-Pedagogical skills within the cohort of Teacher Trainees of English pedagogy of secondary level in the Lucknow district of Uttar Pradesh. The researcher selected 20 Institutes from the Lucknow district randomly, and then the respondents were selected purposely from these selected Institutions. The purposive selection of the respondents is justified based on the criteria that the teacher trainee in this study should be a professional specialised in English pedagogy of the secondary level only. In this way, the Scales were distributed to the Teacher Trainees of English pedagogy of secondary level from the selected institutions of Lucknow district. The study is conducted on a total sample of 540 respondents.
- **Tool of the Study :** The researcher developed 'Techno-Pedagogical Skills Scale' to measure Techno-Pedagogical skills of English pedagogy teacher trainees of secondary level.

Techno-Pedagogical Skills Scale for English Pedagogy Teacher Trainees of Secondary Level

Sub-Dimensions		No.of Items
1.	Info-Savvy Skills	07
2.	Techno-Pedagogical Integrating Skills	07
3.	Techno-Management Skills	05
4.	Techno-Living Skills	05
5.	Techno-Special Skills	06
	Total	30

- **Analysis & Interpretation of the Data :** In the present study, the Statistical Package for Social Sciences (SPSS) version 25.0 was used for the analysis of the data. The researcher employed frequency analysis to analyze the demographic profile of the respondents and exploratory factor analysis was used to fulfill the objectives of the study.

Data Analysis & Results

Demographic Profile of the Respondents

Variables	Frequency	Per cent
Type of Institution		
Government -aided Institutions	64	11.9%
Private Institutions	476	88.1%
Total	540	100.0%
Gender		
Male	151	28%
Female	389	72%
Total	540	100.0%
Locale		
Urban	396	73.3%
Rural	144	26.7%
Total	**540**	**100.0%**

In this paper, three objectives are being analyzed which are as follows:

Objective 1: To identify the most important factors of Techno- Pedagogical skills among Government-aided and Private Institution's English pedagogy Teacher Trainees of the secondary level.

Table 1: Factor Analysis-Identifying the most important factors of Techno- Pedagogical skills among Government-aided and Private Institution's English pedagogy Teacher Trainees of the secondary level

Type of Institution	Private Institution	Government aided Institution
KMO & Bartlett 's test	.704 ($p<0.05$)	.622 ($p<0.05$)
% of variance of 1st component	30.303%	25.817%
Items Covered	12. I integrate technology into my lesson plans to enhance student engagement and learning outcomes. Learning technology is easy for me. 4. I know how to solve technical problems using ICT tools. I use technology (Smartboard, PPTs, etc.) in the classroom. 13. I adapt online platform tools to facilitate collaborative learning environments that foster student student-centred approach. 15. I might utilise technology for certification purposes. 3. I enjoy exploring and adapting to the latest advancements in technology	12. I integrate technology into my lesson plans to enhance student engagement and learning outcomes. 13. I adapt online platform tools to facilitate collaborative learning environments that foster student student-centred approach. 4. I know how to solve technical problems using ICT tools. 2. I use technology (Smartboard, PPTs, etc.) in the classroom. 1. Learning technology is easy for me. 16. I would prefer to take assignments and project work in digital platforms. 14. I leverage e-books and online resources to supplement traditional textbooks, offering students access to up-to-date information and multimedia content.

Analyzing Table 1 reveals both shared ground and interesting distinctions in how English pedagogy Teacher Traineesof secondary level from private and government-aided institutions prioritize Techno-Pedagogical skills (Mishra & Koehler, 2006). Both groups emphasize integrating technology into lesson plans to enhance student engagement and learning (Item 12) (Voogt *et al.*, 2013), fostering collaborative learning environments through online platforms (Item 13), and utilizing technology directly in the classroom (Items 4 & 2). Additionally, both acknowledge the importance of user-friendliness when learning technology (Item 1) and leveraging digital resources to supplement traditional textbooks (Item 14). This focus on core Technological Pedagogical skills and supplementary materials suggests a shared understanding of technology's potential to transform teaching and learning in English language education.

However, there are also diverging priorities. Private institution English pedagogy Teacher trainees of secondary level prioritize problem-solving using ICT tools (Item 4) and staying updated on the latest advancements in technology (Item 3). This focus on technical skills and keeping pace with innovation might reflect access to resources and a potentially more progressive pedagogical approach often associated with private institutions (Moeller & Mishra, 2008).

In contrast, government-aided institution English pedagogy Teacher trainees of secondary level show a stronger interest in utilizing digital platforms for assignments and project work (Item 16). This focus on assessment and project-based learning could be influenced by factors such as larger class sizes or a curriculum that emphasizes these evaluation methods in government-aided institutions (Chatterjee, 2008).

These differences may stem from variations in teaching contexts, resource availability, and institutional priorities. It's important to note that these are generalizations, and individual educators may not always conform to these trends. Nevertheless, understanding these variations can inform professional development programs to better cater to the specific needs and priorities of English pedagogy Teacher trainees of secondary level in both private and government-aided institutions.

Objective 2: To identify the most important factors of Techno- Pedagogical skills among Male and Female English pedagogy Teacher Trainees of the secondary level.

Table 2: Factor Analysis-Identifying the most important factors of Techno-Pedagogical skills among Male and Female English pedagogy Teacher Trainees of the secondary level

Gender	Male	Female
KMO & Bartlett 's test	. 450 ($p<0.05$)	.522 ($p<0.05$)
% of variance of 1st component	29.693%	30.793%
Items Covered	25. I use technology to understand the needs of organically discrepant learners in the class. 30. I emphasize using technology and online platforms to teach people who are not able to get formal education. 24. I utilize technology to enhance the guidance and counselling process within the class. 20. I use technology to enhance the communication skills of my students. 27. I use technology to teach slower learners in the class, making complex concepts more accessible to them. 14. I leverage e-books and online resources to supplement traditional textbooks, offering students access to up-to-date information and multimedia content.	12. I integrate technology into my lesson plans to enhance student engagement and learning outcomes. 1. Learning technology is easy for me. 4. I know how to solve technical problems using ICT tools. 2. I use technology (Smartboard, PPTs, etc.) in the classroom. 13. I adapt online platform tools to facilitate collaborative learning environments that foster student student-centred approach. 3. I enjoy exploring and adapting to the latest advancements in technology. 15. I might utilise technology for certification purposes. 8. I collaborate with colleagues to share best practices and innovative strategies for integrating technology into instruction. 5. I can use technology to solve problems faced by me.

An analysis of Table 2 reveals both shared ground and intriguing distinctions in how Male and Female English pedagogy Teacher trainees of secondary level prioritize Techno-Pedagogical skills (Mishra & Koehler, 2006). While both acknowledge the value of technology in education, their specific areas of focus diverge. Male English pedagogy teacher trainees of secondary level demonstrate a stronger emphasis on utilising technology to address the diverse needs of learners in the classroom (Items 25, 27) and promoting educational accessibility (Item 30), which aligns with research suggesting men in education may gravitate towards fostering inclusive environments (Wang *et al.,* 2018). Additionally, they show interest in leveraging technology for guidance and counselling purposes (Item 24) and supplementing traditional textbooks with e-books and online resources (Item 14). This focus on support and supplementary materials might reflect a more conservative approach to pedagogical change (Aksu & Balkanyurt, 2018).

In contrast, English pedagogy Female Teacher trainees of secondary level prioritize integrating technology directly into lesson plans to enhance student engagement and learning outcomes (Item 12) (Voogt *et al.,* 2013). They demonstrate a stronger interest in fostering collaborative learning environments through online platforms (Item 13) and collaborating with colleagues on technology integration (Item 8). This focus on collaboration aligns with research suggesting women in education may favour collaborative learning styles (OECD, 2015). Additionally, they express a preference for staying updated on the latest advancements in technology (Item 3) and using technology for instruction (Items 2 & 4). This suggests a more progressive approach to pedagogy, emphasizing keeping pace with technological developments and integrating them directly into teaching practices (Aksu & Balkanyurt, 2018).

These differences may stem from distinct teaching styles or priorities within the context of English pedagogy. Male English pedagogy teacher trainees of secondary level might lean towards catering to diverse needs and offering additional support, while female English pedagogy teacher trainees might favour fostering collaboration and using technology as a key instructional tool. It's important to remember that these are generalizations, and individual educators may not always conform to these trends. Nevertheless, understanding these variations through a gender lens can inform professional development programs to better cater to diverse teaching styles and priorities within secondary-level English language education.

Objective 3: To identify the most important factors of Techno-Pedagogical skills among Urban and Rural English pedagogy Teacher Trainees of the secondary level.

Table 3: Factor Analysis-Identifying the most important factors of Techno-Pedagogical skills among Urban and Rural English pedagogy Teacher Trainees of the secondary level

Gender	Male	Female
Gender	Urban	Rural
KMO & Bartlett 's test	. 439 ($p<0.05$)	.506 ($p<0.05$)
% of variance of 1st component	29.422%	32.557%
Items Covered	12. I integrate technology into my lesson plans to enhance student engagement and learning outcomes. 1. Learning technology is easy for me. 4. I know how to solve technical problems using ICT tools. 2. I use technology (Smartboard, PPTs, etc.) in the classroom. 13. I adapt online platform tools to facilitate collaborative learning environments that foster student student-centred approach. 15. I might utilise technology for certification purposes. 3. I enjoy exploring and adapting to the latest advancements in technology. 5. I can use technology to solve problems faced by me.	1. Learning technology is easy for me. 15. I might utilise technology for certification purposes. 12. I integrate technology into my lesson plans to enhance student engagement and learning outcomes. 2. I use technology (Smartboard, PPTs, etc.) in the classroom. 4. I know how to solve technical problems using ICT tools.

An analysis of Table 3 reveals both shared and distinct Techno-Pedagogical skill priorities between Urban and Rural Teacher Trainees of English pedagogy of secondary level. There seems to be common ground on the importance of user-friendliness, as evidenced by their focus on the ease of learning technology (Item 1) (Koehler & Mishra, 2006). Additionally, both groups value the practical application of technology in the classroom (Item 2) and its potential to enhance student engagement and learning (Item 12) (e.g., [Voogt *et al.,* 2013]). Furthermore, both recognize the importance of problem-solving using technology tools (Item 4), aligning with research highlighting this as a core TPACK competency, as also suggested by Brush & Dwyer, (2017).

However, interesting divergences emerge when examining their specific interests. Urban Teacher trainees of English pedagogy of secondary level demonstrate a stronger focus on keeping pace with technological advancements (Item 3) and utilizing online platforms to foster collaborative learning environments (Item 13). This suggests a comfort level with exploring new technologies and leveraging them for broader pedagogical goals, potentially reflecting their access to better resources and professional development opportunities. This conclusion is similarto the findings of Moeller & Mishra (2008).

In contrast, Rural Teacher trainees of English pedagogy of secondary level prioritize a more practical focus on solving technical problems with ICT tools (Item 4). This emphasis may stem from the need to address immediate technological challenges faced in rural settings with potentially limited resources. A similar conclusion was drawn by Mohatt & Rideout (2006).

These findings highlight the importance of considering context when examining Techno-Pedagogical skills development. While both urban and rural teacher trainees of English pedagogy of secondary level value technology integration, their priorities are shaped by factors such as access to resources, teaching contexts, and professional development opportunities. Addressing these disparities is crucial to ensure all teacher trainees of English pedagogy of secondary level have the skills to leverage technology effectively for improved learning outcomes in diverse settings.

Conclusion

The present study identified the most significant factors of Techno-Pedagogical skills among Teacher Trainees of English pedagogy of secondary level and revealed valuable insights into the priorities and emphases within different contexts.

Firstly, when comparing Private and Government-aided institutions, it is evident that both prioritize integrating technology into lesson plans, utilizing online platforms for collaborative learning, and using technology in the classroom. However, Private institution teacher trainees show additional focus on problem-solving using ICT tools and exploring technology advancements, whereas Government-aided institution teacher trainees express a preference for digital platforms for assignments and project work.

Secondly, the analysis of Male and Female Teacher trainees' Technological Pedagogical skills illustrates notable differences in emphasis. Male teacher trainees focus more on addressing the needs of diverse learners and utilizing technology for guidance and counselling, while female teacher trainees prioritize integrating technology into instructional practices and fostering collaborative learning environments.

Lastly, the comparison between Urban and Rural Teacher trainees reveals commonalities in prioritizing certain Technological Pedagogical skills, such as the ease of learning technology and integrating technology into lesson plans. However, urbanteacher trainees demonstrate a broader interest in exploring and adapting to technology advancements, while ruralteacher trainees emphasize practical problem-solving using ICT tools.

These findings highlight the importance of considering contextual factors when designing professional development programs and support initiatives for English pedagogy Teacher Trainees of the secondary level. Tailoring interventions to address specific needs and priorities within different contexts can enhance the effectiveness of technology integration efforts in English pedagogy at the secondary level.

Educational Implications

Based on the results and conclusion, the following educational implications can be put forth-

- Customize training programs for Teacher Educators based on their institutional context, gender, and urban or rural setting to address specific Technological Pedagogical skill priorities effectively.
- Equip educators with skills to support diverse learners by leveraging technology to address individual learning needs and foster inclusive learning environments.
- Promote the use of digital tools for collaborative learning, encouraging educators to share best practices and innovative strategies to enhance

student engagement and achievement.

- Provide training on troubleshooting technical issues and integrating technology seamlessly into instruction to enhance educators' problem-solving abilities using ICT tools.
- Facilitate ongoing professional development opportunities for educators to stay current with technological advancements and trends, ensuring they remain effective in their roles.
- Ensure equitable access to technology resources and infrastructure, particularly in rural areas, to bridge the digital divide and promote equitable education opportunities for all students.

References

Aksu, A., & Balkanyurt, S. (2018). Gender differences in Turkish EFL teachers' technology adoption beliefs and technology integration practices. *International Journal of Educational Techno-logy in Higher Education,* 15(1), 1-22.

Brush, T., & Dwyer, C. (2017). Developing pre-service teachers' TPACK through problem-based learning. *Journal of Educational Technology Development and Exchange (JETDE),* 10(2), 1-13.

Chatterjee, S. (2008). Comparing public and private schools in India: A review of the literature. *Comparative Education,* 44(2), 199-222.

Koehler, M.J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education,* 9(1), 60-70.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: Framing an agenda for research and practice. *The Journal of Learning Sciences,* 15(3), 305-342.

Moeller, A. N., & Mishra, P. (2008). Preparing teachers for a digital world: A review of teacher education programs. *Journal of Technology and Teacher Education,* 16(1), 47-67.

Mohaett, G. V., & Rideout, V. L. (2006). Rural schools and educational technology: Reviewing the research. *Journal of Research on Rural Education,* 17(3), 343-372.

OECD. (2015). The ABC of gender equality in education: Applying a holistic approach.

Shulman, L.S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review,* 57(1), 1-22.

Voogt, J., Dede, C., & Ramanathan, S. (2013). Learning with technology: A critical review of theoretical and pragmatic perspectives. *Journal of Computer Assisted Learning,* 29(3), 263-291.

Wang, M., Zhu, C., & Wang, X. (2018). Gender differences in secondary school teachers' perceived self-efficacy for inclusive education practices in China. *Educational Psychology,* 38(3), 545-562.

An Evaluation of the Effectiveness of Self-Help Groups in Fostering Self-Reliance, Self-Confidence and Decision-Making Capacity among Women

*Kumari Jyoti, **Dr. Rajesh Ekka

Abstract

The present paper investigates the effectiveness of self-help groups in fostering self-reliance, self-confidence, and decision-making capacity among women in Bihar. This study aims to focus on the impact of self-reliance on the socio-economic empowerment of women in SHGs. The present paper also studied the impact of self-confidence and decision-making capacity on self-reliance.

The research was conducted through survey research under descriptive research design. The data collection involved administering questionnaires to 641 SHG women from Kaimur, Samastipur, and Saharsa districts in Bihar, utilizing purposive and multi-stage random sampling techniques. The data was analyzed using the following statistical tests- frequency analysis, exploratory factor analysis, chi-square analysis, correlation analysis, and multiple linear regression analysis.

Results indicated that Saharsa district has the highest level of self-confidence, decision-making capacity, and self-reliance of women followed by Samastipur and Kaimur. Further, both self-confidence and decision-making capacity were positively shaping the self-reliance of participants. These findings inform strategies for enhancing the socio-economic empowerment of marginalized women through self-help initiatives, emphasizing the importance of bolstering self-confidence, decision-making capacity and self-reliance among women.

Introduction

The Government of Bihar (GoB), operating through the Bihar Rural Livelihoods Promotion Society (BRLPS), an autonomous entity under the Department of Rural Development, is leading the World Bank-assisted Bihar Rural Livelihoods Project (BRLP), commonly referred to as JEEViKA. The project aims at fostering social and economic empowerment among the rural impoverished populace.

The specific objective of this initiative is to facilitate 44,100 Self-Help Groups (SHGs) comprised of economically disadvantaged households to establish and manage a microfinance portfolio amounting to Rs. 285.47 crores. This portfolio includes cumulative group savings of Rs. 34.30 crores, accumulated interest earnings of Rs. 26 crores, cumulative loans obtained from commercial banks totalling Rs. 51.40 crores and a cumulative community investment fund of Rs. 174 crores. This objective will be accomplished through the establishment, growth, and support of microfinance activities within a framework of self-governed community-based organizations, with SHGs serving as the foundational element. (*Source:* https://brlps.in/socialdevelopment)

Integration of Existing SHGs As part of the social mobilization efforts, an extensive evaluation of pre-existing SHGs facilitated by various government line departments and non-governmental organizations (NGOs) will be conducted. By the Community Operation Manual, eligible SHGs will be identified for integration into the project. When necessary, Memorandums of Understanding (MoUs) will be established with NGOs to facilitate this process. However, a key principle guiding this endeavour will be the inclusion of SHGs primarily composed of poor households (at least 80% membership from impoverished backgrounds) into the project framework. (*Source:* https://brlps.in/socialdevelopment)

Facilitation of Self-Help Groups The promotion of SHGs among economically disadvantaged communities will be facilitated through the application of 'affinity' and 'neighbourhood' concepts, leveraging the expertise of

* Research Scholar, Department of Education, Babasaheb Bhimrao Ambedkar University, Lucknow.
** Assistant Professor, Department of Education, Babasaheb Bhimrao Ambedkar University, Lucknow.

community resource persons and frontline staff. Given the substantial task of mobilizing impoverished individuals into SHGs, the involvement of multiple stakeholders will be solicited. Priority will be accorded to vulnerable groups such as Scheduled Castes (SCs), Scheduled Tribes (STs), landless individuals, migrant labourers, marginalized communities, households headed by single women, and individuals with disabilities during the mobilization process. (*Source:* https://brlps.in/socialdevelopment)

Empowering women, particularly those belonging to marginalized communities, is a cornerstone of sustainable development efforts worldwide. In the pursuit of women's empowerment in India, Self Help Groups (SHGs) have emerged as a promising avenue. SHGs, primarily comprising rural women, offer microcredit and support for entrepreneurial ventures, aiming to foster financial independence and flexible work arrangements conducive to household needs. (Singh, S. & Shukla, S.K., 2022).

In Bihar, India, where socio-economic disparities persist, Self-Help Groups (SHGs) have emerged as a vital platform for women's empowerment. These groups provide opportunities for women to pool resources, access financial services, and engage in collective decision-making processes, thereby enhancing their socio-economic status and fostering self-reliance (Husain, Z., & Dutta, M., 2023). However, the effectiveness of SHGs in promoting women's empowerment hinges upon various individual and contextual factors (Pankaj, A., 2020), including self-confidence and decision-making capacity.

Self-confidence plays a crucial role in shaping women's perceptions of their capabilities and agency. Women with higher levels of self-confidence are more likely to assert themselves, pursue opportunities, and navigate challenges effectively, thereby fostering greater self-reliance. SHGs provide a platform for women to develop and hone their decision-making skills through participatory processes, thereby enhancing their self-reliance and contributing to community development initiatives. In light of these considerations, this study seeks to explore the influence of self-confidence and decision-making capacity on the self-reliance of SHG women in Bihar. By examining these factors within the socio-economic and cultural context of Bihar, the study aims to provide valuable insights into the dynamics of women's empowerment and inform evidence-based interventions to enhance the self-reliance of SHG women in the region. Through rigorous analysis and empirical findings, this research endeavours to contribute to the ongoing efforts to promote gender equality and inclusive development in Bihar's SHG communities.

Literature Review

The study conducted by Sarkar, Karim, and Banu (2023) reveals that woman engaging in Self-Help Groups (SHGs) experience significant empowerment across various dimensions. This empowerment encompasses enhancements in self-confidence, self-identity, leadership skills, communication abilities, and decision-making aptitude. Cheek and Corbett (2024) emphasize the pivotal role of public decision-making by women's SHGs in challenging prevailing patriarchal norms. Navas (2015) presents empirical evidence indicating that SHG membership facilitates easier access to credit, driven by peer pressure dynamics and group savings acting as collateral. While members exhibit advancements in decision-making, mobility, and self-esteem, disparities persist in income/assets control and awareness levels. Kumar and Kumar (2022) demonstrate that SHG participation correlates with higher levels of women's empowerment, as evidenced by increased loan utilization for business purposes among SHG members compared to non-members.

Kumar, Suar, and Mishra (2018) claimed that factors such as diversity in member characteristics, adherence to group norms, trust in financial transactions, and leadership styles significantly contribute to group effectiveness. Dave and Vasavada (2022) provide an overview of the socio-economic empowerment facilitated by SHGs in India, with a focus on Gujarat. Their review highlights the substantial role played by SHGs in empowering women socially and economically, particularly among the poor. Kumar and Nayak (2021) indicate improvements in household income, expenditure, savings, self-confidence, decision-making abilities, and access to healthcare among SHG members in the Mayurbhanj district. Nayak and Panigrahi (2020) reveal that increased participation in SHGs correlates with enhanced economic, social, and political empowerment among women, with moderating effects from socioeconomic status and place of operation. Mallick *et al.* (2020) found the positive impact of SHGs on various aspects of women's empowerment, including savings habits, profit levels, asset creation, social consciousness, and decision-making skills.

The research conducted by Paramasivam (2022) revealed significant enhancements in various dimensions of empowerment among SHG members, including psychological, financial, familial, and technological aspects. Maina (2020) highlighted a positive impact on women's self-confidence, social networks, credit access, and income levels due to SHG participation. Rafi *et al.* (2021) revealed medium-level empowerment perceived by SHG members, particularly in terms of social recognition, self-employment opportunities, and savings habits. Were & Kimaru-Muchai, 2021)'s study revealed that SHGs effectively utilize group savings to provide credit access to vulnerable women, thereby empowering them economically. Additionally, leadership experiences within SHGs positively influence women's decision-making abilities and confidence, contributing to their overall empowerment. Similarly, Yibeltal, (2023) revealed that participation in SHGs motivates women to engage in income-generating activities and access loans, leading to improved financial independence.

Moreover, a study by Midya *et al.* (2021) highlighted that SHGs offer self-directed learning opportunities, enabling women to enhance their skills and achieve higher social status. Furthermore, research focusing on decision-making within SHGs suggests that women's participation contributes to increased involvement in household decision-making processes (Padmaja *et al.,* 2023). Murry, (2020) identified a significant positive association between the overall perception score of SHG participants and personal variables such as age, years of experience in SHGs, and educational qualifications.

Rationale and Need of the Study

Empowering Self-Help Group (SHG) women in Bihar is crucial for fostering socio-economic development and gender equality in the region. By exploring the influence of self-confidence and decision-making capacity on self-reliance among SHG women, this study addresses critical gaps in understanding and promoting women's empowerment in Bihar.

Enhancing self-confidence enables women to assert their rights, voice opinions, and actively participate in economic activities. Improving decision-making capacity promotes autonomy, economic independence, and resilience against socio-economic vulnerabilities. This study provides actionable insights for policymakers and development practitioners to empower SHG women, leading to transformative changes in gender relations and sustainable development in Bihar.

Objectives of the study

- To identify the most important factors of Self-Reliance of SHG women in Bihar.
- To find the association between the District of respondents and variables- Self-confidence, Decision-making capacity & Self-reliance.
- To evaluate the impact of Self-confidence and Decision-making capacity (IVs) on Self-reliance (DV) of respondents.

Delimitation of the study

- The study is delimited to three districts of Bihar respectively Kaimur, Samastipur, Saharsa.

Research Methodology

The methodology employed in this study includes the following key elements:

Research Design: The study is a survey research design under descriptive research design.

Data Type & Source: Primary data is predominantly utilized, and gathered through structured questionnaires having a 5-point rating scale.

Population & Sampling: The accessible population comprises SHG women in three selected districts of Bihar: Kaimur, Samastipur, and Saharsa. Purposive and multi-stage random sampling techniquesare employed to select SHG women from these districts.

Sample Size: The study encompasses 641 Self-Help Group (SHG) women in Bihar.

Tool used in the study

The researcher used self-constructed rating scale namely the effectiveness scale of SHG in promoting self-reliance among women.

Scoring: There were 15 items to measure **Self-reliance and its two dimension**–Self-confidence (6 items) and Decision-making capacity (9 items). All the scores of items were added to calculate the total scores, which were divided by 5 to obtain the class interval. The value of the class interval was added to the minimum score to find the very low level; and the same procedure was repeated 4 more times to get the criteria of low level, moderate level, high level and very high level. The entire data was re-coded as per criteria to form five classes of levels **Self-reliance,** Self-confidence and Decision-making capacity.

Field Work: Data collection occurred during January and February 2024, involving reaching out to nearly 1000 respondents. Consent was obtained from participants, resulting in 641 usable questionnaires for data analysis after the cleaning process.

Statistical Tests & Tools: Data analysis involved frequency analysis, exploratory factor analysis, chi-square analysis, correlation analysis, and multiple linear regression analysis using SPSS version 25.

Data Analysis and Interpretation

Demographic Profile of Respondents

The demographic profile of 641 SHG women in Bihar reveals several key insights. In terms of district distribution, Kaimur, Samastipur, and Saharsa represent 35.9%, 32.8%, and 31.4% of the sample respectively. Regarding age, the majority of SHG women fall within the 31 to 40 years category, constituting 42.3%, followed by 25.1% in the 41 to 50 years group. Moreover, Hinduism is the dominant religion among SHG women, with 85.8%, while Muslims account for 14.2% of the sample.

Concerning caste, a significant proportion of SHG women belong to Scheduled Castes (SC), comprising 42.6%, followed by Other Backward Classes (OBC) at 34.8%. Additionally, most SHG women speak Bhojpuri (50.2%), followed by a combination of Hindi and Bhojpuri (34.9%). Marital status indicates that the vast majority of SHG women are married (94.2%), while widowed women constitute a smaller proportion (5.8%).

In terms of educational qualification, a majority of SHG women have received primary education (55.4%), followed by secondary education (34.3%). A smaller percentage holds higher secondary education (3.3%) or graduation (5.0%), while 2.0% fall into the "Others" category. This demographic profile provides valuable insights into the characteristics and diversity of SHG women in Bihar, which are essential for designing targeted empowerment interventions.

Factor Analysis: Identifying the most important factors of Self-Reliance of women in Kaimur, Samastipur and Saharsa.

The data is adequate as the KMO measure of Sampling Adequacy is 0.830 and also there is enough correlation between the variables (0.000) to proceed with the analysis.

Table 1: Factor Analysis

Compo-nent	% of Variance Explained	Variables
1	27.832	V15. I get nervous very quickly when any problem arises. V3. I can go out alone. V6. I have full confidence in my abilities and efforts. V2. I have to get help from others to get things done.
2	9.421	V9. I have the right to make decisions in the selection of a life partner. 8V. I have the right to decide the size of the family.
3	8.561	V11. I have the right to make decisions regarding children's marriage. V10. I have the right to make decisions regarding children's education. V12. I don't have to ask permission from my family to participate in social events.
4	7.196	V15. I am free to spend my own money. V7. I have the right to decide about buying jewellery. V1. I face all the challenges of my life with a positive attitude. V4. I am comfortable in having conversations with strangers.
5	6.784	V13. I have to get the permission of my family to meet my parents. V14. I am free to meet my friends and relatives.

Interpretation- Based on the initial eigenvalues less than 1 or equal to 1, output has identified 5 linear components explaining 27.832%, 9.421%, 8.561%, 7.196% & 6.784% of the variance respectively by each component. As evident, component 1 explains the highest percentage of variance among all 5 components, therefore it is the most important component. Further, the table also lists the important variables within each component. The most important variables of self-reliance for the women respondents are:

1. V5. I get nervous very quickly when any problem arises.
2. V3. I can go out alone.
3. V6. I have full confidence in my abilities and efforts.
4. V2. I have to get help from others to get things done.

Chi-Square Analysis: Association between District of respondents and variables- Self-confidence, Decision-making capacity & Self-reliance.

- **H_0 1:** There is no significant association between Self- confidence of respondents across the districts.

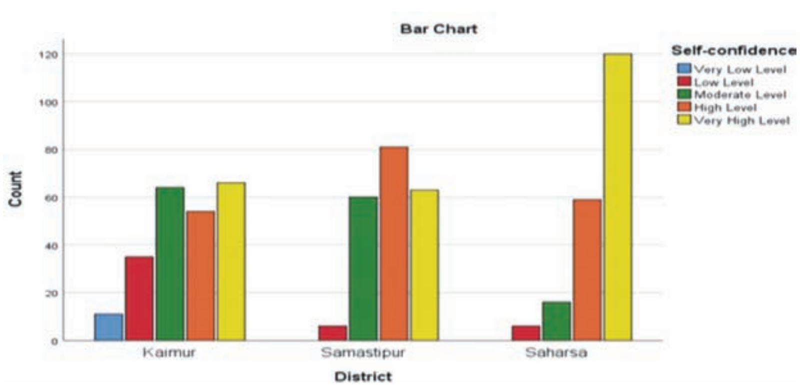
Table-2 Crosstab: District * Self-confidence and Chi-Square Tests

Crosstab			Self-confidence					Total
			VLL	LL	ML	HL	VHL	
District	Kaimur	Count % within	11 4.8%	35 15.2%	64 27.8%	54 23.5%	66 28.7%	230 100.0%
	Samastipur	Count % within	0 0.0%	6 2.9%	60 28.6%	81 38.6%	63 30.0%	210 100.0%
	Saharsa	Count % within	0 0.0%	6 3.0%	16 8.0%	59 29.4%	120 59.7%	201 100.0%
Chi-Square Tests								
	Value	Df	Asymptotic Significance (2-sided)					
Pearson Chi-Square	117.115[a]	8	.000					

Interpretation-

- **Kaimur district:** Out of a total of 230 respondents, 28.7% have a very high level of self-confidence, 23.5% have a high level, 27.8% have a moderate level, 15.2% have a low level and 4.8% have a very low level of self-confidence.
- **Samastipur district:** Out of a total of 230 respondents, 30.0% have a very high level of self-confidence, 38.6% have a high level, 28.6% have a moderate level, 2.9% have a low level and 0.0% have a very low level of self-confidence.
- **Saharsa district:** Out of a total of 230 respondents, 59.7% have a very high level of self-confidence, 29.4% have a high level, 8.0% have a moderate level, 3.0% have a low level and 0.0% have a very low level of self-confidence.

Further, the Chi-Square test indicates the difference inself-confidence levels of the women of the three districts, as the p-value is less than 0.05. Therefore, H_0 1 is rejected.



- **H_0 2:** There is no significant association between the decision-making capacity of respondents across the districts.

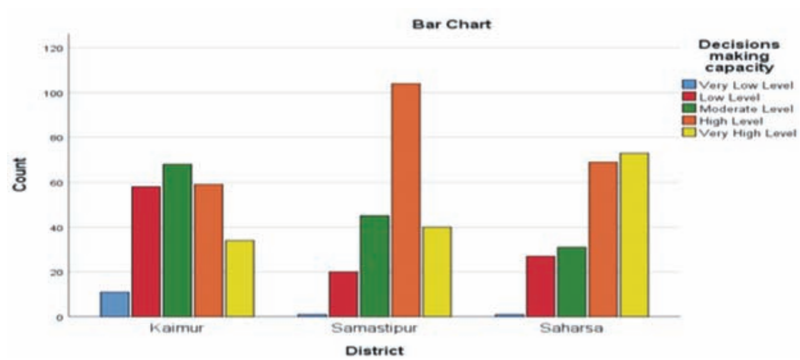
Table-3 Crosstab: District * Decisions making capacity and Chi-Square Tests

Crosstab			Decisions making capacity					Total
			VLL	LL	ML	HL	VHL	
District	Kaimur	Count % within	11 4.8%	58 25.2%	68 29.6%	59 25.7%	34 14.8%	230 100.0%
	Samastipur	Count % within	1 0.5%	20 9.5%	45 21.4%	104 49.5%	40 19.0%	210 100.0%
	Saharsa	Count % within	1 0.5%	27 13.4%	31 15.4%	69 34.3%	73 36.3%	201 100.0%
Chi-Square Tests								
	Value	df	Asymptotic Significance (2-sided)					
Pearson Chi-Square	82.490[a]	8	.000					

Interpretation-

- **Kaimur district:** Out of a total of 230 respondents, 14.8% have a very high level of Decision-making capacity, 25.7% have a high level, 29.6% have a moderate level, 25.2% have a low level and 4.8% have a very low level of decisions making capacity.
- **Samastipur district:** Out of a total of 210 respondents, 19.0% have a very high level of Decision-making capacity, 49.5% have a high level, 21.4% have a moderate level, 9.5% have a low level and 0.5% have a very low level of decisions making capacity.
- **Saharsa district:** Out of a total of 201 respondents, 36.3% have a very high level of Decision-making capacity, 34.3% have a high level, 15.4% have a moderate level, 13.4% have a low level and 0.5% have a very low level of decisions making capacity.

The result of the Chi-Square test indicates that the p-value (0.000) is less than 0.05, signifying the difference in the decision-making capacity of the women of the three districts, therefore, $H_0 2$ is rejected.



- **H_0 3:** There is no significant association between the Self-reliance of respondents across the districts.

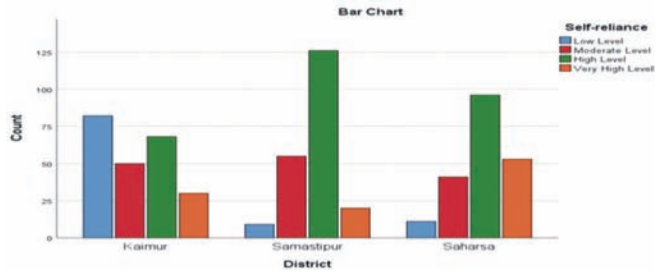
Table-4 Crosstab: District * Self-reliance and Chi-Square Tests

Crosstab			Self-reliance				Total
			LL	ML	HL	VHL	
District	Kaimur	Count % within	82 35.7%	50 21.7%	68 29.6%	30 13.0%	230 100.0%
	Samastipur	Count % within	9 4.3%	55 26.2%	126 60.0%	20 9.5%	210 100.0%
	Saharsa	Count % within	11 5.5%	41 20.4%	96 47.8%	53 26.4%	201 100.0%
Chi-Square Tests							
	Value	Df	Asymptotic Significance (2-sided)				
Pearson Chi-Square	132.673[a]	6	.000				

Interpretation-

- **Kaimur district:** Out of a total of 230 respondents, 13.0% have a very high level of Self-reliance, 29.6% have a high level, 21.7% have a moderate level and 35.7% have a low level of self-reliance.
- **Samastipur district:** Out of a total of 210 respondents, 9.5% have a very high level of Self-reliance, 60.0% have a high level, 26.2% have a moderate level and 4.3% have a low level of self-reliance.
- **Saharsa district:** Out of a total of 201 respondents, 26.4% have a very high level of Self-reliance, 47.8% have a high level, 20.4% have a moderate level and 5.5% have a low level of self-reliance.

The result of the Chi-Square test indicates that the p-value (0.000) is less than 0.05, signifying the difference in the self-reliance of the women of the three districts, therefore, $H_0 3$ is rejected.



Correlation Analysis: Relationship between Self-reliance, Self-confidence and Decision-making capacity of respondents.

Table-5 Correlation

Correlation between Self-reliance, Self-confidence and Decision-making capacity		
Variables	Self-confidence	Decisions making capacity
Self-reliance	.737*	.837*
*Correlation is significant at 0.001 level of significance		

Interpretation- It can be seen that Self-confidence (.737) and Decision-making capacity (.837) have a positive and significant relationship with the self-reliance of respondents.

Multiple Regression Analysis: Impact of Self-confidence and Decision-makingCapacity (IVs) on Self-reliance (DV) of respondents.

- **H_0 1:** There is no significant impact of self-confidence on Self-reliance and of respondents.
- **H_0 2:** There is no significant impact of Decision-making capacity on Self-reliance and of respondents.

In the model, the value of R^2 is 0.880 which indicates that 88.0% of variance in the DV is explained by IVs. Further, the p-value associated with the F value comes out to less than 0.005 which means that the IV reliably predicts the DV.

Table-6: Coefficients

Coefficients								
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	-.105	.057		-1.854	.064			
Self-confidence	.427	.014	.468	31.001	.000	.737	.775	.424
Decisions making capacity	.560	.013	.640	42.406	.000	.837	.859	.581
a. Dependent Variable: Self-reliance								

Interpretation- The value ofStandardized beta Coefficients is positive with .468 and .640 values in the case of Self-confidence and Decision-making capacity respectively. It indicates that with one unit increase in the standard deviation of Self-confidence and Decision-making capacity, the standard deviation of Self-reliance will increase by their respective values. Further, the p-value is less than 0.005 in the case of both variables, therefore it can be concluded that Self-confidence and Decision-making capacity have a positive and significant impact on the self-reliance of respondents. Therefore H_0 1 & H_0 2 are rejected.

Conclusion and Discussion

The analysis conducted in this study sheds light on several key aspects related to the self-reliance of Self-Help Group (SHG) women in Bihar, focusing specifically on the influence of self-confidence and decision-making capacity. Factor analysis revealed five significant components, with the first component explaining the highest variance, suggesting its utmost importance in understanding self-reliance.

The factors identified in this study provide a valuable understandingof the determinants of self-reliance among Self-Help Group (SHG) women in Bihar. Among the key variables analyzed, self-confidence emerges as a crucial determinant, with respondents expressing full confidence in their abilities and displaying higher levels of self-reliance. Conversely, reliance on others for tasks and experiencing nervousness during problem-solving situations were associated with lower levels of self-reliance. Additionally, the ability to go out alone demonstrated a positive influence on self-reliance, suggesting a sense of independence and agency among respondents. These findings highlight the importance of fostering self-confidence and autonomy among SHG women to enhance their self-reliance and overall empowerment within the socio-economic context of Bihar.

The results further highlighted significant associations between districts and variables related to self-confidence, decision-making capacity, and self-reliance, indicating regional disparities in these factors. Regarding self-confidence, the findings showcased varying levels across districts, with Saharsa district demonstrating notably higher levels compared to Kaimur and Samastipur. Similarly, decision-making capacity exhibited distinct patterns across districts, emphasizing the nuanced socio-economic contexts influencing SHG women's empowerment.

Importantly, both self-confidence and decision-making capacity were found to significantly impact self-reliance. It indicates that increases in self-confidence and decision-making capacity correspond to higher levels of self-reliance among respondents. These results emphasize the pivotal role of self-confidence and decision-making capacity in fostering self-reliance among SHG women.

Overall, the findings contribute valuable insights into the dynamics of self-reliance among SHG women in Bihar, emphasizing the need for targeted interventions to enhance self-confidence and decision-making capacity. By addressing these factors, policymakers and practitioners can empower marginalized women, fostering greater autonomy and socio-economic empowerment within self-help initiatives. This study serves as a foundation for future research and programmatic efforts aimed at promoting gender equality and inclusive development in Bihar and beyond.

Recommendations

Based on the findings of this study, the following recommendations are proposed to enhance the self-reliance and empowerment of Self-Help Group (SHG) women in Bihar :

1. Implement programs aimed at boosting self-confidence among SHG women through workshops, training sessions, and mentorship programs. Emphasize the importance of self-belief and positive affirmations in overcoming challenges and pursuing goals.

2. Offer training sessions focused on enhancing decision-making skills among SHG women, providing them with the tools and knowledge necessary to make informed choices regarding their personal and professional lives. Encourage autonomy and independence in decision-making processes.

3. Recognize the regional disparities in self-confidence and decision-making capacity among SHG women across districts. Develop targeted interventions that take into account the specific socio-economic contexts and cultural nuances of each region.

4. Collaborate with local organizations, government agencies, and community leaders to implement comprehensive empowerment programs for SHG women. Pool resources and expertise to create holistic interventions that address multiple facets of empowerment.

5. Establish support networks and peer mentorship programs for SHG women to exchange knowledge, share experiences, and offer emotional support. Facilitate networking opportunities to strengthen social bonds and foster a sense of community among participants.

6. Offer financial literacy training to equip SHG women with the skills and knowledge needed to manage their finances effectively. Guide budgeting, savings, and investment strategies to promote financial independence and security.

7. Implement robust monitoring and evaluation mechanisms to assess the effectiveness of empowerment programs in enhancing the self-reliance of SHG women. Collect feedback from participants and stakeholders to identify areas for improvement and ensure the sustainability of interventions over time.

References

Cheek, J.Z., & Corbett, P. E. (2024). Public Decision Making by Women's Self-Help Groups and Its Contributions to Women's Empowerment: Evidence from West Bengal, India. *World Development Perspectives,* 33, 100549.

Dave, V., & Vasavada, M. (2022). Socio-Economic Empowerment of Self-Help Group Women in India with Special Reference to Gujarat: An Overview. *International Journal of Innovations & Research Analysis,* 101-108.

Husain, Z., & Dutta, M. (2023). Impact of Self Help Group membership on the adoption of child nutritional practices: Evidence from JEEViKA's health and nutrition strategy programme in Bihar, India. *Journal of International Development,* 35(5), 781-799.

https://brlps.in/socialdevelopment, accessed on 12-03-2024 at 2:37 PM

Kumar, C.R., & Nayak, C. (2021). Women Empowerment through Self Help Groups in Odisha: A Micro Evidence from Mayurbhanj District. *Indian Journal of Economics and Development,* 17(2), 350-360.

Kumar, Naveen, & Kumar, Atul. (2022). Comparative study of effects of Self Help Groups on women empowerment-Evidence of JEEViKA. *Jindal Journal of Public Policy,* 6(1), 106-125. ISSN 2277-8743.

Kumar, R., Suar, D., & Mishra, P. (2018). Characteristics for the Effectiveness of Women's Self-Help Groups in Bihar. *International Journal of Voluntary and Nonprofit Organizations.*

Maina, P. (2020). Influence of participation in self-help groups on the socio-economic empowerment of women in Tigania west sub-county, Meru County, Kenya (Doctoral dissertation, Egerton University).

Mallick, D., Sagar, I., Patel, K., SRF, I.R., Shrivastava, C., Anand, H., & Jena, S. (2020). Impact of Self-Help Groups in Women's Overall Decision Making. *International Journal of Engineering Applied Sciences and Technology,* Vol. 4, Issue 12, ISSN No. 2455-2143, Pages 598-602.

Midya, D.K., Hota, A., & Das, A. (2021). Empowerment of Women through Self Help Group: SHG participants' perception about enhancement of their capacity. *Journal of the Indian Anthropological Society,* 56, 109-126.

Murry, N. (2020). Assessment of self-help groups and their impact on tribal women in Nagaland.

Navas, N.G.M. (2015). Self-Help Groups in India: A Tool for Empowering Rural Women and Eradicating Poverty? (Doctoral dissertation, Wageningen University (The Netherlands)).

Nayak, A. K., & Panigrahi, P. K. (2020). Participation in Self-Help Groups and Empowerment of Women: A Structural Model Analysis. *The Journal of Developing Areas,* 54(1).

Padmaja., S.S., Srinivasa., K.A., Trivedi., P. & Srinivas, P. (2023). Women self-help groups and intra-household decision-making in agriculture. *Annals of Public and Cooperative Economics.* https://doi.org/10.1111/apce.12442, Accessed on 12.03.2024 at 4.31 PM.

Pankaj, A. (2020). Jeevika, women and rural Bihar: Cultural impact of a development intervention. *Sociological Bulletin,* 69(2), 158-173.

Paramasivam, S. (2022). Socio-economic characteristics and empowerment of women's self-help and non-self-help groups in Tamil Nadu. *Indian Journal of Economics and Development,* 18(4), 892-899.

Rafi, D., Venkatesa Palanichamy, N., Suresh Kumar, D., Velavan Murugananthi, C., Anandhi, V., & Murugananthi, D. (2021). A Study on Women Empowerment through Self-Help Groups (SHGs) in Rayalaseema Region of Andhra Pradesh. In *Biological Forum-An International Journal* (Vol. 13, No. 4, pp. 873-879).

Sarkar K, A. A., Karim, M. R., & Banu, S. (2023). Exploring the Impact of Self-Help Groups on Rural Women's Empowerment in Coochbehar District of West Bengal, India. *Journal of Southwest Jiaotong University,* 58(2).

Singh, S., & Shukla, S.K. (2022). Growth of Self-Help Groups: An approach towards Women's Empowerment. *Amity Business Review,* 23(2).

Were, Philip Onyango and Kimaru-Muchai, Sarah Wairimu (2021). Evaluation of Self-Help Groups in Promoting Women Socio-Economic Empowerment in Kibra Sub-County, Nairobi County, Kenya. *Journal of Global Awareness,* 2(1). Retrieved from: https://scholar.stjohns.edu/jga/vol2/iss1/6, Accessed on 12.03.2024 at 4.51 PM.

Yibeltal, D. (2023). Effects of Self-Help Group on Women's Economic Empowerment: The Case of Self-Help Groups of Adama Town, Oromia Regional State, Ethiopia. Doctoral dissertation, St. Mary's University.

Unveiling Leadership Potential: An In-depth Analysis of Leadership Capacities among B.Ed. Teacher Trainees in Lucknow

*Navneeta Tripathi, **Dr. Subhash Misra

Abstract

In education, leadership development often relies on teachers actively pursuing or being identified for formal leadership roles, potentially overlooking quieter individuals with untapped leadership potential. This underscores the significance of recognizing and nurturing leadership qualities in all B.Ed. teacher trainees, regardless of their overt interest in leadership positions. Understanding the diverse range of leadership attributes among trainees enables educators to create an environment conducive to cultivating effective educational leaders.The study utilizes a descriptive method with quantitative data collected via a Likert scale-based questionnaire. Conducted in Lucknow district, Uttar Pradesh, with a sample size of 300 respondents from government and private B.Ed. institutions sampled through the Quota Sampling Technique. Statistical analyses conducted with SPSS version 25 cover reliability, normalcy, exploratory factor, Mann-Whitney U, correlation, and multiple linear regression. The study found that efficient resource management and fostering inclusiveness were key factors influencing leadership capacities among B.Ed. teacher trainees in Lucknow. Gender analysis showed male trainees had higher leadership scores. Correlation and regression analyses emphasized the significance of decision-making, community building, and assertiveness in shaping leadership capabilities.

Introduction

In the dynamic landscape of education, teacher leadership stands as a fundamental pillar shaping the trajectory of learning and educational outcomes. Rooted in the classroom but extending far beyond its confines, teacher leadership encompasses a multifaceted array of actions and responsibilities that profoundly impact the educational landscape. It is within this context that the present study seeks to explore the intricacies of leadership potential among B.Ed. teacher trainees in Lucknow. Warren (2021) underscores the pivotal role of teacher leadership in establishing an environment conducive to learning. Through their leadership, teachers are not only facilitators of knowledge but architects of motivation, driving student performance towards excellence (Oqvist & Malmstrom, 2016). This emphasis on strong leadership echoes the sentiments of Hamzah *et al.* (2016), who assert that effective teacher leaders prioritize the holistic development of their students as their primary goal. Delving deeper, Harris and Jones (2019) propose a nuanced understanding of teacher leadership as an influential force that transcends traditional roles and responsibilities. They argue that teacher leadership is an active endeavor that extends beyond the confines of the classroom, permeating the broader educational ecosystem to foster pedagogical excellence and drive positive change. Indeed, Warren (2018) highlights the transformative potential of teacher leadership in facilitating learning, addressing challenges, and designing effective strategies to propel students towards academic success. However, the concept of teacher leadership is far from monolithic. Fairman and Mackenzie (2015) emphasize the multifaceted nature of teacher leadership, which encompasses leading within and beyond the classroom, contributing to a collaborative community of educators, and inspiring others towards improved educational practices. This sentiment is echoed by Harris and Muijs (2002), who stress the core components of teacher leadership–learning, influence, collaboration, and professional development–as essential drivers of educational progress. Central to the discourse on teacher leadership is the unwavering commitment of educators to student learning. Collinson (2012) emphasizes that teachers view the advancement of their students' learning as their primary objective, tirelessly working within their

* Research Scholar, Department of Education, Babasaheb Bhimrao Ambedkar University (A Central University)
** Assistant Professor, Department of Education, Babasaheb Bhimrao Ambedkar University (A Central University)

classrooms to enhance student achievement. Indeed, this dedication underscores one of the most vital practices of teacher leadership–a commitment to nurturing and empowering the next generation of learners.

In light of these insights, this study endeavors to unravel the complexities of leadership potential among B.Ed. teacher trainees in Lucknow. By synthesizing the existing body of knowledge on teacher leadership, this research aims to shed light on the factors shaping leadership capacities and their implications for educational practice. Through this exploration, we aspire to contribute to a deeper understanding of leadership dynamics within educational contexts and pave the way for more effective leadership development initiatives tailored to the unique needs of teacher trainees.

Objectives of the study

1. To explore the most important factors of Leadership Capacities for all respondents.
2. To explore the most important factors of Leadership Capacities as per gender of respondents.
3. To study the difference in the Leadership Capacities of male and female B.Ed teacher trainees.
4. To assess the relationship between Leadership Capacities, Decision Making, Community Building, Growth Oriented Ambience, Academic Management, Ethical Motivation & Assertiveness for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
5. To analyze the impact of Independent Variables (IVs) - Decision Making, Community Building, Growth Oriented Ambience, Academic Management, Ethical Motivation & Assertiveness on Leadership Capacities (dependent variable (DV)) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.

Need and Significance of the study

The present study holds significant importance in understanding and enhancing leadership capacities in the educational sector. By exploring the most critical factors influencing leadership capacities among all respondents and discerning any gender-based differences, the research sheds light on nuanced aspects of leadership development. Moreover, assessing the disparities in leadership capacities between male and female B.Ed. teacher trainees offers valuable insights for addressing gender-related issues in leadership roles.

Additionally, examining the relationship between leadership capacities and various dimensions such as decision-making, community building, and ethical motivation provides a comprehensive understanding of effective leadership qualities. This study's findings can inform educational institutions and policymakers about strategies to cultivate and nurture leadership potential among teacher trainees, ultimately contributing to the overall improvement of educational leadership and management practices in Lucknow district and beyond.

Literature Review

The implementation of a 1-year B.Ed. course for postgraduates as suggested in the 2020 education policy presents new challenges, particularly in the context of transitioning all teacher training to integrated programs by 2030 (Mohanty, 2023). Mishra (2023) emphasizes the importance of creating a conducive environment for nurturing leadership qualities among B.Ed. students, highlighting the role of teacher educators and the significance of communication skills. Kaur and Bhatia (2023) advocate for self-discovery and emotional intelligence to enhance personal growth and learning outcomes. Gururaja and Shanthi (2023) found significant differences between integrated and traditional B.Ed. programs in student-teachers' preferences for dealing with students and parents. Shakya and Dube (2023) demonstrate the positive impact of soft skills training on teaching competency, underscoring the importance of emotional intelligence in effective teaching. Additionally, gender differences and the association between creative skills and teacher trainees are highlighted (Sheela *et al.,* 2023). Gong and Ye (2022) identify the perceived need for leadership capacities among primary school teachers and its correlation with decision-making styles. Pushpanadham and Mammen Nambumadathil (2020) underscore the importance of integrating leadership development into teacher education programs. They emphasize the evolving role of teachers as transformational leaders in the rapidly changing landscape of education. By incorporating leadership training into teacher education curricula, institutions can empower educators to navigate complex challenges effectively. Lalani (2023) highlights that the graduates attribute their growth to various aspects of the leadership program, emphasizing the importance of ongoing support mechanisms and enrichment opportunities.Stephens and Rosch (2015) suggest a gap in group experiences for engineering students, affecting their ability to interact effectively in diverse teams. Rosch and Collins (2020) develop a comprehensive survey instrument, the RWAL scale, to measure leadership capacity across various dimensions. Kiruba (2016) underscores the importance of fostering leadership qualities through practical experiences such as organizing events like annual days, sports events, and cultural festivals. Through these activities, B.Ed. trainees learn essential skills such as meticulous planning, resource mobilization, and adaptability, which are integral to effective leadership. Moreover, the incorporation of interactive teaching techniques like discussions and debates promotes mutual dependence and self-confidence among trainees, further enhancing their leadership potential.Furthermore, Kanniammal & Vellaichamy (2021) suggests that leaders employing an integrated leadership approach contribute to a positive school culture, ultimately leading to improved academic performance and teacher satisfaction. Additionally, Ali *et al.* (2023) provides insights into the impact of capacity-building training on literacy teachers' pedagogical skills and classroom management. The study emphasizes the necessity of continuous training to keep educators abreast of current pedagogical practices and ensure effective classroom instruction. Lambert (1998) defines leadership capacity as skillful participation in leadership work for school improvement. Finally, Barkley *et al.* (2001) emphasize the importance of fostering effort across all levels of the education community to enhance student performance. Harris and Lambert (2003) eloquently articulate the fundamental principle that effective school leadership is not confined to a single individual but necessitates the involvement of every member of the school community. They advocate for a distributed leadership model wherein all teachers actively participate in school functions and take responsibility for the school's routine operations. This approach, they argue, fosters a robust capacity for collaborative work and ultimately contributes to sustained school development. Buhalis (2000) echoes this sentiment, emphasizing the pivotal role of teacher leadership in enhancing the overall educational landscape of a nation. The improvement of teaching quality, Buhalis asserts, is contingent upon the cultivation of teacher leadership, which serves as a catalyst for developing well-rounded campuses and nurturing students' holistic development. Amit *et al.* (2007) provide a nuanced perspective on leadership capacity, defining it as the ability to articulate and mobilize individuals toward a shared mission. They underscore the importance of high leadership capacity in driving organizational effectiveness and fostering a cohesive team dynamic. Additionally, Steffy (2001) expands on the concept of teacher career development, highlighting the need for appropriate support and guidance throughout various stages of a teacher's professional journey. By providing assistance to teachers at different career stages, schools can facilitate their transition to high levels of leadership in professional development. Day and Harris (2003) delve into the intersection of teacher roles and leadership capacity, emphasizing the evolving nature of teacher leadership in response to changing educational paradigms. Gabriel (2005) provides practical insights into thriving as a teacher leader, recognizing the multifaceted responsibilities and challenges inherent in this role. By equipping teachers with the necessary skills and support structures, schools can empower them to enact meaningful change and contribute to a culture of continuous improvement.

Research Methodology

- **Research Design:** The research design encompasses elements of descriptive design with aquantitative approachto leverage their respective strengths.
- **Type of data & its tool:** The study focuses on primary data gathered through a self-designed questionnaire featuring Likert scale questions.
- **Population:** The target population in this research refers to the group from which inferences are sought. Specifically, for this study, the population includes all the B.Ed. teacher trainees in colleges of Lucknow district, Uttar Pradesh, India, thereby constituting the practical and accessible population under consideration.
- **Sample:** The sample for this study isasecondary education level (B.Ed.) teacher trainee. Thus, the study was conducted on a sample size of 300 such respondents.
- **Sampling technique:** To gather information and data for the research, a non-random sampling method was employed. The researcher opted for the Quota Sampling Technique, wherein the population was categorized into two distinct groups: Government Institutions and Private Institutions. By employing the Quota Sampling Technique, the researcher aimed to capture a diverse range of perspectives from both government and private institutions's B.Ed. teacher trainees, contributing to a more comprehensive understanding of the leadership and professional capacities of B.Ed. teacher trainees in Lucknow district, Uttar Pradesh, India.
- **Statistical test and tool used:** Data was analysed using reliability, normalcy, frequency, exploratory factor, Mann-Whitney U, correlation, and multiple linear regression analyses, using SPSS version.

Data Analysis & Interpretation

Mann Whitney U test: Difference in the Leadership Capacities of male and female B.Ed teacher trainees

$H_0$1: There is no significant difference between the leadership capacities of male and female B.Ed teacher trainees.

Table 1: Difference in the Leadership Capacities of male and female B.Ed teacher trainees

Mann Whitney U test							
	Gender	N	Mean	Std. Deviation	Mann Whitney U test	P-value (Sig.)	Hypothesis Results
Leadership Capacities	Male	150	4.3133	1.01092	8804.000	0.000	Reject the null hypothesis
	Female	150	3.8867	1.20143			

Interpretation- The results indicate a statistically significant difference ($p = 0.000$), leading to the rejection of the H0 1. The mean leadership capacity for male teacher trainees ($M = 4.3133$, $SD = 1.01092$) is higher than that of female teacher trainees ($M = 3.8867$, $SD = 1.20143$), suggesting that there is indeed a significant disparity in leadership capacities between the two gender groups in the study.

Correlations analysis: Relationship between Leadership Capacities, Decision Making, Community Building, Growth Oriented Ambience, Academic Management, Ethical Motivation & Assertiveness for B.Ed. teacher trainees of secondary level institutes in Lucknow district

- **H_0-1:** There is no significant correlation between Leadership Capacities and Decision Making for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-2:** There is no significant correlation between Leadership Capacities and Community Building for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-3:** There is no significant correlation between Leadership Capacities and Growth Oriented Ambience for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-4:** There is no significant correlation between Leadership Capacities and Academic Management for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-5:** There is no significant correlation between Leadership Capacities and Ethical Motivation for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-6:** There is no significant correlation between Leadership Capacities and Assertiveness for B.Ed. teacher trainees of secondary level institutes in Lucknow district.

Table-2: Correlations Matrix

Variables	Decision Making	Community Building	Growth Oriented Ambience	Academic Management	Ethical Motivation	Assertiveness
Pearson Correlation	.733**	.885**	.825**	.808**	.872**	.775**

** Correlation is significant at the 0.05 level (2-tailed)

Interpretation: The above table showed that all the variables have a positive and significant relationship with leadership capacities, therefore, H0 1 to H0 6 are rejected. The highest positive correlation in order of decreasing order is as follows- Community Building (.885), Ethical Motivation (.872), Growth Oriented Ambience (.825), Academic Management (.808), Assertiveness (.775) & Decision Making (.733).

Regression Analysis: Impact of Independent Variables (IVs) - Decision Making, Community Building, Growth Oriented Ambience, Academic Management, Ethical Motivation & Assertiveness on Leadership Capacities (dependent variable (DV)) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.

- **H_0-1:** There is no significant impact of Decision Making (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-2:** There is no significant impact of Community Building (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-3:** There is no significant impact of Growth Oriented Ambience (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-4:** There is no significant impact of Academic Management (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-5:** There is no significant impact of Ethical Motivation (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.
- **H_0-6:** There is no significant impact of Assertiveness (IV) on Leadership capacities (DV) for B.Ed. teacher trainees of secondary level institutes in Lucknow district.

Table 3: Regression coefficient

Coefficients									
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-.732	.073		-10.012	.000			
	Decision Making	.064	.004	**.317**	17.583	.000	.733	.717	.246
	Community Building	.055	.009	**.221**	5.999	.000	.885	.331	.084
	Growth Oriented Ambience	.057	.005	**.276**	11.991	.000	.825	.574	.168
	Academic Management	.052	.008	**.154**	6.485	.000	.808	.354	.091
	Ethical Motivation	.005	.011	**.018**	.472	.637	.872	.028	.007
	Assertiveness	.051	.006	**.190**	8.149	.000	.775	.430	.114

a. Dependent Variable: Leadership Capacities

Interpretation-

- **Decision Making:** A positive and significant impact on leadership capacities is observed, with a beta coefficient of 0.317 ($p < .001$), indicating that an increase in decision-making skills correlates with a corresponding increase in leadership capacities.
- **Community Building:** Similarly, community building demonstrates a positive and significant influence on leadership capacities, with a beta coefficient of 0.221 ($p<.001$), highlighting the importance of fostering collaborative environments within educational settings.
- **Growth-Oriented Ambience:** The analysis indicates a positive and significant impact of growth-oriented ambience on leadership capacities, with a beta coefficient of 0.276 ($p < .001$), emphasizing the value of cultivating environments conducive to continuous improvement and innovation.
- **Academic Management:** Academic management also exhibits a positive and significant effect on leadership capacities, with a beta coefficient of 0.154 ($p < .001$), underscoring the role of effective administrative practices in bolstering leadership capabilities.
- **Ethical Motivation:** While ethical motivation demonstrates a positive impact on leadership capacities, the insignificance of the beta coefficient (0.018, $p = .637$) suggests that its influence may be less pronounced compared to other variables, warranting further exploration and refinement.
- **Assertiveness:** Finally, assertiveness emerges as a significant predictor of leadership capacities, with a beta coefficient of 0.190 ($p < .001$), indicating that individuals who exhibit assertive behaviours are more likely to demonstrate strong leadership capabilities.

Conclusion and Recommendations

In dissecting the leadership capacities among B.Ed. teacher trainees in Lucknow, our study unveils critical insights that illuminate the pathways towards effective leadership development within educational contexts. The synthesized findings from our analysis offer a comprehensive understanding of the factors shaping leadership potential, gender differentials, correlations with key variables, and the overarching impact of independent variables.

Factors Influencing Leadership Capacities: The granularity of our investigation highlights nine pivotal variables that underpin leadership capacities across all respondents. From efficient resource management to fostering inclusiveness and continuous improvement, these factors represent the bedrock upon which effective leadership is built. By identifying and understanding these elements, educators and policymakers can tailor interventions and initiatives to nurture and amplify the leadership potential inherent in teacher trainees.

Gender Disparities in Leadership Capacities: The discovery of significant disparities between male and female teacher trainees underscores the imperative for targeted interventions aimed at addressing gender-specific challenges in leadership development. As our findings reveal, male respondents exhibit higher mean leadership capacity scores compared to their female counterparts, signalling the need for tailored strategies to empower and elevate the leadership capabilities of female educators. By dismantling barriers and fostering inclusivity, educational institutions can cultivate a diverse cadre of leaders poised to drive transformative change.

Correlations with Key Variables: The inter-connectedness between leadership capacities and key variables such as decision-making, community building, and growth-oriented ambience highlights the holistic nature of effective leadership. Our analysis elucidates the symbiotic relationship between these variables, emphasizing the importance of cultivating a multifaceted skill set that transcends traditional boundaries. By recognizing and harnessing these correlations, educational stakeholders can craft targeted interventions that fortify leadership competencies and drive sustainable educational improvement.

Impact of Independent Variables: The regression analysis sheds light on the significant positive impacts of decision-making, community building, and academic management on leadership capacities. However, while ethical motivation and assertiveness also demonstrate positive influences, the insignificance of ethical motivation highlights a critical area for further exploration and refinement. By delving deeper into the nuanced interplay between independent variables and leadership capacities, educators can refine their approaches and strategies to maximize impact and efficacy.

Recommendations

Based on the findings, several recommendations emerge:

1. Implement customized leadership development programs that address the specific needs and challenges faced by male and female teacher trainees, aiming to bridge gender disparities and foster equitable leadership opportunities.
2. Integrate decision-making, community building, growth-oriented ambience, academic management, ethical motivation, and assertiveness training into professional development initiatives for teacher trainees, ensuring a holistic approach to leadership development.
3. Emphasize the importance of ethical leadership practices and ethical decision-making frameworks in leadership development programs, nurturing a culture of integrity and responsibility among future educators.
4. Continuously evaluate the effectiveness of leadership development initiatives through rigorous assessment and feedback mechanisms, adapting strategies to address evolving needs and challenges in educational contexts.

By implementing these recommendations, educational institutions can cultivate a cadre of competent and ethically driven leaders poised to navigate the complexities of modern educational environments and drive positive change for the benefit of students, communities, and society.

References

Ali, A., Amir, R.M., Nasreen, S., Farooq, U., & Iftikhar, M. (2023). Effect of Capacity Building Of Literacy School Teachers On Classroom Teaching District Chiniot. *International Journal of Contemporary Issues in Social Sciences,* 2(3), 644-655.

Amit, K., Lisak, A., Popper, M., & Gal, R. (2007). Motivation to lead: Research on the motives for undertaking leadership roles in the Israel Defense Forces (IDF). *Military Psychology,* 19(3), 137-160. https://doi.org/10.1080/08995600701386317 (Accessed on 2 February, 2023 at 4:54 pm).

Barkley, S., Bottoms, G., Feagin, C. H., & Clark, S. (2001). Leadership Matters: Building Leadership Capacity.

Buhalis, D. (2000). Teacher leadership development and career advancement. *Teacher Management,* 21(1), 97-116.

Collinson, V. (2012). Leading by Learning, Learning by Leading. *Professional Development in Education,* 38, 247-266.

Day, C., & Harris, A. (2003). Teacher leadership, reflective practice and school improvement. In Second International Handbook of Educational Leadership and Administration, edited by P. Leithwood and P. Hallinger, 957-78. Dordrecht, Netherlands: Kluwer Academic.

Fairman, J.C., & Mackenzie, S.V. (2015). How teacher leaders influence others and understand their leadership. *International Journal of Leadership in Education,* 18, 61-87.

Gabriel (2005). How to thrive as a teacher leader. Alexandria, VA: ASCD.

Gong. J and Ye. Y (2022), A Study Of The Relationship Between Teachers' Leadership Capacity And Their Decision-Making Styles In Jilin Art Primary School Jilin Province, China. *Human Sciences,* ISSN 2586-9388, Vol.14 No.2 (Jan.-Jun. 2022)

Gururaja, C. S., & Shanthi, S. (2023), A comparative study on 'problem-solving strategies' of two-year B.Ed student-teachers and four-year integrated B.Ed student-teachers. *International Journal of Advanced Education and Research,* Volume 8, Issue 1, Page No. 23-26.

Hamzah, N., Noor, M., & Yusof, H. (2016). Teacher leadership concept: A review of literature. *International Journal of Academic Research in Business and Social Sciences,* 6, 185-189.

Harris, A., & Jones, M. (2019). Teacher leadership and educational change. *School Leadership and Management,* 39, 123-126.

Harris, A., & Lambert, L. (2003). Building Leadership Capacity for School Improvement. England: Open University Press.

Harris, A., &Muijs, D. (2002). Teacher Leadership: A Review of Research. London, UK: GTC.

Kanniammal, K., &Vellaichamy, K. (2021). A Study on Leadership Style and School Effectiveness of B. Ed. Students In Dharmapuri District. *Turkish Online Journal of Qualitative Inquiry,* 12(7).

Kaur, J., & Bhatia, R. (2023) An Analytical Study of Emotional Intelligence on Academic Achievement of B.Ed. Trainees, Shodhak: *A Journal of Historical Research,* ISSN: 0302-9832 Volume: 53, Issue: 02, No: 16.

Kiruba. (2016). Leadership Behaviour of B.Ed. Trainees. ICV (Index Copernicus Value): Vol.4 (Iss.12: SE):71.21. https://doi.org/10.5281/zenodo.231106

Lalani, M. (2023). Exploring the Contribution of B. Ed.(Hons) Programme in Preparing Prospective Educators for Their Professional Roles. *Journal of Education and Educational Development,* 10(1), 116-138.

Lambert, L. (1998). Building leadership capacity in schools. ASCD.

Mishra, P.A (2023), Study of the importance of the development of leadership Quality amongst B.Ed. College students. *Journal of Arts, Humanities and Social Sciences,* ISSN(o): 2581-6241, Volume-6, Issue-1.

Mohanty, S.B. (2023). Teacher Education in India. In Oxford Research Encyclopedia of Education. https://doi.org/10.1093/acrefore/9780190264093.013.447(Accessed on 3 February, 2023 at 8:00 pm).

Oqvist, A., & Malmstrom, M. (2016). Teacher's leadership: A maker or breaker of students' educational motivation. *School Leadership and Management,* 36, 366-380.

Pushpanadham, K., & Mammen Nambumadathil, J. (2020). Teacher as a Transformational Leader: Perspectives and Practices of Teacher Education in India. In K. Pushpanadham (Ed.), Teacher Education in the Global Era. Springer, Singapore. https://doi.org/10.1007/978-981-15-4008-0_13 (Accessed on 31 Janauary, 2023 at 11:11 pm).

Rosch, D. M., & Collins, J. D. (2020). Validating the Ready, Willing, and Able Leader Scale of Student Leadership Capacity. *Journal of Leadership Education,* 19(1).

Shakya, A., & Dube, K. (2023), Effect of Soft Skills Training on Teaching Competency of Prospective Teachers. *Asian Journal of Education and Social Studies,* 48(3). pp. 129-135. ISSN 2581-6268

Sheela, R., Swaminathan, B., & Benjamin, A.E.W. (2023). Emotional Intelligence on The Academic Achievement of The B. Ed. Trainees in Tamilnadu. *Journal of Research Administration,* 5(2), 4826-4848.

Steffy, B. E., & Wolfe, M. P. (2001). A life-cycle model for career teachers. *Kappa Delta Pi Record,* 38(1), 16-19. https://doi.org/10.1080/00228958.2001.10518508.((Accessed on 5 February, 2023 at 10:54 am).

Stephens, C. M., & Rosch, D. M. (2015). Building leaders: A national examination of the leadership capacities within engineering undergraduate students. *International Journal of Engineering Education,* 31(4), 986-997.

Warren, L.L. (2018). Behaviors of teacher leaders in the classroom. *Psychology and Behavioral Sciences,* 7, 104-108.

Warren, L.L. (2021). The importance of teacher leadership skills in the classroom. *Educational Journal,* 10, 8-15.

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थारू जनजाति में सामाजिक गतिशीलता एवं शिक्षा
(पलिया विकासखण्ड, जिला लखीमपुर खीरी, उत्तरप्रदेश के विशेष संदर्भ में)

*मीनाक्षी सिंह

सारांश

भारत के विभिन्न क्षेत्रो में ऐसे मानव-समूह निवास करते हैं जो आधुनिक सभ्यता तथा संस्कृति से अपरिचित हैं तथा सभ्य समाज से विलग जंगल, पहाड़ों अथवा पठारी क्षेत्रों में निवास करते हैं। इन्हीं समूहों को जनजाति, आदिम समाज, वन्य जाति या आदिवासी आदि नामों से जाना जाता है। इनमें से एक थारू जनजाति है जो कि जिला लखीमपुर खीरी, उत्तरप्रदेश में निवासित है। वर्तमान समय में थारू जनजातीय समाज में गतिशीलता विभिन्न कारकों के माध्यम से परिलक्षित हो रही है। इस संदर्भ में ब्रूत तथा सेल्जनिक ने सामाजिक गतिशीलता को प्रभावित करने वाले पाँच कारकों का उल्लेख किया है जिनमें व्यावसायिक एवं आर्थिक संरचना में परिवर्तन, सन्तानोत्पत्ति की दर में अन्तर आना, प्रवासी लोगों का केन्द्रीयकरण, शिक्षा में वृद्धि तथा लोगों की महत्वाकांक्षा में वृद्धि सम्मिलित है जिनमें से थारू जनजातीय समाज में शिक्षा का प्रभाव महत्वपूर्ण है। इन परम्परागत समाजों में शिक्षा संस्कृति की सामान्य विशेषताओं और व्यक्तित्व के आधारभूत लक्षणों के हस्तान्तरण का प्रमुख माध्यम रही है। शिक्षा और सामाजिक गतिशीलता का परस्पर संबंध बहुआयामी है, जो शिक्षा की गुणवत्ता, सामाजिक पृष्ठभूमि, उच्च शिक्षा तक पहुंच और आर्थिक असमानताओं जैसे कारकों से आकार लेता है। शिक्षा सशक्तिकरण का आधार है किन्तु असमान पहुंच, आर्थिक बाधाएं और रोजगार असमानताएं जैसी चुनौतियां इसकी परिवर्तनकारी क्षमता में बाधा डालती हैं। समतापूर्ण समाज को बढ़ावा देने में शिक्षा की वास्तविक शक्ति को उजागर करने के लिए गतिशीलता को समझना महत्वपूर्ण है। सामाजिक गतिशीलता सामाजिक प्रस्थिति में परिवर्तन को दर्शाती है। इस प्रकार का परिवर्तन समाज में व्यक्ति एवं समूह दोनों अथवा दोनों में से किसी एक की प्रस्थिति में हो सकता है। अतः प्रस्तुत शोधपत्र में सामाजिक गतिशीलता का अध्ययन आर्थिक प्रस्थिति, सामाजिक प्रस्थिति तथा सांस्कृतिक प्रस्थिति पर शिक्षा के प्रभाव के अंतर्गत किया गया है जिसके लिए अध्ययन क्षेत्र के रूप में जिला लखीमपुर खीरी, उत्तरप्रदेश में निवासित थारू जनजाति का चयन किया गया है।

प्रस्तावना

एक जनजाति अनेक परिवारों के एक समूह का एक संकलन होता है, जिसका एक सामान्य नाम होता है, जिसके सदस्य एक निश्चित भू-भाग पर रहते हैं, सामान्य भाषा बोलते हैं और विवाह या उद्योग के विषय में कुछ निषेधों का पालन करते हैं और एक निश्चित एवं उपयोगी आदान-प्रदान का परस्पर विकास करते हैं। डा. मजूमदार के यह शब्द जनजाति की सम्पूर्ण व्याख्या प्रस्तुत करते हैं। आदिम समाजों में अनौपचारिक शिक्षा के माध्यम से सम्पूर्ण जीवन-शैली, मूल्यों, आदर्शों एवं व्यवहार प्रतिमानों का हस्तान्तरण एक पीढ़ी से दूसरी पीढ़ी तक किया जाता रहा है जो कि व्यक्ति व समूह की प्रस्थिति को परिवर्तित भी करती है, परन्तु आधुनिक जटिल समाज में शिक्षा एक औपचारिक व्यवस्था है। शिक्षण संस्थाएँ, निश्चित पाठ्यक्रम, शिक्षण विधि और शैक्षणिक उद्देश्य के अनुरूप ज्ञान और कुशलता का हस्तान्तरण नवीन पीढ़ी को करती हैं। शिक्षा के इस बदलते स्वरूप के कारण जनजातीय समाजों में पर्याप्त गतिशीलता परिलक्षित होती रही है। शिक्षा आदिकाल से ही भारतीय सामाजिक एवं सांस्कृतिक जीवन का अत्यंत महत्वपूर्ण अंग रही है। अतः वर्तमान में विभिन्न जनजातियों के उत्थान में शिक्षा का स्थान अद्वितीय है। जनजातीय समाज में शिक्षा का स्वरूप व प्रभाव पीढ़ी दर पीढ़ी परिवर्तित होता रहा है जिस कारण जनजातीय समाज में गतिशीलता परिलक्षित हुई है। अतः यह कहना उचित होगा कि शिक्षा एक निश्चित समय अंतराल में परिवर्तित हो रहे गतिशील समाज को प्रभावित करने वाला मुख्य कारक है जिसका अध्ययन सामाजिक गतिशीलता के विभिन्न पक्षों के अंतर्गत किया जा सकता है।

सैद्धान्तिक परिप्रेक्ष्य

सामाजिक गतिशीलता से सम्बन्धित विषयों में आधारभूत प्रश्न यह उठता है कि विभिन्न समूहों में गतिशीलता निर्धारित करने का आधार क्या है? इस सन्दर्भ में विभिन्न समाजशास्त्रियों ने सामाजिक गतिशीलता के कारकों एवं परिणामों पर अनुसंधान

* शोध छात्रा, समाजशास्त्र विभाग, वनस्थली विद्यापीठ, जयपुर, राजस्थान

हेतु एक सैद्धान्तिक संरचना प्रस्तुत की है। इसके अन्तर्गत समाजशास्त्री बर्नार्ड बारबर ने सामाजिक गतिशीलता और उसके विभिन्न चरों जैसे परिवार, शिक्षा, कार्य करने का संस्थान तथा राजनीतिक संस्थानों के बीच सह सम्बन्धों को मापने का प्रयत्न किया है। सामाजिक गतिशीलता का सम्बन्ध व्यक्ति या समूह के पद या प्रस्थिति में परिवर्तन से होता है, जिसमें व्यक्तियों या समूहों का एक सामाजिक ढांचे से दूसरे सामाजिक ढांचे में संचरण होता है। अतः सामाजिक गतिशीलता व्यक्तियों या समूहों के निजी प्रयास पर ही आधारित नही होता है अपितु यह सामाजिक संरचना का भी प्रतिफल है। सामाजिक गतिशीलता की अवधारणा समाजशास्त्र के इतिहास में गहराई से निहित है। बीसवीं सदी के प्रारम्भ तक सामाजिक गतिशीलता द्वारा उठाए गए सामाजिक और राजनीतिक मुद्दों ने ध्यान आकर्षित किया किन्तु उन्नीसवीं सदी के उत्तरार्ध में भी विशेषताओं को एक पीढ़ी से दूसरी पीढ़ी तक स्थानांतरित करने का प्रश्न अत्यंत महत्वपूर्ण था। सामाजिक गतिशीलता में दिशा, समय और संदर्भ तीनों के ही तत्व निहित है। दिशा की दृष्टि से प्रस्थिति में गतिशीलता ऊपर और नीचे की ओर या समानांतर हो सकती है। समय की दृष्टि से प्रस्थिति की भिन्नता एक पीढ़ी से दूसरी पीढ़ी में हो सकती हैं।

यदि शिक्षा व सामाजिक गतिशीलता के परस्पर सम्बन्ध के संदर्भ में विश्लेषण करें तो, भारत में शिक्षा और सामाजिक गतिशीलता के बीच परस्पर क्रिया एक रैखिक या एक समान प्रक्रिया नहीं है। इसके बजाय, यह अवसरों और बाधाओं का एक जटिल जाल है जो विभिन्न कारकों से सम्बन्धित है, जिसमें शिक्षा की गुणवत्ता, सामाजिक पृष्ठभूमि, उच्च शिक्षा तक पहुंच और सकारात्मक कार्रवाई से सम्बन्धित नीतियां सम्मिलित हैं। ये तत्व सामूहिक रूप से यह निर्धारित करते हैं कि शिक्षा किस स्तर तक मूर्त सामाजिक गतिशीलता में परिवर्तित होती है। इस समीकरण में शिक्षा की गुणवत्ता एक महत्वपूर्ण कारक के रूप में उभरती है। उच्च गुणवत्ता वाली शिक्षा व्यक्तियों को बेहतर नौकरियाँ सुरक्षित करने, उनकी आय अर्जित करने की क्षमता बढ़ाने और राष्ट्र के विकास में योगदान करने के लिए आवश्यक कौशल और ज्ञान से सुसज्जित करती है। इसके विपरीत, खराब गुणवत्ता वाली शिक्षा गरीबी के चक्र को कायम रख सकती है और ऊपर की ओर गतिशीलता के अवसरों को सीमित कर सकती है।

साहित्य समीक्षा

सन 1960 और 1970 के दशकों में सामाजिक शोधकर्ताओं का मुख्य विषय सामाजिक गतिशीलता था। इस कालखण्ड में समाज से सम्बन्धित विभिन्न विषयों पर गतिशीलता के सन्दर्भ में शोध हुए, जिनमें से अधिकांश अध्ययनों ने मजदूर वर्ग के इतिहास से सामान्य समाज को परिचित कराया। हर्टन व हन्ट ने सामाजिक गतिशीलता को व्यक्ति अथवा समूह के एक सामाजिक प्रस्थिति से दूसरी सामाजिक प्रस्थिति में जाने की क्रिया के रूप में परिभाषित किया है। ए.आर. देसाई के मतानुसार, सामाजिक गतिशीलता में वृद्धि से तात्पर्य परम्परागत विश्वास, आर्थिक, राजनैतिक तथा मनोवैज्ञानिक धारणाओं को त्यागकर व्यक्ति द्वारा नए मूल्यों एवं व्यवहार को अपनाने में अग्रसर होने से है। जबकि सामाजिक संरचना में परिवर्तन से तात्पर्य व्यक्ति के परम्परागत कार्यों में परिवर्तन से होता है जहाँ प्रदत्त के स्थान पर अर्जित पदों को महत्त्व दिया जाता है। बेकर और थॉमस ने अंतर पीढ़ी गतिशीलता व असमानता के मध्य सम्बन्धों को विभिन्न निर्धारक तत्वों के अन्तर्गत विश्लेषित किया है। इन्होंने मानव द्वारा अर्जित पूंजी, सामाजिक समूह, कौशल, ज्ञान, सामाजिक समितियां, सामाजिक सम्बन्ध, पारिवारिक सहायता, पारिवारिक पृष्ठभूमि तथा अभिभावकों की आर्थिक स्थिति आदि को दो पीढ़ियों के मध्य गतिशीलता का मुख्य आधार माना है। बोरजास जे. जार्ज (1991) ने अपने शोध पत्र में यह विश्लेषित किया कि जातीय कौशल किस सीमा तक पीढ़ी दर पीढ़ी प्रसारित होते हैं। इनके अनुसार जातीयता मानव कौशल, पूंजी के संचय की प्रक्रिया में बाह्य रूप से कार्य करती है क्योंकि अगली पीढ़ी के कौशल माता-पिता के द्वारा गिये गए कौशल शिक्षा तथा जातीय वातावरण की गुणवत्ता पर निर्भर करते हैं। दास, बलाई और सब्बा, दीपिका (2022) ने अपने शोध पत्र में शैक्षिक गतिशीलता का अध्ययन करने के लिए तीन पीढ़ियों को चिन्हित किया। इनके अध्ययन का मुख्य उद्देश्य शैक्षिक गतिशीलता को प्रभावित करने वाले कारकों को विश्लेषित करना है। इनके अनुसार शैक्षिक गतिशीलता का तात्पर्य माता-पिता की शैक्षिक उपलब्धि का उनके बच्चे में स्थानांतरण से है। इन्होंने अपने अध्ययन में पाया कि उच्च गतिशीलता माता-पिता के शिक्षा स्तर और बच्चों के शैक्षिक स्तर के बीच निम्न सम्बन्धों का परिणाम होगी जबकि कम गतिशीलता एक मजबूत सम्बन्ध को प्रदर्शित करेगी।

अध्ययन क्षेत्र

प्रस्तुत शोध अध्ययन हेतु थारू जनजाति का चयन किया गया है। थारू एक जनजाति विशेष का नाम है, जो विश्व के दो देशों भारत व नेपाल में वास करते हैं। भारत के मात्र तीन राज्यों बिहार, उत्तर प्रदेश और उत्तराखण्ड में इनकी आबादी पायी जाती है। प्रस्तुत शोध पत्र में उत्तर प्रदेश में लखीमपुर जनपद के पलिया विकास खंड में निवासित थारू जनजाति को चिन्हित किया गया है।

अध्ययन का उद्देश्य

सामाजिक गतिशीलता का विषय न केवल सामाजिक वर्ग

से संबंधित है बल्कि लिंग, आयु, नस्ल और जातीयता से भी संबंधित है। एक बहुआयामी घटना के रूप में सामाजिक गतिशीलता पर शोध करने से सामाजिक विद्वानों को विश्व स्तर पर असमानताओं को मजबूत करने से संबंधित समस्याओं की अधिक जटिल समझ प्राप्त होगी। सामाजिक गतिशीलता शिक्षा, व्यवसाय, आय, सामाजिक शक्ति एवं सामाजिक वर्ग आदि क्षेत्रों से सम्बन्धित है। इस संदर्भ में प्रस्तुत शोध पत्र का उद्देश्य थारू जनजातीय समाज में शिक्षा के माध्यम से होने वाली सामाजिक गतिशीलता को रेखांकित करना है।

शोध प्रश्न

1- क्या शिक्षा के माध्यम से थारू जनजातीय समाज की आर्थिक प्रस्थिति में बदलाव आया है?

2- क्या थारू जनजाति के राजनैतिक चिंतन में बदलाव हेतु शिक्षा उत्तरदायी है?

3- क्या शिक्षा ने थारू जनजाति के सांस्कृतिक जीवन को प्रभावित किया है?

अध्ययन विधि

प्रस्तुत शोध एक आनुभाविक अध्ययन है। जनजातीय समाज में व्यक्ति, परिवार, समूह, संस्थायें, इकाइयाँ अनुभव, अन्धविश्वास, परम्पराएँ एवं पारिवारिक जीवन आदि ऐसी घटनाएँ घटित होती हैं जिनकी माप संख्यात्मक रूप से न हो सकने के कारण प्रायः गुणात्मक पद्धति का प्रयोग किया गया है। उक्त अध्ययन में तथ्य या सूचना एकत्रीकरण हेतु प्राथमिक एवं द्वितीयक स्रोत दोनों का प्रयोग किया जायेगा। प्राथमिक स्रोत के रूप में अध्ययन क्षेत्र के चयनित उत्तरदाताओं से शोध विषय से सम्बन्धित सूचनाओं को प्राप्त किया जायेगा। द्वितीयक तथ्यों के संकलन हेतु प्रकाशित व अप्रकाशित प्रलेखों, रिपोर्ट, पुस्तकें, न्यूज रील, समाचार पत्र व पत्रिकाओं में प्रकाशित सूचनाएं व इन्टरनेट आदि का प्रयोग किया जायेगा। सम्पूर्ण रूप से प्रस्तुत अध्ययन में गणनात्मक एवं गुणात्मक पद्धति अर्थात् मिश्रित अध्ययन पद्धति का प्रयोग है। प्रस्तुत शोध अध्ययन में लखीमपुर जिले के पलिया विकासखंड के थारू निवासित 10 गांवों को उद्देश्यपूर्ण विधि से चिन्हित किया गया है। इन गाँवों से 100 व्यक्तियों का यादृच्छिक प्रतिचयन विधि द्वारा चयन किया गया है।

आंकड़ों का विश्लेषण एवं व्याख्या

प्रस्तुत शोध पत्र में कुल 100 उत्तरदाताओं से साक्षात्कार द्वारा प्रश्नों के उत्तर को संग्रहित करके निम्नलिखित सारणी के अंतर्गत लेखबद्ध किया गया है।

सारणी-01: आयु के आधार पर उत्तरदाताओं का वर्गीकरण

आयु सीमा	संख्या	प्रतिशत
18 - 40	52	52%
40 - 65	39	39%
65 से ऊपर	09	09%
कुल योग	100	100%

सारणी-01 में उत्तरदाताओं की आयु को प्रदर्शित किया गया है। इसके अनुसार 52% उत्तरदाताओं की आयु 18 से 40 के मध्य है। इस आयु सीमा तक व्यक्ति समाज में अपनी प्रस्थिति को लगभग सुनिश्चित कर लेता है। 39% उत्तरदाताओं की आयु सीमा 40 से 65 तक ली गई है। उत्तरदाताओं में 09% लोग ऐसे हैं जिनकी आयु 65 से ऊपर है।

तालिका-02: उत्तरदाताओं की शैक्षणिक योग्यता

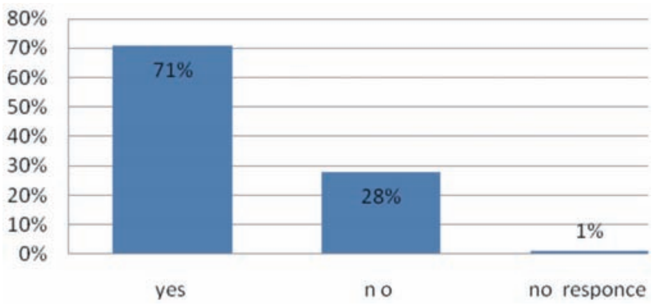
शैक्षणिक योग्यता	संख्या	प्रतिशत
अशिक्षित	14	14%
शिक्षित (हायर सेकेंडरी)	54	54%
उच्च शिक्षा प्राप्त	32	32%
कुल योग	100	100%

प्रस्तुत शोध पत्र का उद्देश्य थारू जनजाति में सामाजिक गतिशीलता पर शिक्षा के प्रभाव का अध्ययन करना है। अतः उत्तरदाताओं की शैक्षिक योग्यता की जानकारी महत्वपूर्ण है। सारणी-02 के अनुसार 14% उत्तरदाता अशिक्षित हैं जबकि 54% हायर सेकेंडरी तक शिक्षा प्राप्त किए हैं तथा 32% उत्तरदाता उच्च शिक्षा प्राप्त हैं।

सारणी संख्या-03: शिक्षा के माध्यम से आर्थिक प्रस्थिति में परिवर्तन

क्रम संख्या	कुल 100 उत्तरदाताओं से आर्थिक प्रस्थिति से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	कुल प्रतिशत
1	हस्त उद्योग व कौशल सम्बन्धित शिक्षा क्या धनोपार्जन व रोजगार प्राप्ति के अवसरों में बढ़ोत्तरी हेतु सहायक है?	71%	28%	01%	100%

चित्र संख्या-01

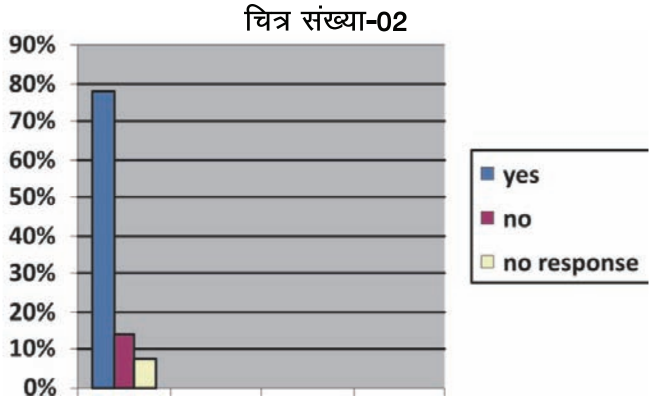


सारणी संख्या-03 तथा चित्र संख्या 01 के अनुसार थारू जनजाति के कुल 100 उत्तरदाताओं में से 71 प्रतिशत लोग शिक्षा के विभिन्न स्वरूपों को धनोपार्जन व रोजगार प्राप्ति के अवसरों हेतु सहायक मानते हैं जो कि बहुमत में है, जबकि 28 प्रतिशत लोगों ने अपनी असहमति प्रदर्शित की है। एक उत्तरदाता ने इस प्रश्न का कोई उत्तर नहीं दिया है।

सारणी संख्या-04

क्रम संख्या	कुल 100 उत्तरदाताओं से आर्थिक प्रस्थिति से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	कुल प्रतिशत
1	दो पीढ़ियों (पिता व पुत्र) के मध्य क्या शिक्षा के कारण आर्थिक प्रस्थिति में परिवर्तन आया है ?	78%	14%	08%	100%

चित्र संख्या-02

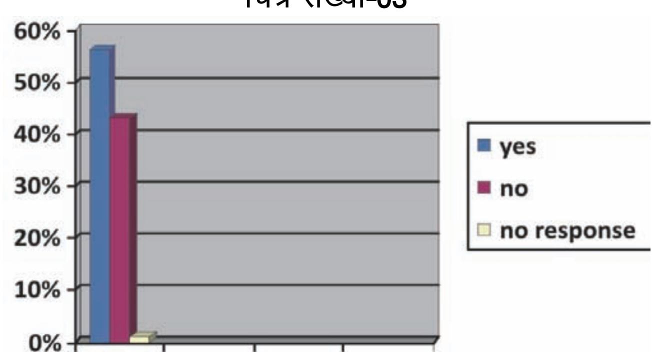


सारणी संख्या 04 तथा चित्र संख्या-02 से यह प्रदर्शित होता है कि बहुमत के साथ 78% उत्तरदाता यह मानते हैं कि शिक्षा के माध्यम से थारू जनजातीय समाज के आर्थिक प्रस्थिति में लम्बवत (आरोही) गतिशीलता परिलक्षित हुई है। इनमें से 14% उतरदाताओं ने शिक्षा के प्रत्यक्ष प्रभाव को नकारा है साथ ही 8% उत्तरदाताओं ने कोई उत्तर नहीं दिया।

सारणी-05

क्रम संख्या	कुल 100 उत्तरदाताओं से राजनैतिक प्रस्थिति में परिवर्तन से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	प्रतिशत कुल
1	क्या शिक्षा थारू जनजातीय समाज को राजनैतिक अधिकारों व कर्तव्यों तथा सरकारी संस्थाओं की कार्यप्रणालियों के प्रति जागरूक करने में सहायक है?	56%	43%	01%	100%

चित्र संख्या-03

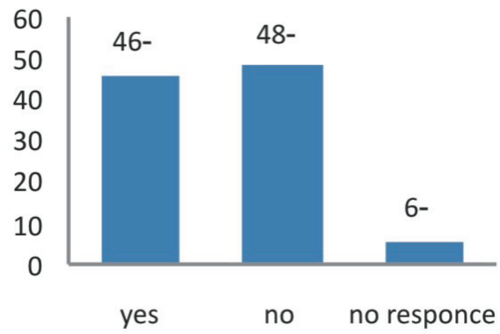


सारणी संख्या 05 तथा चित्र संख्या 03 में थारू जनजातीय समाज में शिक्षा के माध्यम से होने वाले राजनैतिक प्रस्थिति में बदलाव को प्रदर्शित किया गया है। इसके अनुसार 56% थारू जनजाति के लोगों का मानना है कि शिक्षा राजनैतिक अधिकारों व कर्तव्यों तथा सरकारी संस्थाओं की कार्यप्रणालियों के प्रति जागरूक करने में सहायक है जबकि 43% उत्तरदाताओं ने शिक्षा के प्रभाव को राजनैतिक क्षेत्र में नगण्य माना है। एक उत्तरदाता ने इस प्रश्न का कोई उत्तर नहीं दिया है।

सारणी-06

क्रम संख्या	कुल 100 उत्तरदाताओं से राजनैतिक प्रस्थिति में परिवर्तन से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	कुल प्रतिशत
1	क्या थारू जनजाति में शिक्षा प्राप्त करने के पश्चात सामान्य नागरिकों की राजनैतिक गतिविधियों में भागीदारी बढ़ी है?	46%	48%	06%	100%

चित्र संख्या-04

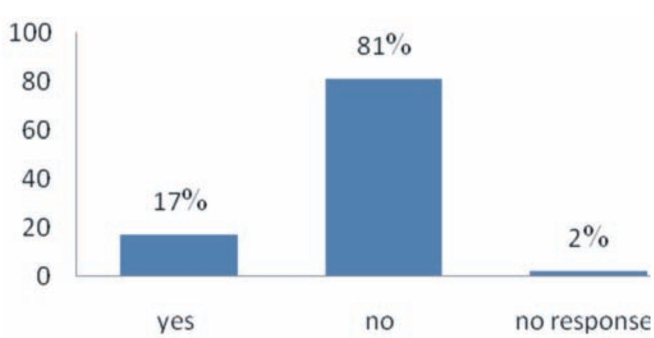


सारणी संख्या 06 व चित्र संख्या 04 के अनुसार 46% उत्तरदाताओं ने इस कथन का समर्थन किया है कि शिक्षित लोगों की राजनैतिक गतिविधियों में भागीदारी बढ़ी है जब कि 48% उत्तरदाता इससे असमर्थ हैं। 6% उत्तरदाताओ ने इस प्रश्न के संदर्भ में विचार शून्यता प्रदर्शित की है। उपरोक्त सारणी स्पष्ट करती है कि राजनैतिक स्तर पर थारू जनजाति में अन्तर पीढ़ी गतिशीलता के अंतर्गत लम्बवत अवरोही गतिशीलता परिलक्षित हुई है जो कि थारू जनजाति के युवाओं में राजनीतिक भागीदारी के प्रति उदासीनता को प्रदर्शित करती है।

सारणी-07

क्रम संख्या	कुल 100 उत्तरदाताओं से सामाजिक प्रस्थिति में परिवर्तन से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	कुल प्रतिशत
1	क्या थारू जनजातीय समाज में शिक्षित युवा वर्ग की बढ़ती संख्या के कारण संयुक्त परिवार एकल परिवारों में परिवर्तित हो रहे हैं?	17%	81%	02%	100%

चित्र संख्या-05

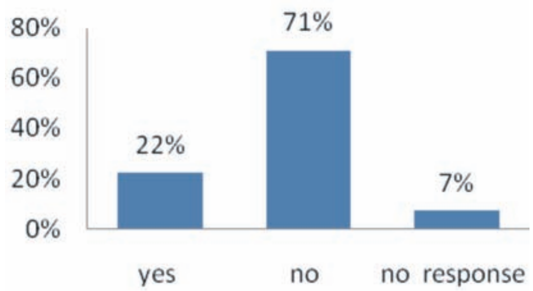


सारणी संख्या-07 तथा उससे सम्बन्धित चित्र संख्या 05 में संयुक्त परिवारों के विघटन पर शिक्षा के प्रभाव का अध्ययन किया गया है। इसके अनुसार 81% उत्तरदाताओं के मतानुसार शिक्षित युवा वर्ग की बढ़ती संख्या के कारण लगभग दो पीढ़ियों के मध्य संयुक्त परिवार एकल परिवारों में परिवर्तित नहीं हो रहे हैं। इसके साथ ही 17% उत्तरदाताओं ने इसका उत्तर हाँ दिया है। दो लोगों ने कोई उत्तर नहीं दिया है। इस प्रकार थारू जनजाति में सामाजिक स्तर पर परिवारों के स्वरूप में होनेवाले परिवर्तन के आधार पर यह सुनिश्चित होता है कि इस संदर्भ में थारू जनजाति में अंतरपीढ़ी गतिशीलता समानान्तर प्रकार की है।

सारणी संख्या-08

क्रम संख्या	कुल 100 उत्तरदाताओं से प्रस्थिति से सम्बन्धित पूछे गए प्रश्न	हाँ	नहीं	कोई उत्तर नहीं	कुल प्रतिशत
1	क्या शिक्षा प्राप्त करने के पश्चात थारू जनजाति की युवा पीढ़ी अपने परम्परागत धार्मिक अनुष्ठानों व रीति रिवाजों से विमुख हो रहे है?	22%	71%	07%	100%

चित्र संख्या-06



उपरोक्त सारणी संख्या 08 तथा चित्र संख्या 06 में 71% उत्तरदाताओं के अनुसार शिक्षा प्राप्त करने के पश्चात थारू जनजाति की युवा पीढ़ी अपने परम्परागत धार्मिक अनुष्ठानों व रीति रिवाजों से विमुख नहीं हो रहे है जबकि 22% उत्तरदाताओं ने इसका उत्तर हाँ में दिया है। 7% उत्तरदाताओं ने कोई उत्तर नहीं दिया है। प्रस्तुत आंकड़ों से यह स्पष्ट है कि वर्तमान थारू जनजातीय युवा पीढ़ी अपने परम्पराओं तथा रीति रिवाजों को आज भी जीवित रखे हुए है। अतः थारू जनजाति में धार्मिक स्तर पर समानांतर गतिशीलता परिलक्षित हुई है।

निष्कर्ष

उपरोक्त विश्लेषण से यह स्पष्ट होता है कि सामाजिक गतिशीलता के सन्दर्भ में विकास की प्रक्रिया व्यक्ति या समूह की प्रस्थिति में उत्थान व पतन को इंगित करती है। इस अध्ययन से यह स्पष्ट है कि थारू जनजातीय समाज के आर्थिक प्रस्थिति, सामाजिक प्रस्थति तथा सांस्कृतिक प्रस्थिति पर शिक्षा का महत्वपूर्ण प्रभाव पड़ा है। दो पीढ़ियों के मध्य शिक्षा के माध्यम से सामाजिक गतिशीलता परिलक्षित हुई है। आधुनिक भारत में शिक्षा को व्यावसायिक अवसरों के प्रवेश द्वार के रूप में देखा जाता है। ज्ञान, अर्थव्यवस्था और सेवा क्षेत्रों के उदय के साथ शैक्षिक योग्यता महत्वपूर्ण हो गई है। इस बदलाव का सामाजिक गतिशीलता के लिए निहितार्थ है, क्योंकि उच्च शिक्षा बेहतर नौकरी की संभावनाओं और जाति द्वारा निर्धारित पारंपरिक व्यावसायिक भूमिकाओं से मुक्त होने की क्षमता से संबंधित है। शिक्षा के माध्यम से थारू जनजाति के युवाओं को अब रोजगार के नए अवसर प्राप्त हो रहे हैं जिससे इनकी आर्थिक प्रस्थिति में बदलाव देखने को मिलता है जो कि लंबवत तथा आरोही क्रम में है। वर्तमान समय में भी संयुक्त परिवार की संकल्पना को जीवित रखने की प्रेरणा थारू युवा पीढ़ी को परंपरागत शिक्षा के हस्तांतरण से प्राप्त होती है जिसमें वे अपने मूल्यों, रीति रिवाजों, धार्मिक अनुष्ठानों तथा शिक्षा के मध्य सामंजस्य बनाए हुए हैं। इन सबके विपरीत शिक्षित युवा वर्ग राजनैतिक प्रस्थिति के प्रति उदासीन है जबकि धनोपार्जन हेतु विभिन्न क्रियाकलापों में सक्रिय है। युवा वर्ग में राजनैतिक संस्थाओं के प्रति जागरूकता तो है किंतु इनमें भागीदारी की संभावना में कमी है। इस प्रकार यह निष्कर्ष प्राप्त होता है कि शिक्षा के माध्यम से थारू जनजाति में आर्थिक, सामाजिक, सांस्कृतिक तथा राजनैतिक क्षेत्र में सम्मिलित रूप से सामाजिक गतिशीलता परिलक्षित होती है।

References

Soni, Dr. Hetal H. (2023), "Education and Social Mobility in India: A Sociological Inquiry", *International Journal of Social Impact,* ISSN: 2455-670X Vol. 8, Issue 1, DIP: 18.02.17/20230801 DOI: 10.25215/2455/080117 www.ijsi.in | January-March, 2023

Burleigh, Horton Paul & Leigh, Hunt Chester Sociology (1984), Sociology, McGraw Hill

Desai, A.R. (Ed.). (1971). "Essays on Modernization of Underdeveloped Societies", Bombay: Thakkar & Company. 311-337.

Borjas, J. George,(1991), "Ethnic Capital and Intergenerational Mobility", *National Bureau of Economic Research,* working paper no.3788

Andrea Lizama-Loyola, Denisse Sepúlveda, and Alexandrina Vanke, "Making Sense of Social Mobility in Unequal Societies", *Sociological Research Online* 2022 27:1, 95-100

Nazimuddin, S. (2015), "Social Mobility and Role of Education in Promoting Social Mobility". www.semanticscholar.org/paper/Social-Mobility-and-Role-of-Education-in Promoting-Nazimuddin/

Iannelli, Cristina & Paterson, Lindsay. (2005) "Does Education Promote Social Mobility?" www.researchgate.net/publication/228580524_Does_Education_Promote_Social_Mobility

Terri Chapman, "Social Mobility in India: Determinants and Recommendations for Change," ORF Issue Brief No. 346, March 2020, Observer Research Foundation.

Brown, Phil & Reay, Diane & Vincent, Carol, (2013), "Education and Social Mobility". *British Journal of Sociology of Education*, 34. 637-643. DOI:10.1080/01425692.2013.826414.

Huq, M.N., Hossain, M., Abdulla, F., & Yeasmin, S. (2021). Intergenerational educational mobility in Bangladesh. PLoS ONE, 16.

Suriyanrattakorn, S., & Chang, C. (2022). Does Life Satisfaction Vary with Income Inequality and Social Mobility? *SSRN Electronic Journal.*

Vaid, D. (2016). Patterns of social mobility and the role of education in India. *Contemporary South Asia,* 24, 285-312.

Boeri, N.(2021).Upward and Outward Mobility: Women's Aspirations for Their Daughters in Urban India.

Arifin, M.H. (2017). The Role of Higher Education in Promoting Social Mobility in Indonesia. *European Journal of Multidisciplinary Studies,* 6, 233.

Pandey, Omkar & Kattel, Rishi. (2020). Education status and factors affecting effective education among indigenous Tharu community in Nepal, 8, 775-808.

Financial Literacy of College Students in Dewas

*Dr. Anita Malviya, **Dr. Manoj Malviya

Abstract

"The number one problem in Today's generation and economy is the lack of financial literacy." Alan Greenspan Financial literacy is most important financial skills for a modern life. Today individuals are more responsible for their personal finances issues.every individual to have financial knowledge to build a solid financial status. A person feels secure and confident with good financial knowledge and skills in the face of future uncertainties.

Financial literacy is so important for college students is that financial attitudes and habits. The purpose of this study is to assess college students is that of financial literacy. This study was done to determine the financial literacy among the college students regarding planning and products. This study surveys 110 students to examine their personal financial literacy. The respondents were gathered using well structured questionnaire. The researcher used percentage and descriptive analysis according to the findings of the study college students not have a sufficient knowledge of financial planning and goods. The gender, course of study, parents working sector and monthly pocket money of college students have a impact of financial planning and goods.

Introduction

Financial literacy is the specific skill of managing finance, budgeting and making efficient investments. Financial literacy should be taught to students in college. This is an important and essential part of life, which determines the future success of the students. The sooner the student learns the basics related to Will, the better it will be. Money is needed at every turn of life and knowledge of financial literacy develops the ability to manage money. Financial literacy helps you to successfully manage your money and find your income.

Concept of financial literacy : Financial literary is a complex Phenomenon. Simply it is the capability to manage money. Broadly, financial literacy involves knowledge about Financial concepts and capability to more secure Finance related decisions. Financial literacy is the financial skills, knowlege and Behaviour's that make an individual to decisions regarding money. Today, they are living in an incredibly challenging economic situation. they need to be able to manage their own incomes whether it's pocket money from their parents or a part-time job.

Need for Financial Literacy : In today's world, financial literacy has become a global issue. Many achievements and reforms in the Indian financial market like deregulation of the financial market, LPG policy of 1991, availability of complex financial products & services, market innovations, the emergence of the financial sector, technological developments, digitalisation, etc. have put pressure on individuals. Without financial literacy, individuals can't evaluate the financial options available to them. Consequently, they select the wrong financial products & services and ultimately, the financial growth of the economy suffers. A financially literate individual makes proper and efficient use of available financial opportunities and makes correct financial decisions which result in the economic development of an economy. Thus, financial literacy is a very important concept and needed attention.

Financial Literacy Initiatives in India

In india, various institutions, regulators, agencies and stakeholders are making efforts in spreading awareness about finacial literacy. Some of the initativesare as :

Initiatives by IRDA

- Published 'Policyholder Handbooks' on insurance.
- Conducts awareness programs to provide information about rights and duties of policy holders.

Initiatives by RBI

- Project Financial Literacy, a project undertaken with the purpose of providing information about the economy and finance oriented products & services.

* Assist. Professor & HoD (Commerce) Govt. College, Pithampur Dist-Dhar (M.P.)
** Asst. Professor (Commerce) Govt. S.K.P College, Dewas (M.P.)

- Conducts awareness programs and organises financial education camps. Established Financial Literacy and Credit Counselling Center (FLCC) in the State and Union Territory.

Initiatives by SEBI

- Organises workshops/ seminars to provide awareness and educate investors.
- Conducts investors education programs through investors association.
- NCFE conducts National Financial Literacy Test on basic financial concepts to boost financial knowledge of students.
- Set up SEBI Helpline
- Set up SCORES (SEBI Compliants Redress System) where investors can file their complaint online with SEBI.

Literature Review on Financial Literacy

Chen and Volpe 1998 "An Analysis of Personal Financial Literacy Among College Students" USA 924 Authors explored students' personal financial literacy level and knowledge influence on their financial decisions. Results showed that students' knowledge on finance is low and due to inadequate financial knowledge, their financial decisions also get affected. It was concluded that limited financial education is the main reason behind low financial literacy.

Lusardi 2008 "Financial Literacy: An Essential Tool for Informed Consumer Choice"? USA 812 The study examined the link of financial literacy with planning on finance and found financially literate individuals make better finance related plans like savings decisions, retirement planning, tax planning, etc. Due to lack of financial literacy, people do not get involved in financial planning and do poor planning which affect their utility.

Robb and Woodyard 2011 "Financial Knowledge and Best Practice Behaviour" USA 1488 The authors showed that knowledge on finance has a significantly influences behaviour but alone it is insufficient to influence financial behaviour. Income, financial satisfaction, financial confidence and education also play significant role in determining best financial behaviour.

Gillen and Loeffler 2012 "Financial Literacy and Social Work Students: Knowledge is Power" USA 161 The authors conducted a study of students' financial literacy in USA and research evidenced that students' lack skills required for taking financial decisions. Most of the students were not comfortable with the personal financial topics and thus, were not able to provide advice to their clients. Thus, for enhancing financial knowledge, it is imperative that academic programs should include financial literacy study in their courses. This will also result in better investment decision making.

Agarwalla *et al.* 2012 "A Survey of Financial Literacy among Students, Young Employees and the Retired in India" India 2967 The authors evaluated financial literacy of Indians and found low level of financial knowledge among Indians. Study revealed that Indians have limited understanding of personal financial concepts like impact of inflation on prices, risk diversification, interest, etc. Findings also reported that Indians performed better on behaviour and attitude dimensions. Positive financial behaviour and positive financial attitude offset low financial knowledge and led to an average financial literacy score which is on parity with the results of 13 countries studied by OECD.

Heenkenda 2014 "Inequalities in the Financial Inclusion in Sri Lanka: An Assessment of the Functional Financial Literacy" Sri Lanka 1100 The study demonstrated financial literacy level of individuals in the Sri Lanka context and found strong association between variables like age, gender, education, etc. with the financial literacy level. Study also showed individuals performed better in financial knowledge. Lastly, study stressed on increasing financial literacy of individuals for enhancing the well-being of individuals through financial inclusion.

Mitchell and Lusardi 2015 "Financial Literacy and Economic Outcomes: Evidence and Policy Implications" 18 countries Review Study The authors highlighted the magnitude of financial literacy in finance related decision making matters through a survey in various countries. Results showed low financial literacy level in well-developed economies like USA, New Zealand, Australia, Japan, etc. Findings suggested that financial literacy is beneficial not only for marginalised section of society but also for the whole population. Financial literacy enables consumers to evaluate complex financial products and financial aspects; acquire new financial skills and process financial market information required in financial decision making.

Dam and Hotwani 2018 "Financial Literacy: Conceptual Framework and Scale Development" India 160 The authors conducted an extensive literature survey and developed financial literacy scale through exploratory factor analysis. Results identified five factors of financial literacy i.e. investment planning, risk-return, mutual funds, retirement planning and financial concepts awareness.

Study recommended that this scale would provide an understanding of various aspects of financial decisions to be examined.

Aydin and Selcuk 2019 "An Investigation of Financial Literacy, Money Ethics And Time Preferences Among College Students: A Structural Equation Model" Turkey 1443 The authors examined interrelationships between aspects of financial literacy and found positive association among the dimensions. Results demonstrated that students who scored high in financial knowledge test displayed positive attitude towards financial issues and desirable behaviour in bills payment, savings, etc.

Santini *et al.,* 2019 "The Antecedents And Consequences of Financial Literacy: A Meta-Analysis" Worldwide Study 44 Studies The authors conducted an organised literature review on financial literacy and proposed a conceptual framework using meta-analysis approach. Findings showed that high financial knowledge enhances financial decision making which ultimately increases individual's financial literacy level. Household income, financial attitude, education level, financial behaviour and readiness to investment are also directly linked with financial literacy. However, gender and financial literacy revealed negative association showing poor performance among females.

Ramos-Hernández *et al.,* 2020 "Financial Literacy Level on College Students: A Comparative Descriptive Analysis between Mexico and Colombia" Mexico and Colombia 224 The authors conducted a comparative study among college students of Mexico and Columbia and found low level of financial literacy for both countries. Findings also revealed that students were not aware about various financial topics i.e. diversification of risk, savings and investment options, inflation concepts, future planning for retirement. Authors emphasised that financial literacy efforts should be directed towards college students as they are in important stage of lives i.e. starting to enter into working stage.

Chong *et al.,* 2021 "The Effects of Financial Literacy, Self-Efficacy and Self-Malaysia 790 Authors conducted a study among emerging adults of Malaysia and found that males are more Coping on Financial Behavior of Emerging Adults" ready to undertake financial risk in comparison to females and use more finance oriented products & services. Results also revealed positive correlation between financial literacy and behaviour with beta value 0.480. Study also stressed on making financial literacy course as part of curriculum of educational institutions.

Objectives of The Study

The objectives of the study are:

1. To study the personal profile of the college student's with finacial literacy Knowledge of select student's.
2. To provide an analysis of the results of the research, highlighting the level of financial literacy of students.

Methodology

This study is blend of both primary and secondary data. Primary data was collected from the 110 colleges students in a convenient manner. Well-structured questionnaires were designed. Primary data collected by colleges student's through questionnaires. websites, journals and article have been used to collect secondary data.

Data Analysis and Interpretation

Detail of the respondents contain gender, education, parents working sectors, monthly income, saving habits, monthly budget, future interest of financial plan to invest their savings of the college students.

Table-1: Gender of the Respondents

Gender	No.of Respondents	Percentage
Male	72	65
Female	38	35
Transgender	Nil	Nil
Total	110	100

Source : Primary Data

Table-1 represent the personal detail of the respondents. 72% are male and 38% are female and 0% transgender. It is inferred that the majority of the resondents who participated in the survey are male.

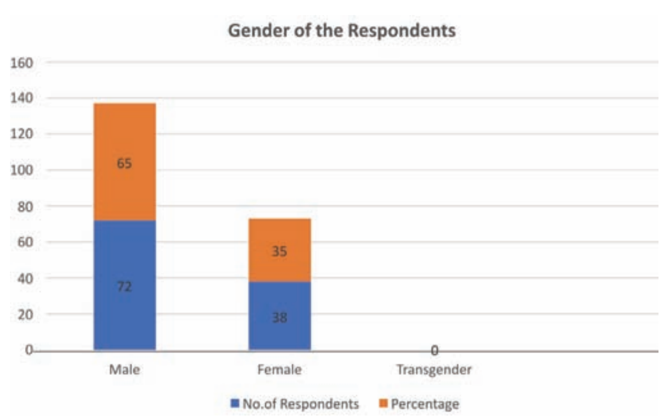


Table-2: Education of the Respondents

Course of study	No. of Respondents	Percentage
Under Graduate	76	69
Post Graduate	34	31
Total	110	100

Source : Primary Data

Table-2 based on the course of study 76% doing undergraduate and the remaining 34% are doing postgraduate. Undergraduate students were focused on this survey.

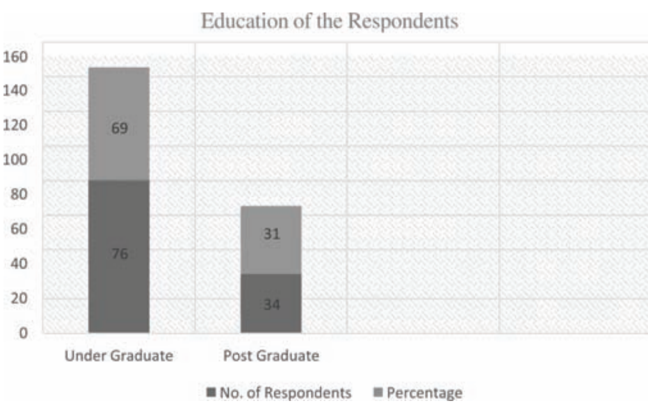


Table-3: Occupation of Parents of Respondents

Parents Working Sectors	No. of Respondents	Percentage
Government service	35	31.82
Private service	45	40.91
Business/Self Employed	30	27.27
Total	110	100

Source : Primary Data

Table-3 represents the 35% of the students parents were working in the governments sector, 45% worked in the private sector and the remaining 30% self employed.

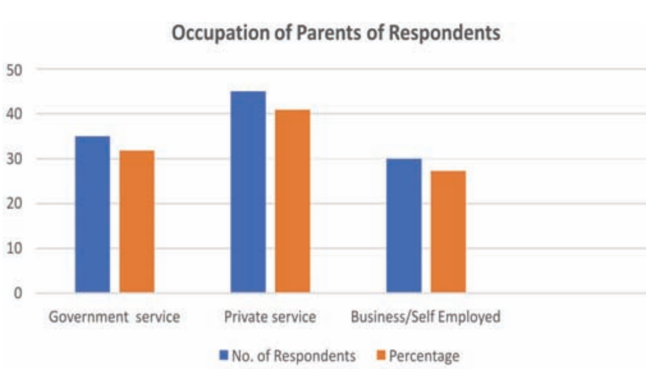


Table-4: Monthly Income of Respondents

Monthly Packet money	No. of Respondents	Percentage
Less than Rs. 1000	89	80.90
1001 to 1500	16	14.55
Above 1500	3	2.73
Nil	2	1.82
Total	110	100

Source : Primary Data

Table-4 represents monthly packet money wise classification of the resondents,89% receiving less than Rs.1000 and the 16% receiving packet money between 1001-1500, above Rs.1500 packet money recivied by 2.73% students and 1.82 doesn't receive packet money for their expenses, it means all the expenses were met by their parents.

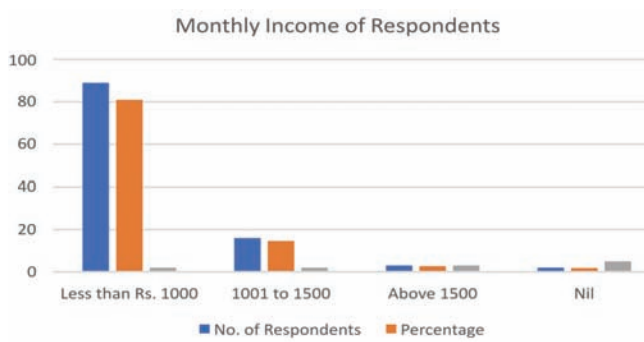


Table-5: Savings Habits of Respondents

Savings Habits	No. of Respondents	Percentage
Yes	67 43	61
No	43 67	39
Total	110	100

Source : Primary Data

Table-5 inferred that 43% have a saving habit and 67% don't have a saving habit. It means the majority of the respondents have don't saving habits.

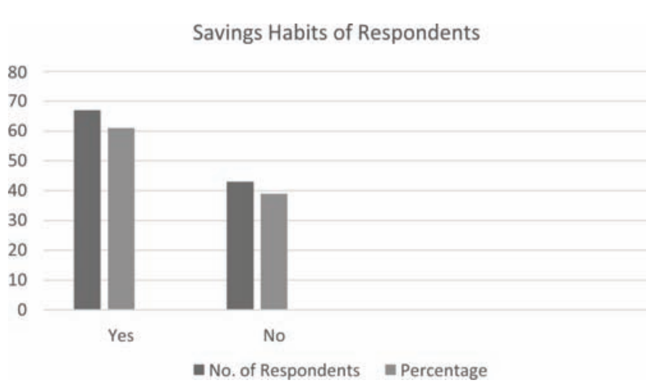


Table-6: Preparation of Monthly Budget of Respondents

Preparation of Monthly Budget	No. of Respondents	Percentage
Yes	27	25
No	83	75
Total	110	100

Source : Primary Data

Table-6 reveals that 83% don't have the habit of preparing the monthly budget and 27% have prepared their monthly budget.

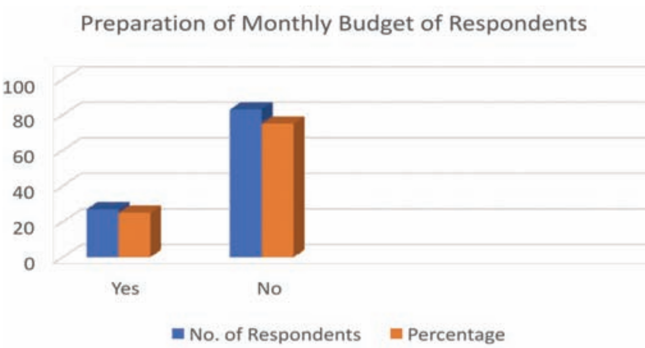


Table-7: A Future interest of financial plan to invest their savings of Respondents

Investment Avenues	Percentage
Fixed Deposit	88.64
Recurring Deposit	58.11
Mutual funds	26.31
Debentures	17.69
Gold	87.26
Equity Shares	15.77
Public provident fund	80.21
Not Interested	2.11

Source : Primary Data

Table-7 represents the respondent's interest in the invesment avenues in the future financial plan. The highest level of willingess of the respondent's towards the invesment avenues in the future is fixed deposit and gold.

Suggestion

The continuous innovations and development's in technology. Individual has to play in managing their routine and long term finaces. The current study provides suggestions for enahincing financial literacy and ultimately financial well being.

1. Financial literacy can be added as a subject to the curriculam for all the degree.
2. Students can be motivated to learn finance subjects from the online portals.

Conclusion

India being a fast growing economy with a large and diversified population has an need to focus on inclusive growth and development for a stable financial system. All individuals at every stage of life require financial literacy to secure a strong financial future. Financial literacy is a very important for everyone, so it can be educated to the students from school and college level. The economy of the india should be strengthened by inculcate the savings habit of the people. Financial literacy is not an end in itself, but a step-by-step process. It begins in childhood and continuous throughout a person 's life all the way to retirement.

References

Agarwalla *et al.,* 2012 "A Survey of Financial Literacy among Students, Young Employees and the Retired in India" Retrieved February, 26, 2013.

Aydin and Selcuk 2019 "An Investigation of Financial Literacy, Money Ethics and Time Preferences among College Students: A Structural Equation Model". *International Journal of Bank Marketing,* 37(3), 880-900.

Comparative Descriptive Analysis between Mexico and Colombia. *European Journal of Contemporary Education,* 9(1), 126-144.

Chong *et al.,* 2021 "The Effects of Financial Literacy, Self-Efficacy and Self-Malaysia 790 Authors conducted a study among emerging adults of Malaysia and found that males are more Coping on Financial Behavior of Emerging Adults". *The Journal of Asian Finance, Economics and Business,* 8(3), 905-913.

Chen and Volpe 1998 "An Analysis of Personal Financial Literacy Among College Students" *Financial Services Review,* 7, 107.

Dam and Hotwani 2018 "Financial Literacy: Conceptual

Framework and Scale Development". *SAMVAD,* 15, 61-69

Gillen and Loeffler, 2012 "Financial Literacy and Social Work Students: Knowledge is Power" *Journal of Financial Therapy,* 3(2), 4.

Heenkenda 2014 "Inequalities in the Financial Inclusion in Sri Lanka: An Assessment of the Functional Financial Literacy, *Ilorin Journal of Economic Policy* 1(1), 1-30.

Lusardi 2008 "Financial Literacy: An Essential Tool for Informed Consumer Choice". (No.w14084) *National Bureau of Economic Research.*

Mitchell and Lusardi 2015 "Financial Literacy and Economic Outcomes: Evidence and Policy Implications" *The Journal of Retirement,* 3(1), 107-114.

Meta-Analysis. *Internationl Journal of Bank Marketing,* 37(6) 1462-1479.

Robb and Woodyard 2011 "Financial Knowledge and Best Practice Behaviour" *Journal of Financial Counseling and Planning,* 22(1), 60-70.

Ramos-Hernández *et al.,* 2020 "Financial Literacy Level on College Students.

Santini *et al.,* 2019 "The Antecedents and Consequences of Financial Literacy.

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Decision Making Styles of Indian Consumers in buying Gold Jewellery

*Dr. Chhavi Jain, **Meenakshi Soni

Abstract

Consumer behaviour has always been an area of concern for marketers and understanding how a consumer will behave on any marketing initiative is of great importance. In India jewellery consumption is vast and knowledge about how any consumer decides on what, where, why and how to buy any piece of jewellery will enable marketers in better planning of marking activities. This study tries to find out what are the decision-making styles of Indian jewellery consumers. The study uses consumer style inventory so developed by Sproles and Kendall (1986). Previous studies done using CSI found out that the inventory is more applicable to the population of developed nations than to the population of developing nations. The current study is an attempt to find if CSI applies to the Indian population today. Survey instrument developed by Sproles and Kendall was used with little modification and also some new items were added. The data was collected from 281 respondents and eight decision making styles were derived. The findings of this study are not in line with the findings of the original CSI and it can be concluded that CSI cannot be applied to the population of developing nations without modification.

Introduction

Consumer today face a plethora of choices when they want to buy a product. The market is filled with product choices both in physical world as well as on e-platforms. Consumers have all the information they need at their fingertips. Whenever a thought of buying/ wanting a product strike their head, the internet is at their service and the consumer can search for relevant information, can compare the alternatives (if any) and can reach to a conclusion of buying it then and there. Consumer today is truly the King and knowledge about how consumer makes decision is of great importance. Therefore, it is very importance for the marketers to know their consumer and how they make choices but it is not always easy to understand a consumer. Consumers are complex beings which is why they have been studied ever since. In the field of consumer interest studies consumers were characterized as quality seeker, novelty-fashion consumers, comparison shopper, information seeker, habitual and brand loyal consumer (Bettman, 1979; Jacoby & Chestnut, 1978; Maynes, 1976; Miller, 1981; Sproles, 1979; Sproles, 1983; Thorelli *et al.,* 1975). Prior, there were majorly three approaches namely the psychographic and lifestyle approach to consumer choices, the consumer typology approach and the consumer characteristic approach. Sproles and Kendall together worked on consumer characteristic approach and after conducting survey of high school students from US, generated a comprehensive 'consumer style inventory' which based on their decision-making stylesdivides consumers in eight groups. Till today CSI is the most applied tool and has been widely accepted in determining the decision-making styles. Other than some generalizability concerns, CSI can be useful in different cultures and contexts.

In the year 2022 consumption of gold in India was 774 tons which is second highest after China. The demand for gold remained same for the following year at 700-750 tons. The gold demand comprises of jewellery, bar, coins and gold ETFs. Gold jewellery play huge role in Indian weddings, festivals and occasions. People in India see gold (jewellery) as store of value and it is the number one investment option for many and this holds true for both rural and urban consumers. Cultural and religious significance is attached to gold consumption.

India today is the fifth largest economy in the world and growth in income, capital and business is seen as factors that will increase this demand in the future.

* Associate Professor, Dept. of Management Studies, IIS(Deemed to be) University, Jaipur
** Research Scholar, Dept. of Management Studies, IIS (Deemed to be)University, Jaipur

Furthermore, India is the second most populated country in the world which makes it a lucrative market. Knowledge about the decision-making styles of the Indian consumer holds importance to marketers.

Consumer Style Inventory

"A consumer decision making style is defined as a mental orientation characterizing a consumer's approach to making consumer choices. A consumer's style has cognitive and affective charateristics….it is a basic consumer personality, analogous to the concept of personality in psychology." (Sproles and Kendall, 1986). Consumer style inventory was developed in 1986 by Sproles and Kendall. They conducted a survey on 482 students studding in home economic classes of Tucson, Arizona and found eight unique decision-making styles. These eight decision-making styles are described by 39 items.

The eight characteristics are described here:

"1. **Perfectionist, High Quality Conscious Consumer,** a characteristic measuring the degree to which a consumer searches carefully and systematically for the best quality in products;

2. **BrandConscious, Price Equals Quality Consumer,** or one measuring a consumer's orientation to buying the more expensive, well-known brands;

3. **Novelty and Fashion-Conscious Consumer,** acharacteristic identifying consumers who appear to like new and innovative products and gain excitement from seeking out new things;

4. **Recreational and Shopping Conscious Consumer,** a characteristic measuring the extent to which a consumer finds shopping a pleasant activity and shops just for the fun of it;

5. **Price Conscious "Value for Money" Consumers,** a characteristic identifying those with particularly high consciousness of sale prices and lower prices in general;

6. **Impulsive, Careless Consumers,** one identifying those who tend to buy on the spur of the moment and appear unconcerned how much they spend or getting "best buys";

7. **Confused by Overchoice Consumer,** or those consumers perceiving too many brands and stores from which to choose, experiencing information overload in the market;

8. **Brand Loyal Consumer,** a characteristic indicating consumers who have favorite brands and stores, who have formed habits in choosing these respectively." (Sproles and Kendall, 1987)

Literature review

CSI was proposed in the year 1986 by Sproles and Kendall, since than it has been studied by many researchers and the study has been replicated several times to establish its generalizability and to find if the results so arrived are same or there are any deviations in the results from the original. Hafstrom *et al.* (1992) studied cross-cultural applicability of CSI using Korean student sample and found five decision-making styles common between Korean and US sample. They are Brand Consciousness, Quality Consciousness, Recreational Shopping Consciousness, Impulsiveness, and Confused-by-Overchoice. Novelty Consciousness was not confirmed with Korean sample and Time/Energy Conserving as a new trait was suggested.

Durvasula *et al.* (1993) found high reliability and validity with New Zealand sample. Lysonski *et al.* (1996) attempted cross-cultural study with USA, New Zealand, Greece and Indian student sample. They concluded that CSI is more applicable to the developed nations (USA and New Zealand) than to the developing nations (Greece and India). Lysonski and Durvasula (2013) again studied Indian sample to find if there appear to be any differences in consumers decision-making styles after a decade. All eight styles were identified with increased brand, novelty and recreational consciousness and decreased perfectionist/quality consciousness style.

Through studies done in China (Fan, Xiao and Xu, 1997; Fan and Xiao, 1998; Hiu and Siu *et al.,* 2001), United Kingdom (Mitchell and Bates, 1998; Bakewell and Mitchell, 2003), Germany (Mitchell and Walsh, 2001; Walsh and Vincent, 2001) valuable findings were derived on a common ground that decision-making styles differ across cultures.

Table one summarizes studies done in India and the findings.

Table 1: Consumer Decision-Making Style Studies (India)

Study	Area of study	Sample	Main findings
Mehta, R. and G. Dixit (2016)	India (not specified)	558 students	Eight decision making styles were derived, and it was found that-novelty/fashion conscious and recreational/hedonism-carelessness and confused by overchoice are indifferent. Price equal quality and brand consciousness were derived as two different styles.
Tanksale, D., N. Neelam, R. Venkatachalam (2014)	Pune, Maharashtra	254 young adults	Six decision making styles were confirmed, they are recreational, brand conscious, novelty- fashion conscious, perfectionist-high quality conscious, Habitual Brand-loyal consumer orientation and confused by over choice. Shopping avoidance-Time saver was found as new style, relevant in Indian context.
Singh, S. K. and P. Tripathi (2012)	Bhopal, Madhya Pradesh	86 consumers	Respondents fall in the age bracket of 20-50 years. nine decision making style; shopping enjoyment, habitual buying, brandconsciousness, perfectionist & quality consciousness, brand loyalty, confused by over choices, impulse buyingand store loyalty were found.
Mishra, A. A. (2010)	Dehradun, Uttarakhand	425 postgraduate students	All the 8 factors of Sproles and Kendall model were confirmed through the study. In addition, two new factors were found to be significant in Indian context, they are-Store Loyalty and Dissatisfied Shopping Consciousness.
Kathiravan, C., N.Panchanatham and S. C. S. Anushan (2009)	Bangalore, Karnataka	126 Employees from IT and 148 employees from Non-IT sector	The study aimed at identifying shopping style dimensions and shopping styles of people living in Bangalore city. Four new shopping dimensions were explored in addition to CSI, they are 1. Personal style consciousness, 2. Environment and health consciousness, 3. Reliance on mass media, 4. Convenience and time consciousness. Four distinctive shopping styles were also found, namely-Active Fashion Chaser, Rational Shopper, Value Buyer, Opinion Seeker.
Ravindran, D. S., Hari Kumar G. Ram, Riji Kumar G. (2009)	Ernakulam, Kerala	128 mall shoppers	They investigated Indian shopper's decision-making style and variation due to demographic variables. The styles confirmed under the study were: Price consciousness, Quality consciousness, Recreational, Confused by over choice, Novelty consciousness, Variety seeking.
Ghodeswar, B. M. (2007)	Mumbai, Maharashtra	72 engineering graduates	7 styles out of 8 were found valid. Price Consciousness and Value for Money style didn't get conformity.
Canabal M. E. (2002)	Coimbatore, Tamil Nadu	173 college students	This study of young south Indian students confirmed five decision-making styles, Brand Conscious Style, High Quality Conscious/Perfectionist Style, Confused by Overchoice Style, Impulsive/Brand Indifferent Style, Recreational Shopper Style.

"To establish generality further, the CSI must be administered to other populations, particularly to adults." (Sproles and Kendall, 1986). The above-mentioned studies were mostly done using student population and there are few studies that uses general public as study sample. Further CSI needs to be studied for different product categories. "…a consumer may have different consumer styles for each product category." (Sproles and Kendall, 1986). Hence the present study tries to understand decision-making styles of Indian consumers, with gold jewellery being the product category.

Methodology

The instrument

The study was conducted using consumer style inventory developed by Sproles and Kendall. The inventory consists of 39 items, additional 32 items were added to the inventory to suit the product category in this study, which is gold jewellery. Aspects that are considered important while buying jewellery were first identified and after consultation with expert, they were formulated in item form as the items in CSI. The additional items are shown in table 2. The survey was done using self-administered questionnaire. In total there were 71 items and they were measured on 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items were randomly arranged in the questionnaire so as to minimize order bias. Questionnaire was formed in three parts, in the first part question regarding purchase was asked, in the second part respondent had to rank (Likert scale type) 71 items and in the third part questions regarding demographic information about gender, marital status, age, education and income were asked.

A pretest of survey instrument was done and the respondents found no difficulty in answering the questionnaire in english.

Table 2: Additional items

S.No.	Aspect	Item form
1.	Purity	Purity aspect is very important to me while buying jewellery.
2.	Finishing	Jewellery has to be with excellent finishing for me to buy.
3.	Power and Status	For me purchasing jewellery enhances my power and status.
4.	Aesthetics	I buy jewellery for the aesthetic value of it.
5.	Hall-Marking	Hall-marking is an important aspect to consider while I buy jewellery.
6.	Design	While I buy jewellery, design is an important aspect for me.
7.	Variety	I seek variety whenever I buy jewellery.
8.	Learning with trends	I like to keep an eye on jewellery exhibitions/shows to explore new trends in new jewellery.
9.	Fashion jewellery	I like to buy fashion jewellery.
10.	Traditional jewellery	I prefer buying traditional jewellery.
11.	Fusion jewellery	I prefer buying contemporary jewellery.
12.	Custom made	I prefer buying jewellery which is made as per my specifications.
13.	Convenient hours	I prefer buying jewellery during day time.
14.	Convenient location	I make purchases on locations that are convenient to me.
15.	*Gifting purpose	I buy jewellery only for gifting purposes.
16.	Self-gratification	I buy jewellery to gratify myself.
17.	Display	Display at the stores catches my attention.
18.	Store aesthetics	Store interiors matters to me while choosing a store to buy jewellery.
19.	Special occasion	I make jewellery purchases on special occasions.
20.	Varity in price range	Availability of variety of products in different price ranges attracts me to shop from a particular store.

21.	Making charges	Level of making charges plays a vital role while buying jewellery.
22.	Payment in instalments	Option of pay the price in instalments aids in buying jewellery.
23.	Investment	I buy jewellery for investment purpose.
24.	Exchange offers	Availability of exchange offers attracts me to buy jewellery.
25.	Pleasure while window shopping	I step-in the stores for buying only when I feel pleasure watching the window displays.
26.	Online shopping	I prefer buying jewellery online.
27.	Local/Branded Jeweler	I prefer local jewellery shop over branded jewellery store.
28.	Advertisement	Advertisements help me in choosing the jewellery stores.
29.	*Availability of Full Range	Availability of vast range of jewellery makes it difficult for me to select a piece of jewellery.
30.	Trust	I prefer to buy from the same store/shop because of trust in the jeweler.
31.	Jeweler's reputation	I prefer buying from the same jeweler every time because of his reputation in the market.
32.	Acceptance	I act as referral for the jewellery store, I usually shop from.

*Denotes items with reverse scoring

The sample

Sample for the study comprise of the consumer of jewellery. Most studies done using CSI have used student sample as study population (Sproles and Kendall, 1986; Hafstrom *et al.,* 1992; Durvasula *et al.,* 1993; Lysonski *et al.,* 1996; Mitchel and Bates, 1998; Fan and Xiao, 1998; Siu *et al.,* 2001; Bakewell and Mitchell, 2003). There are very few studies that use sample other than student i.e. general public.

For reliable results some authors recommend minimum sample size to be five times the number of variables under study (Gorsuch, 1983; Hatcher, 1994). Therefore, a sample size of 355 respondents was chosen as there are 71 items under study. Primarily the data was prepared and any missing data was eliminated which resulted in 281 workable responses. This resulted in 79.15% response rate.

The data was collected from September '23 to November '23 using simple random sampling. It was the time of festive seasonas Diwali was approaching and also time for the wedding season. This time isauspicious for consumers to buy gold jewellery. Some respondents needed help and they were helped in filling up the responses and some respondents needed time so they were left with the questionnaire and the forms were collected later.

Table 3 shows demographic profile of the respondents. The sample consisted of 79.4% female respondents. 84% of respondents had purchased jewellery during the year 2023. 76.5% of the respondents were married and 21.4% of them were single. 60.8% of the respondents were mostly in the ages of 26 to 45 years. Out of all 39.1% respondents were college graduates and 42.3% respondents were post-graduate. There were 9.6% respondents who had a PhD degree. 67.6% of the respondents reported their yearlygross family income to be more than Rs. 2,00,000.

Table 3: Demographic Profile of the Sample

Variables		Frequency	Percentage
Purchase	No	45	16
	Yes	263	84
Gender	Male	58	20.6
	Female	223	79.4
Marital status	Single	60	21.4
	Married	215	76.5
	Divorced	5	1.8
	Other	1	.4
Age (in years)	18-25	42	14.9
	26-35	110	39.1
	36-45	61	21.7
	46-55	49	17.4
	More than 55	19	6.8

Education	High-school graduate	17	6.0
	College graduate	110	39.1
	Post-graduate	119	42.3
	PhD	27	9.6
	Any other	8	2.8
Yearly Gross Family Income (in INR)	Less than 90,000	28	10.0
	90,000-2,00,000	63	22.4
	2,00,000-5,00,000	103	36.7
	5,00,000-10,00,000	60	21.4
	More than 10,00,000	27	9.6

Data analysis and interpretation

Data analysis

Factor analysis was performed on data to find the underlying dimensions. Principle Component Analysis with varimax rotation was used to analyze data. SPSS version 20 was used as statistical platform. Item that showed loading of less than 0.4 and cross loading on one or more items were dropped to get the factor solution. Bartlett's test of sphericity and KMO measure were adopted to determine the appropriateness of data set for factor analysis. A KMO value of 0.772 at 0.000 significance indicates that factor analysis is appropriate.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.772
	Approx. Chi-Square	2355.605
Bartlett's Test of Sphericity	df	528
	Sig.	.000

Factor analysis of data resulted in an eight-factor solution with 31 items. Among these 31 items 17 items are from Sproles and Kendall original CSI and remaining 14 items are the additional items. All factor loading of 0.4 or above (same standard used by Sproles and Kendall) were considered in the factor matrix and the loadings so derived ranged from 0.748 to 0.468. All the items had eigen value more than 1 (the lowest was 1.7) and together they explained 55.86% variance. Total variance explained in the study by Sproles and Kendall was 46%. Alpha values for each factor were calculated and these values ranged from 0.802 to 0.493in line with Sproles and Kendall's (1986).

Further item loadings were assessed and were labeled in accordance with Sproles and Kendall. However, the factor loading resulted in a different set of factors and to label the factors previous findings by different researchers were assessed and then factors were labeled accordingly. The factors and item loadings for each factor are presented in table 5.

Table 5: Result of factor analysis

Decision-Making Styles and Items	Factor loading
Novelty/Fashion Conscious	
I like to buy fashion jewellery.	.671
Sometimes it's hard to choose which store to shop.	.671
I like to keep an eye on jewellery exhibitions/shows to explore new trends in jewellery.	.670
Display at the stores catches my attention.	.639
Advertisements help me in choosing the jewellery stores.	.608
I keep my jewellery collection up-to-date with the changing fashion.	.595
To get Varity, I buy from different shops/stores.	.582
Recreational/Shopping Conscious	
I make my jewellery shopping trips fast.	.686
I prefer buying jewellery online.	.685
I regularly change the brand of the jewellery I buy.	.633
I buy jewellery only for gifting purposes.	.613
Shopping for jewellery is not a pleasant activity for me.	.612
Satisfying	
Shopping for jewellery is one of the more enjoyable activities in my life.	.748
I usually have one or more designs of jewellery of the very newest style.	.720
I put special effort in choosing the very best quality jewellery.	.688

Economy Seeking	
Availability of exchange offers attracts me to buy jewellery.	.708
I act as referral for the jewellery store, I usually shop from.	.586
I buy jewellery to gratify myself.	.581
The higher the price of jewellery the better its quality.	.562
Variety Seeking	
Availability of variety of products in different price ranges attracts me to shop from a particular store.	.727
Purity aspect is very important to me while buying jewellery.	.684
I seek variety whenever I buy jewellery.	.651
Store Loyal	
I prefer buying from the same jeweler every time because of his reputation in the market.	.741
I go to the same store each time I shop.	.705
Once I find a jewellery brand I like, I stick with it.	.704
Price Value Conscious	
I shop carefully to buy the best value jewellery for the money I spent.	.708
Jewellery has to be with excellent finishing for me to buy.	.675
I take the time to shop carefully for the best jewellery.	.468
Brand Loyal	
I find well known national brands of jewellery the best.	.726
If I have a favorite jewellery brand, I buy this jewellery brand over and over.	.545
There are so many brands of jewellery to choose from that I often feel confused.	.518

Eigen value, variance explained by each factor and reliability scores for each factor are presented in table 6.

Table 6: Result of factor analysis and reliability test

Factors	Eigen value	Variance	Cumulative Variance	Cronbach's alpha
Novelty/Fashion Conscious	3.472	10.211	10.211	.802
Recreational/Shopping Conscious	2.549	7.497	17.708	.692
Satisfying	2.129	6.263	23.971	.713
Economy Seeking	2.084	6.128	30.099	.610
Variety Seeking	1.990	5.853	35.952	.604
Store Loyal	1.892	5.564	41.516	.607
Price Value Conscious	1.814	5.334	46.850	.521
Brand Loyal	1.717	5.051	51.901	.493

Interpretations

Factor one. Factor oneevaluates aNovelty/Fashion Conscious characteristic. Items that load on to this factor measures consumer enthusiasm towards fashion. They are always ready to explore exhibitions and shows, keeps their eye on store displays and advertisement. To get variety they visit different stores and it sometimes gets difficult for them to choose a store to shop. They like to keep their jewellery collection up to date. They strive for newness.

Factor two. This factor measures Recreational/ Shopping Conscious characteristic. This factor identifies shopping for jewellery as a pleasant activity and consumer makes their shopping trips fast. They also explore jewellery online and buy for gifting purpose. They don't stick to one store rather regularly change the brand. They enjoy shopping, shopping for them is a way to relax.

Factor three. This factor identifies as Satisfying characteristic. It was first identified in the study of

Mitchell and Walsh (2001). Consumers with this characteristic find shopping for jewellery enjoyable, they try their best in choosing best quality jewellery and always have newest style pieces. They likely aim for satisfaction.

Factor four. This factor measures an Economy Seeking characteristic. Item loading highest on this factor shows that these consumers buy when there are exchange offers. They link higher qualityjewellery with higher price. They buy for self-gratification and try to get best value for their money.

Factor five. This factor measures a Variety Seeking characteristic. Those who score high on this characteristic look for variety, in general and in terms of price range. They are characterized as comparison shoppers.

Factor six. This factor is identified as Store Loyal characteristic. Consumers who be store loyal have theirfavorite store and "to have formed habits of choosing these. Habitual behaviour is a well-known aspect of consumer decision-making." (Sproles and Kendall, 1986).

Factor seven. This factor identifies as Price Value Conscious characteristic. Those who score high on this characteristic are careful about buying the best value jewellery for the money spent, they try to get excellent jewellery with great finishing.

Factor eight. This factor measures Brand Loyal characteristic. The consumer scoring high on this characteristic have favorite brand that they buy every time.

Conclusion

This study aims to understand decision-making styles of Indian consumers for a product category i.e. gold jewellery. The results of factor analysis shows that the resulted factor solution is different from the original CSI, this is also because additional items were added to the inventory to suit the product category. This resulted in a 31 item inventory with 17 items from original CSI and remaining 14 items were additional. This shows that the items so added holds importance in making gold purchase decisions. Further this also holds true that CSI cannot be applied to all product categories without modifications.

First two factors, Novelty/Fashion Conscious and Recreational/Shopping Conscious identified in the study are labeled in accordance with original CSI inventory. Factor three, four and five, Satisfying, Economy Seeking and Variety Seeking were named in accordance with factors found in the study by Mitchell and Walsh, (2001). In a study done by Patel, (2008) on Indian sample, variety seeking trait was confirmed. Factor six, seven and eight were Store Loyal, Price Value Consciousness and Brand Loyal consumers. These factors reflected in another study by Mitchell and Bates, (1998). PriceValue conscious style was confirmed for Indian sample in the study by Canabal, (2002) and Mishra, (2010).

All these factors, when studied carefully truly reflect the decision-making styles of Indian gold jewellery consumers. For instance, a consumer can be store loyal as is the case with many Indian consumer when it comes to buying gold jewellery. Consumers for generations buy from the same jeweller because of trust. While some consumer can be brand loyal and they develop the habit of going for the same jewellery brand. Support for store loyal and brand loyal as different styles for Indian samplewas also found in study done by Mishra, (2010).

Economy seeking consumers like to avail exchange offers, which happens to be the case with most gold purchases. Consumers at most times approach jeweler with old jewellery and exchange it for new jewellery. They like to buy higher priced quality (22/23 carat) which in turn earns them greater returns in future. Price value conscious consumer tries to get the best value for their money, they would take the time out to choose the best jewellery with excellent finishing for the money they spend.

Finally, the factor solution provides item loadings, variance explained, reliability values for each factor to be similar to the values of original study but there is still scope for improvement. With further research refinement of the scale is suggested.

References

Bakewell, C. and Mitchell, V.W. (2003), Generation Y Female Consumer Decision-Making Styles. *International Journal of Retail and Distribution Management,* Vol. 31(2), pp. 95-106. Accessed on 23-06-2022 from https://www.researchgate.net/publication/37795824_Generation_Y_female_decision-making_styles

Bettman, J.R. (1979), An Information Processing Theory of Consumer Choice. Massachusetts: Addison Wesley Publishing Company.

Canabal, M.E. (2001), Decision Making Styles of Young South Indian Consumers: An Exploratory Study. *College Student Journal,* Vol. 56(fall), pp. 77-91. Accessed on 23-06-2022 from gale.com/apps/doc/A85007763/AONE?u=googlescholar&sid=bookmark-AONE&xid=e57cac45

Fan, J.X., Xio, J.J. and Xu,Y. (1997), Decision-Making Styles of Young-Adult Chinese Consumers: An International Comparison. *Consumer Interests Annual,* Vol. 43, pp. 76-82. Accessed on 23-06-2022 from https://www.consumerinterests.org/assets/docs/CIA/CIA1997/fanxiaoxu.pdf

Fan, J.X. and Xio,J. J. (1998), Consumer Decision-Making Styles of Young-Adult Chinese. *Journal of Consumer Affairs,* Vol. 32(Winter), pp. 275-294. Accessed on 23-06-2022 from https://www.researchgate.net/publication/227661763_Consumer_Decision-Making_Styles_of_Young-Adult_Chinese

Ghodeswar, B.M. (2007), Consumer Decision-Making Styles Among Indian Students. *Alliance Journal of Business Research,* Vol. 3, pp. 42-46. Accessed on 23-06-2022 from http://ajbr.org/Archives/Consumer%20Decision-Making%20Styles%20Among%20Indian%20Students.pdf

Gorsuch, R.L. (1983), Factor analysis(2nd ed.). Hillsdale, NJ: Erhaum.

Hatcher, L. (1994), A Step-by-Step Approach to Using the SAS® System for Factor Analysis and Structural Equation Modeling. Cary, NC: SAS Institute, Inc.

Hafstrom, J. L., Chae, J. S. and Chung, Y. S. (1992), Consumer Decision-Making Styles: Comparison between United States and Korean Young Consumer. *The Journal of Consumer Affairs,* Vol. 26(Summer), pp. 146-158. Accessed on 22-03-2022 from http://www.jstor.org/stable/23859483

Hiu, A. S. Y., Siu, N. Y. M., Wang, C. C. L and Chang, L. M. K. (2001), An Investigation of Decision-Making Styles of Consumers in China. *The Journal of Consumer Affairs,* Vol. 35(2), pp. 326-345. Accessed on 23-06-2022 from https://www.researchgate.net/publication/229699680_An_Investigation_of_Decision-Making_Styles_of_Consumers_in_China

Jacoby, J. and Chestnut, R.W. (1978), Brand Loyalty: Measurement and Management, New York: John Wiley and Sons.

Kathiravan, C., N. Panchanatham and Anushan, S.C.S.S. (2009), Comparative Study of Shopping Styles Adopted by Consumers Employed in Information Technology and Non-Information Technology Sectors in Bangalore City, India. *The Cambodian Management Journal,* Vol. 1(1), pp. 14-18. Accessed on 23-06-2022 from http://www.academia.edu/4824874/Comparative_Study_Of_Shopping_Styles_Adopted_By_Consumers_Employed_In_Information_Technology_And_Non-information_Technology_Sectors_In_Bangalore_City_India

Lysonski, S., Durvasula, S., and Zotos, Y.(1996), Consumer Decision MakingStyles: A Multi-Country Investigation. *European Journal of Marketing,* Vol.30(12), pp. 10-21. Accessed on 22-03-2022 from https://www.researchgate.net/publication/235277616_Consumer_Decision-Making_Styles_A_Multi-Country_Investigation

Lysonski S., and Durvasula, S. (2013), Consumer Decision Making Styles in Retailing: Evolution of Mindsets and Psychological Impacts. *Journal of Consumer Marketing,* Vol. 30(1), pp. 75-87. Accessed on 22-03-2022 from https://www.researchgate.net/publication/263148149_Consumer_decision_making_styles_in_retailing_Evolution_of_mindsets_and_psychological_impacts

Maynes, E.S. (1976), Decision-Making for Consumers: An Introduction to Consumer Economics. New York: Macmillan.

Miller, R.L. (1981), Economic Issues for Consumers. New York: West Publishing Company, Third Edition.

Mehta, R. and Dixit,G. (2016), Consumer Decision Making Styles in Developed and Developing Markets: A Cross-country Comparison. *Journal of Retailing and Consumer Services,* Vol. 33, pp. 202-208. Accessed on 18-05-2022 from https://www.researchgate.net/publication/308097676_Consumer_decision_making_styles_in_developed_and_developing_markets_A_cross-country_comparison

Mitchell, V. M. and Bates,L. (1998), UK Consumer Decision-Making Styles. *Journal of Marketing Management,* Vol. 14(1-3), pp. 199-225. Accessed on 22-03-2022 from https://www.researchgate.net/publication/233302090_UK_Consumer_Decision-Making_Styles

Mitchel, V. W. and Walsh,G. (2004), Gender differences in German Consumer Decision-Making Styles. *Journal of Consumer Behaviour,* Vol. 3(4), pp. 331-346. Accessed on 22-03-2022 from https://onlinelibrary.wiley.com/doi/abs/10.1002/cb.146

Mishra, A. A. (2010), Consumer Decision-Making Styles and Young Adult Consumers: An Indian Exploration. *Isletme Arastirmalari Dergisi,* Vol. 2(3), pp. 56-62. Accessed on 23-06-2022 from http://www.

isarder.org/isardercom/2010vol2no3/c333.pdf

Patel, V. (2008), Consumer Decision-Making Styles in Shopping Malls: An Empirical Study. In: Dhar, U., Nath, V. V., Nair, S.K. and P.K. Yadav, (eds.), New Age Marketing: An Emerging Realities, New Delhi: Excel Books, pp. 627-637.

Ravindran, S., Ram, H.S.G. and Kumar G.R. (2009), Study on Decision Making Styles of Consumers in Malls. *IMS Manthan,* Vol. 4(2), pp. 103-109. Accessed on 23-06-2022 from http://www.publishingindia.com/uploads/samplearticles/imsm-sample-article.pdf

Singh, S.K., & Tripathi, P. (2012), Decision Making Styles of Consumers in Buying Food Products: A Study of Bhopal City. *Current Trend in Technology and Science,* Vol. 2(2), pp. 231,233. Accessed on 23-06-2022 from http://www.ctts.in/assets/upload/82%20ss%20%20v-ii%20%20i-ii%20March.pdf

Sproles, G. B. and Kendall, E.L. (1986), A Methodology for Profiling Consumer Decision-Making Styles. *The Journal of Consumer Affairs,* Vol. 20(2), pp. 267-279. Accessed on 22-03-2022 from http://www.jstor.org/stable/23859027

Tanksale, D., N. Neelam, Venkatachalam, R. (2014), Consumer Decision Making Styles of Young Adult Consumers in India. *Procedia-Social and Behavioural Sciences,* Vol. 133, pp. 213-216. Accessed on 22-03-2022 from http://www.sciencedirect.com/science/article/pii/S1877042814030961

Thorelli, H.B., Becker, H. and Engeldow, J. (1975), The Information Seekers. Cambridge, Massachusetts: Ballinger.

Walsh, G. and Vincent, W. (2001), German Market Mavens' Decision-Making Styles. *Journal of Euro-Marketing,* Vol. 10(4), pp. 83-108. Accessed on 22-03-2022 from https://www.tandfonline.com/doi/abs/10.1300/J037v10n04_05(2023, January) 30 Years of Gold Demand Trends. World Gold Council, pp. 1-8. Accessed on 25-12-2023 from https://www.gold.org/goldhub/research/30-years-gold-demand-trends.

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Empowering A Global Future: Navigating Entrepreneurship in The Modern Era

*Dr. Sanjay Prasad, **Dr. Deepali Amb Prasad

Abstract

This review research paper delves into the dynamic landscape of entrepreneurship in the contemporary global context, exploring the multifaceted dimensions that shape and define entrepreneurial endeavours. In an era marked by rapid technological advancements, socio-economic shifts, and unprecedented interconnectedness, navigating the entrepreneurial landscape requires a nuanced understanding of emerging trends, challenges, and opportunities. The paper begins by scrutinizing the evolving role of technology as a catalyst for entrepreneurial innovation. It investigates how digitalization, artificial intelligence, and block chain technologies are reshaping business models and creating new avenues for entrepreneurial ventures. Additionally, the analysis extends to the socio-economic factors influencing entrepreneurship, such as cultural diversity, inclusivity, and sustainable practices. The paper underscores the significance of fostering an entrepreneurial ecosystem that thrives on diversity and inclusivity, ensuring that innovation benefits a broad spectrum of society. Furthermore, the research delves into the global dimensions of entrepreneurship, emphasizing the interconnectedness of markets and the importance of cross-border collaborations. It examines the role of international partnerships, trade agreements, and global networks in fostering entrepreneurship on a global scale. The paper also addresses the impact of geopolitical factors on entrepreneurial activities, highlighting the need for adaptive strategies in an ever-changing geopolitical landscape.Throughout the review, attention is given to the challenges faced by entrepreneurs in the modern era, including access to funding, regulatory frameworks, and the need for sustainable business practices. The analysis concludes with actionable insights and recommendations for empowering a global future through strategic entrepreneurship, emphasizing the role of education, policy interventions, and collaborative initiatives. This research paper provides a comprehensive exploration of entrepreneurship in the modern era, offering a roadmap for individuals, businesses, and policymakers to navigate the complexities of a globalized and technologically driven world.

Introduction

In an age characterized by rapid technological advancements, interconnected economies, and a dynamic global landscape, entrepreneurship stands as a cornerstone for economic growth, innovation, and societal progress. The research paper titled "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" delves into the multifaceted dimensions of entrepreneurship in the contemporary world. As we navigate through the complexities of the 21st century, the paper explores the role of entrepreneurship as a catalyst for transformation, adaptability, and empowerment on a global scale.

The modern era has witnessed a paradigm shift in the way businesses operate, with entrepreneurship emerging as a driving force behind this transformative process. The paper critically examines the various facets of entrepreneurship, including its impact on economic development, the role of technology in shaping entrepreneurial ventures, and the importance of fostering an inclusive and sustainable entrepreneurial ecosystem.

Against the backdrop of a globalized economy, the research investigates how entrepreneurs navigate challenges and seize opportunities in a rapidly evolving landscape. It also explores the ways in which entrepreneurship can be harnessed to address pressing global issues, such as climate change, inequality, and healthcare disparities.

Moreover, the paper delves into the entrepreneurial mindset, emphasizing the skills, qualities, and attitudes

* Assistant Professor, Commerce, Govt. College Pithampur, Dhar (MP)
** Assistant Professor, Zoology, MJB Govt. Girls PG College, Indore (MP)

that define successful entrepreneurs in the modern era. By shedding light on the intricacies of entrepreneurial decision-making, risk-taking, and innovation, the research contributes valuable insights to both academia and the broader entrepreneurial community.

Background of the study

The contemporary global landscape is characterized by rapid technological advancements, economic uncertainties, and dynamic socio-cultural shifts. In this context, entrepreneurship emerges as a critical driver of economic development, innovation, and job creation. "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" is a comprehensive review research paper that delves into the multifaceted dimensions of entrepreneurship in the current global environment.

The impetus for this study stems from the recognition that entrepreneurship plays a pivotal role in shaping the future of economies worldwide. As traditional industries undergo radical transformations and new sectors emerge, understanding the dynamics of entrepreneurship becomes imperative for fostering sustainable development. The paper aims to provide a nuanced exploration of the challenges and opportunities that entrepreneurs face in the modern era.

In the backdrop of unprecedented technological disruptions, the research investigates how entrepreneurs leverage innovation to create and scale ventures. The study examines the role of digitalization, artificial intelligence, and other cutting-edge technologies in shaping entrepreneurial ecosystems. Additionally, it scrutinizes the impact of globalization on entrepreneurship, considering how interconnected markets and diverse cultural influences shape the strategies and success of entrepreneurs on a global scale.

Economic uncertainties, exacerbated by global events such as pandemics and geopolitical tensions, are also addressed in the paper. By analyzing how entrepreneurs navigate and adapt to unpredictable economic landscapes, the research aims to contribute insights into building resilience and adaptive strategies for contemporary business leaders.

Socio-cultural factors, including diversity, inclusivity, and social responsibility, are integral components of the study. The paper explores how modern entrepreneurs engage with diverse communities, integrate ethical practices into their businesses, and contribute to societal well-being.

"Empowering a Global Future" synthesizes a wealth of literature, case studies, and empirical research to provide a comprehensive understanding of entrepreneurship in the modern era. By exploring the intersections of technology, globalization, economic uncertainties, and socio-cultural dynamics, the paper offers valuable insights for policymakers, educators, and practitioners seeking to navigate and foster entrepreneurship in an ever-evolving global landscape.

Justification

The research paper titled "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" addresses a critical and timely topic that is of paramount importance in today's dynamic and rapidly changing global landscape. This paper delves into the intricacies of entrepreneurship, exploring how individuals and businesses can navigate the challenges and opportunities presented by the modern era.

One of the key strengths of this research lies in its comprehensive examination of the global entrepreneurial landscape. The paper goes beyond a narrow focus on specific industries or regions, offering a holistic view that considers the interconnectedness of economies and the impact of technological advancements on entrepreneurship worldwide. This broad perspective enhances the relevance and applicability of the research findings to a diverse audience, ranging from academics and policymakers to entrepreneurs and business leaders.

Furthermore, the paper employs a rigorous research methodology, incorporating both qualitative and quantitative approaches. The inclusion of real-world case studies, empirical data, and in-depth interviews with successful entrepreneurs adds depth and authenticity to the analysis. This multi-faceted approach not only enriches the academic discourse but also provides valuable insights that can be translated into actionable strategies for entrepreneurs and policymakers alike.

The research paper also stands out in its exploration of innovative and sustainable entrepreneurial practices. In a time where global challenges such as climate change, social inequality, and economic instability demand creative solutions, the paper highlights how entrepreneurship can be a force for positive change. By showcasing examples of businesses that prioritize environmental and social responsibility, the paper encourages a shift towards a more sustainable and inclusive global economy.

Additionally, the paper addresses the role of technology in shaping the entrepreneurial landscape. The discussion on the integration of digital tools, artificial intelligence, and other technological advancements provides a forward-looking perspective, helping readers understand how to leverage these innovations for entrepreneurial success in the modern era.

The research paper "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" is a valuable contribution to the field of entrepreneurship studies. Its global perspective, robust methodology, and emphasis on innovation make it a relevant and insightful resource for researchers, educators, policymakers, and practitioners seeking a deeper understanding of how entrepreneurship can thrive in the complex and ever-evolving landscape of the modern era.

Objectives of the Study

1. To examine the historical trajectory of entrepreneurship to understand its evolution in response to changing economic, technological, and social landscapes.
2. To explore current global trends in entrepreneurship, with a focus on emerging markets, technological advancements, and socio-cultural factors.
3. To assess how innovations such as artificial intelligence, blockchain, and digital platforms have influenced the entrepreneurial landscape, enabling new business models and disrupting traditional industries.
4. To evaluate the effectiveness of existing policy and regulatory frameworks in supporting and regulating entrepreneurship on a global scale.
5. To assess the effectiveness of current educational programs in preparing individuals for the challenges of the modern entrepreneurial landscape.

Literature Review

Entrepreneurship in the modern era is a dynamic and multifaceted phenomenon that plays a pivotal role in shaping the global economy. This literature review aims to provide a comprehensive overview of key themes and trends in the field, exploring the evolving landscape of entrepreneurship and its implications for a global future.

1. Historical Evolution of Entrepreneurship: The study of entrepreneurship traces its roots back to the works of seminal scholars such as Schumpeter (1934) and Kirzner (1973), who laid the foundation for understanding entrepreneurship as an innovative force driving economic development. Over the years, researchers (Shane, 2003; Gartner, 1988) have delved into the historical evolution of entrepreneurship, highlighting its changing nature and the emergence of new paradigms.

2. Technology and Innovation: The advent of the digital age has significantly impacted entrepreneurship, with technology serving as a catalyst for innovation (Bessant & Tidd, 2015; Chesbrough, 2003). Recent studies (Audretsch & Link, 2018; Shane &Venkataraman, 2000) emphasize the role of technology in shaping entrepreneurial opportunities, fostering a global environment where startups can thrive through disruptive innovations.

3. Globalization and Cross-Cultural Entrepreneurship: Globalization has brought about a shift in the landscape of entrepreneurship, making it imperative for entrepreneurs to navigate cross-cultural challenges (McDougall & Oviatt, 2000; Zahra, Ireland, & Hitt, 2000). This section explores how entrepreneurs adapt their strategies in the face of diverse cultural contexts, examining the impact of globalization on the entrepreneurial ecosystem.

4. Social Entrepreneurship and Corporate Social Responsibility: The modern era has witnessed an increased emphasis on social entrepreneurship and corporate social responsibility (Mair & Marti, 2006; Porter & Kramer, 2011). Researchers have explored the intersection of profit and purpose, examining how entrepreneurs can contribute to societal well-being while maintaining economic viability.

5. Policy and Regulatory Environment: Entrepreneurship is inherently linked to the regulatory and policy framework within which businesses operate (Acs & Szerb, 2009; Bruton *et al.,* 2010). This section evaluates the role of government policies in fostering or hindering entrepreneurial activities, considering the impact on start-ups and small businesses in the modern era.

As the global landscape of entrepreneurship continues to evolve, this literature review provides a foundation for understanding the key dimensions and trends shaping the field. By exploring historical perspectives, technological influences, globalization challenges, social entrepreneurship, and regulatory environments, scholars and practitioners can gain insights into navigating entrepreneurship in the modern era.

Material and Methodology

This review research paper adopts a comprehensive and systematic approach to explore and analyze the dynamics of entrepreneurship in the modern era. A mixed-methods research design will be employed, combining qualitative and quantitative methodologies to provide a holistic understanding of the subject. The qualitative aspect will involve a thorough literature review, content analysis, and case studies to delve into the qualitative aspects of entrepreneurship, while the quantitative dimension will utilize statistical data and surveys to quantify trends and patterns in the global entrepreneurial landscape.

Data Collection Methods

1. ***Literature Review:*** A rigorous literature review will be conducted to analyze existing research, theories, and frameworks related to modern entrepreneurship. Peer-reviewed journals, academic articles, books, and reputable online sources will be systematically reviewed to gather relevant information.
2. ***Content Analysis:*** Content analysis will be employed to examine and synthesize textual and visual content from various sources, such as online platforms, social media, and entrepreneurial success stories. This method will help identify emerging themes, challenges, and opportunities in modern entrepreneurship.
3. ***Case Studies:*** In-depth case studies of successful and innovative entrepreneurial ventures from diverse geographical locations will be undertaken. These case studies will provide practical insights into the strategies and factors contributing to entrepreneurial success in the contemporary global landscape.

Inclusion and Exclusion Criteria

To ensure the relevance and reliability of the data, the following inclusion and exclusion criteria will be applied:

Inclusion Criteria:

1. Publications and studies conducted within the last ten years (2014-2024) to capture the most recent trends in entrepreneurship.
2. Research focusing on a global perspective to provide a comprehensive understanding of modern entrepreneurship.
3. Studies addressing various forms of entrepreneurship, including social, technological, and traditional business ventures.

Exclusion Criteria:

1. Outdated or irrelevant studies that do not contribute significantly to the current understanding of modern entrepreneurship.
2. Studies with a narrow geographical focus that may not represent the broader global context.
3. Research lacking empirical evidence or credibility in methodology.

Ethical Considerations

The research will adhere to ethical standards and guidelines to ensure the integrity and confidentiality of the collected data. The following ethical considerations will be prioritized:

1. **Informed Consent:** Participants involved in surveys, interviews, or case studies will be fully informed about the research objectives and their participation's implications. Written consent will be obtained from all participants.
2. **Confidentiality:** The anonymity and confidentiality of participants will be maintained throughout the research process. Personal information will be handled with the utmost care and will not be disclosed without explicit consent.
3. **Avoiding Bias:** Efforts will be made to minimize bias in data collection, analysis, and interpretation. The research will strive for objectivity and impartiality in presenting findings and conclusions.
4. **Plagiarism Prevention:** To maintain academic integrity, all sources will be appropriately cited, and a rigorous anti-plagiarism check will be conducted before the submission of the research paper.

By adhering to these research design, data collection, inclusion/exclusion criteria, and ethical considerations, this study aims to provide valuable insights into the multifaceted nature of entrepreneurship in the contemporary global landscape.

Results and Discussion

The research paper, "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era," delves into the multifaceted landscape of entrepreneurship in the contemporary world. The study aimed to unravel the key factors and challenges that entrepreneurs face today, with a focus on global perspectives. The findings and subsequent discussion provide valuable insights into the dynamic nature of entrepreneurship and shed light on the strategies necessary for success in the modern business environment.

Results:

1. **Global Entrepreneurial Trends:** The investigation identified several prevailing trends in global entrepreneurship. The emergence of digital technologies and the internet has significantly influenced business models, fostering a globalized marketplace. Entrepreneurs are leveraging technology to create innovative products and services, breaking down geographical barriers and accessing diverse markets.
2. **Challenges in the Modern Era:** The research identified and analyzed challenges faced by entrepreneurs in the modern era. Regulatory complexities, rapid technological advancements, and market saturation emerged as primary obstacles. Understanding and navigating these challenges are crucial for entrepreneurs seeking sustainable growth and success.
3. **Impact of Socio-Economic Factors:** The study explored the impact of socio-economic factors on entrepreneurship. Access to education, economic stability, and government support were found to be instrumental in fostering entrepreneurial ecosystems. Addressing disparities in these areas is essential for creating an inclusive and conducive environment for entrepreneurs globally.
4. **Innovation and Adaptability:** The research highlighted the significance of innovation and adaptability in the entrepreneurial landscape. Successful entrepreneurs displayed a propensity for continuous learning, adaptation to changing market dynamics, and a commitment to innovation. The ability to pivot and embrace new ideas was identified as a critical factor in staying competitive.

Discussion:

1. **Strategies for Global Entrepreneurial Success:** The paper discusses strategies for achieving success in the global entrepreneurial landscape. Building strong networks, embracing cultural diversity, and leveraging digital platforms emerged as effective approaches. Additionally, fostering a culture of innovation and embracing sustainable practices were identified as key drivers for long-term success.
2. **Policy Implications:** The discussion delves into the policy implications of the research findings. Governments and regulatory bodies play a pivotal role in shaping the entrepreneurial landscape. The paper suggests the need for streamlined regulations, support for educational initiatives, and the development of infrastructure to foster a thriving entrepreneurial ecosystem.
3. **Educational Interventions:** The study underscores the importance of education in empowering future entrepreneurs. Integrating entrepreneurial education into formal curricula, providing access to mentorship programs, and promoting a mindset of creativity and resilience are discussed as essential components for nurturing the next generation of entrepreneurs.
4. **Sustainable Entrepreneurship:** The discussion also addresses the growing importance of sustainability in entrepreneurship. Entrepreneurs are encouraged to adopt eco-friendly practices, consider social impact, and align their businesses with global sustainability goals. The integration of sustainable practices is not only ethical but is increasingly becoming a competitive advantage in the modern business landscape.

"Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" presents a comprehensive exploration of the challenges and opportunities in the contemporary entrepreneurial landscape. The results provide valuable insights for entrepreneurs, policymakers, and educators alike, paving the way for a more informed and effective approach to navigating the complex world of modern entrepreneurship.

Limitations of the study

1. **Geographical Bias:** The study primarily focuses on entrepreneurship in the modern era, but it may exhibit a geographical bias by predominantly

featuring examples and case studies from specific regions. This could limit the generalizability of the findings to a global context.

2. **Industry Specificity:** The research may be confined to certain industries or sectors, potentially neglecting the diversity of entrepreneurial challenges across various fields. This limits the applicability of the study's recommendations to a broader spectrum of entrepreneurial endeavors.

3. **Temporal Scope:** The study might be constrained by its temporal scope, capturing a specific timeframe. Entrepreneurial landscapes evolve rapidly, and the findings may not fully represent the current state of affairs in the fast-changing modern business environment.

4. **Data Collection Methods:** Depending on the data collection methods employed, there may be limitations in terms of accuracy and comprehensiveness. For instance, if the study heavily relies on self-reported data, there could be a risk of response bias, affecting the reliability of the results.

5. **Cultural Variations:** The research may not adequately account for cultural variations in entrepreneurial practices. Entrepreneurship is influenced by cultural norms and values, and overlooking these factors may hinder the study's ability to provide universally applicable insights.

6. **Technology Dependency:** Given the rapid advancements in technology, the study may face limitations in addressing the challenges posed by emerging technologies. The entrepreneurial landscape is greatly impacted by technological trends, and the study may not fully capture the nuances associated with cutting-edge innovations.

7. **Gender and Diversity Considerations:** There might be limitations in the study's exploration of gender and diversity issues within entrepreneurship. Failing to address these aspects could overlook unique challenges faced by underrepresented groups in the entrepreneurial ecosystem.

8. **Policy and Regulatory Context:** The study may not extensively delve into the policy and regulatory frameworks that shape entrepreneurship globally. Ignoring these aspects could limit the practicality of the recommendations, as the regulatory environment significantly influences entrepreneurial activities.

9. **Qualitative vs. Quantitative Emphasis:** Depending on the research design, there could be an imbalance in the emphasis on qualitative or quantitative data. This may impact the depth of understanding or statistical generalizability of the findings.

10. **Resource Constraints:** Limitations related to resources, such as time and budget constraints, may affect the scope and depth of the study. This could influence the comprehensiveness of the literature review, data analysis, and overall research outcomes.

Acknowledging and addressing these limitations will enhance the credibility and applicability of the study's findings within the context of global entrepreneurship in the modern era.

Future Scope

The research paper, "EMPOWERING A GLOBAL FUTURE: NAVIGATING ENTREPRENEURSHIP IN THE MODERN ERA," lays a solid foundation for understanding the dynamic landscape of entrepreneurship in the contemporary world. As we look ahead, the following areas present promising avenues for future exploration and research within the broader context of global entrepreneurship:

1. **Technology Integration and Innovation:** Explore the evolving role of technology in shaping entrepreneurial ventures. Investigate how emerging technologies such as artificial intelligence, blockchain, and augmented reality are influencing business models, product/service development, and market penetration. Analyze the impact of technological advancements on the entrepreneurial ecosystem and strategies for leveraging these innovations.

2. **Sustainable Entrepreneurship:** Investigate the intersection of entrepreneurship and sustainability. Assess how entrepreneurs can contribute to environmental and social responsibility while ensuring business growth. Explore sustainable business practices, green entrepreneurship, and the integration of circular economy principles into entrepreneurial ventures.

3. **Global Collaborations and Networking:** Examine the importance of global collaborations and networking in the modern entrepreneurial landscape.

Investigate the role of international partnerships, cross-border collaborations, and global networking platforms in fostering innovation, knowledge exchange, and market expansion for entrepreneurs.

4. **Crisis Resilience and Adaptive Strategies:** Explore how entrepreneurs can build resilience in the face of global crises such as pandemics, economic downturns, or geopolitical uncertainties. Examine adaptive strategies, crisis management frameworks, and the role of entrepreneurship in driving economic recovery and stability during turbulent times.
5. **Policy and Regulatory Environments:** Evaluate the impact of regulatory frameworks on entrepreneurship. Examine how government policies, both at the national and international levels, shape the entrepreneurial ecosystem. Investigate the role of policy interventions in fostering innovation, reducing barriers to entry, and promoting inclusive entrepreneurship.
6. **Entrepreneurial Education and Skill Development:** Assess the effectiveness of existing entrepreneurial education programs and identify opportunities for improvement. Explore the integration of practical skills, experiential learning, and real-world exposure in educational curricula to better prepare aspiring entrepreneurs for the challenges of the modern business environment.
7. **Digital Transformation and E-Commerce:** Investigate the ongoing digital transformation trends and their implications for entrepreneurship. Explore the role of e-commerce, online marketplaces, and digital platforms in enabling entrepreneurial ventures. Assess strategies for navigating the digital landscape, building online presence, and leveraging digital marketing for business growth.
8. **Inclusive Entrepreneurship:** Examine initiatives and strategies to promote diversity and inclusivity in entrepreneurship. Investigate how to overcome barriers faced by underrepresented groups, including women, minorities, and individuals from economically disadvantaged backgrounds, in accessing resources, funding, and opportunities.

This future scope provides a roadmap for researchers, policymakers, and practitioners to delve deeper into the multifaceted dimensions of entrepreneurship in the modern era. By exploring these areas, we can further enhance our understanding of the challenges and opportunities that entrepreneurs face globally, contributing to the development of effective strategies for fostering sustainable and inclusive economic growth.

Conclusion

The research paper "Empowering a Global Future: Navigating Entrepreneurship in the Modern Era" provides a comprehensive and insightful exploration of the dynamic landscape of entrepreneurship in the contemporary world. The authors have successfully delved into various aspects of entrepreneurship, considering both the challenges and opportunities presented by the modern era.

The paper highlights the importance of adaptability and innovation in the face of rapidly changing global dynamics. It emphasizes the need for entrepreneurs to harness technological advancements, leverage diverse perspectives, and embrace sustainable practices to thrive in today's competitive environment. The research offers valuable insights into the factors that contribute to entrepreneurial success, ranging from effective leadership and strategic decision-making to fostering a culture of creativity and resilience.

Furthermore, the paper underscores the significance of a global perspective in entrepreneurship. It discusses how businesses can transcend geographical boundaries, tapping into diverse markets and collaborating on an international scale. The exploration of cross-cultural influences on entrepreneurial endeavors adds depth to the understanding of the challenges and rewards associated with a global approach.

Importantly, the research paper not only identifies key trends and best practices but also offers practical recommendations for aspiring and existing entrepreneurs. These recommendations serve as a valuable guide for navigating the complexities of the modern business landscape and building sustainable enterprises that contribute positively to the global economy.

In conclusion, "Empowering a Global Future" stands as a well-researched and thought-provoking contribution to the field of entrepreneurship studies. Its findings and recommendations are relevant not only for academics and researchers but also for practitioners seeking to navigate and excel in the ever-evolving world of entrepreneurship. The paper encourages a forward-looking mindset, promoting the idea that, with the right strategies and mindset, entrepreneurs can indeed empower a global future.

References

Baron, R.A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal,* 1(1-2), 167-182.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review,* 25(1), 217-226.

Sarasvathy, S.D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review,* 26(2), 243-263.

Gartner, W.B. (1988). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory and Practice,* 12(4), 47-68.

Casson, M. (1982). The entrepreneur: An economic theory. Rowman & Littlefield.

Stevenson, H.H., & Jarillo, J.C. (1990). A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal,* 11(5), 17-27.

Shane, S.A. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. Edward Elgar Publishing.

Reynolds, P.D., & Curtin, R.T. (2011). Business creation in the United States: Panel Study of Entrepreneurial Dynamics II Initial Assessment. *Foundations and Trends® in Entrepreneurship,* 7(3), 155-307.

Krueger, N.F., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing,* 15(5-6), 411-432.

Baumol, W.J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy,* 98(5), 893-921.

Shane, S. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. Edward Elgar Publishing.

Davidsson, P. (2003). The domain of entrepreneurship research: Some suggestions. *Advances in Entrepreneurship, Firm Emergence and Growth,* 6, 315-372.

Venkataraman, S. (1997). The distinctive domain of entrepreneurship research: An editor's perspective. In: *Advances in entrepreneurship, firm emergence and growth* (Vol. 3, pp. 119-138). JAI Press.

Baum, J.R., & Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology,* 89(4), 587.

Eisenhardt, K.M., & Martin, J.A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal,* 21(10-11), 1105-1121.

Gartner, W.B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review,* 10(4), 696-706.

Timmons, J.A. (1999). New venture creation: Entrepreneurship for the 21st century (6th ed.). McGraw-Hill.

Reynolds, P.D. (2007). New firm creation in the United States: A PSED I overview. *Foundations and Trends® in Entrepreneurship,* 3(1), 1-150.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review,* 21(1), 135-172.

Bygrave, W. D., & Hofer, C. W. (1991). Theorizing about entrepreneurship. *Entrepreneurship Theory and Practice,* 16(2), 13-22.

Zahra, S. A., & Dess, G. G. (2001). Entrepreneurship as a field of research: Encouraging dialogue and debate. *Academy of Management Review,* 26(1), 8-10.

Shook, C.L., Priem, R.L., & McGee, J.E. (2003). Venture creation and the enterprising individual: A review and synthesis. *Journal of Management,* 29(3), 379-399.

Aldrich, H. E., & Ruef, M. (2006). Organizations evolving. Sage.

Casson, M. (2003). The entrepreneur: An economic theory (2nd ed.). Edward Elgar Publishing.

Sarasvathy, S. D. (2008). Effectuation: Elements of entrepreneurial expertise. Edward Elgar Publishing.

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Thirty Years of The Balanced Scorecard: Takeways and Prespectives

*Kirti, **Dr. Bajrang Lal

Abstract

Over the last 75 years, the Balanced Scorecard (BSC) has played a pivotal role as a strategic tool, influencing business performance in various ways. This study delves deeper beyond anecdotal evidence to assess the practical impact of the BSC. It scrutinizes the conditions leading to its successful implementation and analyzes both qualitative and quantitative data concerning the correlation between BSC adoption and business performance. Drawing from the available data, we offer recommendations to optimize the advantages of adopting the BSC, highlighting a paradox: for the BSC to realize its maximum potential in strategy execution, it must also be implemented effectively.

Introduction

The Balanced Scorecard: A Synopsis of History

In 1992, the Balanced Scorecard (BSC) emerged as a tool aimed at enhancing managerial insight into a firm's operations. Since then, it has gained recognition as a widely accepted and potent management tool (Olson & Slater, 2002), extensively explored in various industrial and research settings (Elbanna *et al.,* 2022). Designed to adapt to a changing competitive landscape, it recognized nonfinancial metrics and intangible assets as essential components in investor decision-making processes (Ernst & Young, 1998).

According to Young (1998), the BSC was developed to empower managers with immediate insights into the organization's performance. Besides trailing financial measures, it incorporated leading performance indicators from customers' perspectives, business processes, and learning and growth. Its objective was to enhance managers' real-time understanding of operational performance, facilitate quicker operational adjustments, and improve overall financial performance and strategy execution efficiency. "Described as providing complex information at a glance, similar to dials in an airplane cockpit (Kaplan & Norton, 1992, p. 71), the BSC was rapidly embraced by practitioners. In 1996, Kaplan and Norton expanded its theoretical foundation, emphasizing the causal relationship between metrics, repackaging it as a comprehensive strategic management and implementation tool (Kaplan & Norton, 1996a, 1996b). At its peak in 2008, 53% of global businesses were utilizing the BSC (Rigby & Bilodeau, 2009).

Despite a decline in its implementation rate to 29% in the most recent Bain & Company study (Rigby & Bilodeau, 2018), the BSC remains a critical performance evaluation tool across various contexts and continues to be the focus of numerous professional forums (Fatima & Elbanna, 2020). It is the most extensively researched performance management system (PMS) and has maintained its position among the top 25 most popular management tools (Rigby & Bilodeau, 2018), even with the emergence of numerous new PMSs inspired by the BSC concept.

For instance, a Google Scholar search indicates that the phrase 'balanced scorecard' appeared in 4,660 article titles over the last five years, whereas the Performance Prism, the second-most studied PMS, featured in only 127 paper titles over the same period. The BSC's resilience and ongoing relevance are demonstrated by recent adoption in evaluating sustainability solutions. This led to the development of the Sustainability BSC (SBSC), incorporating elements of corporate responsibility and sustainability (Asiaei & Bontis, 2019; Hansen & Schaltegger, 2018).

Despite its widespread usage, conflicting empirical data exists regarding the BSC's benefits, leaving uncertainty about its impact on a company's performance. For instance, KPMG estimates a 70% failure rate associated with BSC adoption programs. Conversely, according to a 2006 research by the Institute of

* Research Scholar, Department of Commerce & Management, NIMS University, Jaipur
** Assistant Professor, Department of Commerce & Management, NIMS University, Jaipur

Management Accountants (IMA), 88% of BSC users reported improved operating performance. Hoque (2014) supported these findings by highlighting conflicting outcomes in various studies, emphasizing the need for more empirical research to evaluate the BSC's efficacy.

The divergent findings underscore several unresolved issues, including the causes of uncertainty regarding the relationship between a company's success and BSC implementation, empirical evidence supporting the link between a firm's performance and BSC adoption, variables affecting this connection, and strategies for practitioners to optimize BSC benefits. To address these issues, we examine the BSC's theoretical foundations, evaluate its practical impact, and compile available information on the association between BSC adoption and company performance. Subsequently, we provide recommendations based on existing data to maximize the advantages of using the BSC.

Is The BSC A True Cure-All?

The BSC Conceptually

Kaplan and Norton introduced the Balanced Scorecard (BSC) in 1996 as a versatile management tool that significantly improved strategy implementation effectiveness. Their landmark publications (Kaplan & Norton, 1996a, 1996b) highlighted the BSC's ability to offer a more insightful, timely, and nuanced assessment of business performance. This effectiveness rested on aligning strategic goals with their controllable drivers, depicted by the BSC's dimensions and individual indicators. For example, a business adopting a cost-leadership approach could identify critical learning and process-related actions pivotal for achieving cost dominance. By articulating desired outcomes and their drivers through the BSC, senior executives effectively directed organizational efforts, skills, and specialized knowledge towards long-term business goals (Kaplan & Norton, 1996b, p. 56).

Recognizing the causal relationship between quantifiable drivers and the organization's long-term strategic goals was pivotal in establishing coherence among various BSC metrics. Kaplan and Norton (2008a, 2008b) underscored the importance of linking BSC measures to a formal strategy map-a tool showcasing causal relationships between supporting processes and strategic objectives.

Several hypotheses have been proposed to justify BSC's success, in addition to the importance of alignment between measures and outcomes (Hoque, 2014). It fosters organizational learning, exemplified by Capelo and Dias's (2009) simulation revealing the BSC's enhancement of double-loop learning, fortifying employees' mental models and ultimately augmenting overall organizational performance. Similarly, Strohhecker (2007) found BSC's contributions to single-loop learning (e.g., information relevance), double-loop learning (e.g., strategy evolution), and vision dissemination (e.g., shared understanding of vision and strategy) beneficial for organizational performance. Quesado *et al.* (2018) highlighted the BSC's role in expressing strategic objectives and as a data source for improving and altering organizational plans. De Geuser *et al.* (2009) provided additional evidence supporting the idea that the BSC facilitates organizational learning through strategic goal implementation, continual managerial improvement, and resource alignment.

However, critics, like Nørreklit (2003), argue that the BSC theory lacks substantial empirical support and seems more like 'persuasive rhetoric' than a convincing theory. They contend that although the theoretical causation between the BSC's four aspects appears reasonable, empirical evidence is insufficient. Moreover, detractors, such as Dinesh and Palmer (1998), claim that the BSC overlooks crucial human-relations components vital in differentiating organizations from mechanical systems. Othman (2006) highlights the BSC's rigidity, emphasizing its focus on static causal links that contradict dynamic linkages adapting to environmental changes and strategic goals. Both critics and supporters underline the theoretical significance of establishing accurate causal relationships among the BSC's components (Elbanna *et al.,* 2022; Lueg, 2015).

The BSC in Actual Use

Initially, the Balanced Scorecard (BSC) garnered widespread support among practitioners, with executives at major companies such as AT&T, Apple, and Volkswagen praising its ability to deliver substantial performance improvements(Harvard Business Publishing, 1999; Kaplan & de Pinho, 2003). As mentioned earlier, an IMA study in 2005 revealed that 88% of BSC users believed it positively impacted operational performance, while 66% claimed that adopting the BSC led to increased profitability (DeBusk & Crabtree, 2006). Although larger companies tend to be more inclined to use the BSC, its efficacy in enhancing performance remains consistent regardless of organizational size, product life cycle, or market position (Hoque, 2014). The versatility and appeal of the BSC have been demonstrated across various industries, including small and medium-sized enterprises

(Malagueño *et al.,* 2018), healthcare (Amer *et al.,* 2022), and hospitality and tourism sectors (Fatima & Elbanna, 2020), showcasing its adaptability. Moreover, both Western and Eastern companies have successfully implemented the BSC (Zeng & Luo, 2013). Recent adaptations of the BSC have focused on enabling the execution of sustainable strategies. According to Hansen & Schaltegger (2018) and Kalender & Vayvay (2016), the Sustainable Balanced Scorecard (SBSC) integrates performance metrics associated with social and environmental strategic objectives, often referred to as its 'fifth pillar.'

Inconsistent Empirical Data

Our understanding of the benefits of the Balanced Scorecard (BSC) in a research-based context remains incomplete, and empirical evidence concerning the link between BSC adoption and company performance is limited. For instance, O'Sullivan and Abela (2007) found that using BSC to assess various marketing campaigns enhanced business performance. However, Capelo and Dias (2009), employing an experimental approach, demonstrated no additional benefit to BSC adoption compared to the use of financial measures alone. The contradictory empirical findings regarding the relationship between BSC adoption and company performance have not been thoroughly investigated thus far. As a result, we lack insights into the factors or circumstances contributing to these inconsistent outcomes in BSC adoption initiatives. This knowledge gap hinders our ability to guide practitioners on optimizing the potential advantages associated with adopting the BSC.

Methodology

We systematically examined information relating to the correlation between BSC adoption and business performance to address the study questions outlined in the introduction. Firstly, a thorough investigation of published works on this subject was conducted, facilitated by a qualitative literature assessment. Secondly, to delve deeper into the data and derive evidence-based insights, a quantitative synthesis-commonly known as a meta-analysis was carried out. Through this process, we precisely evaluated the impact of BSC on company performance and identified the factors influencing the strength of the relationship between BSC adoption and firm performance. This was achieved by collecting and analyzing empirical data through meta-analysis, enabling us to draw more accurate conclusions due to the heightened validity resulting from a larger sample size (Aguinis *et al.,* 2011). The following sections outline our methods and conclusions..

Review of Literature

In order to identify the causes of uncertainty in the correlation between BSC adoption and company performance, a literature review was conducted. Three potential issues were highlighted. First, assessing the utility of the BSC is challenging due to inconsistent application and varying levels of integration with corporate systems and processes. In a study by Yu *et al.* (2008), it was found that 20% of participants used the BSC frequently, 73% used it 'to some extent,' and 7% were in the process of adopting it. Yu *et al.* (2008, p. 37) also noted discrepancies in management systems labeled as BSCs, with some firms not employing all four parts and others using alternative dimensions or constructing causal relationships differently. For instance, Speckbacher et al. (2003) found that 57% of businesses disregarded the 'learning and growth' factor due to measurement difficulties, leading to a wide range of implementation strategies for BSC, making it challenging to determine its actual efficacy, particularly based on anecdotal data.

The second problem arises from ambiguity in implementing the BSC's causal model among participating firms, a crucial component highlighted by Kaplan and Norton (1996a, 1996b) for BSC effectiveness. Yet, this crucial step is often overlooked (Cokins, 2020). Speckbacher *et al.* (2003) found that 51% of businesses implementing the BSC viewed it merely as a performance measurement system, lacking strategy maps or causal relationships between metrics. This inconsistency in embracing causality questions the validity of data on the BSC's link to business performance, considering its pivotal role in BSC success theories (Lueg, 2015)."

The third issue pertains to the challenge of performance measurement. De Geuser *et al.* (2009) noted that the BSC is designed to address situations where a single metric for performance is inadequate. Consequently, empirical research on BSC implementation and corporate performance mostly relies on subjective metrics gathered through surveys from executives involved in BSC adoption and implementation. However, this approach raises the risk of confirmation bias, wherein managers might report more favorable outcomes to justify their initial adoption decision unintentionally (Nickerson, 1998).

The Process of Quantitative Synthesis

We applied a meta-analytic approach to tackle these issues and offer resolutions to the unanswered inquiries. This method of analysis evaluates the strength of the relationship between two variables by utilizing the statistical power of a compilation of research studies. Given the inconsistent findings from prior research, meta-analysis proves particularly beneficial in this context (e.g., Borenstein *et al.,* 2021). The outcome of our meta-analysis is an estimate of effect size, a quantitative measure indicating the extent of the association between BSC adoption and company performance. Effect sizes range from 0 to 1, with a lower effect size indicating a weaker link. According to Cohen (1988), a link is considered weak when the effect size is 0.2, moderate at 0.5, and strong at 0.7 and above.

For our analysis, we systematically searched various electronic databases such as Business Source Complete, Science Direct, and Google Scholar for peer-reviewed published literature. Our objective was to identify empirical studies from peer-reviewed journals that either discussed the correlation between BSC utilization and firm performance or provided the necessary statistical data to calculate an effect size. We found eleven such studies. Despite numerous scholarly and professional publications on the subject, only these eleven studies had the requisite data to determine an effect size and had statistically analyzed the relationship between BSC adoption and business performance. This count is relatively modest due to the exploratory or qualitative nature of the majority of BSC investigations (e.g., Fatima & Elbanna, 2020). However, the meta-analytic technique enhances the reliability of the results by consolidating the statistical power of the included studies. Each study included in the meta-analysis assessed BSCs across all four aspects proposed by Kaplan and Norton (1992), providing a crucial level of consistency to address the issue of uneven utilization identified in our qualitative assessment. In order to address the necessary study questions, we computed the following: [Provide specific details or outcomes of the analysis, if available]:

- The cumulative meta-analytic effect size of the relationship between BSC adoption and firm performance across all 11 empirical investigations.
- The variation in effect magnitude between explicitly specified and implicitly determined causal relationships.
- The variation in impact magnitude between subjective (via surveys) and objective (through financial data) measurements of corporate success.

Result

Our synthesis findings suggest a positive correlation between a company's success and the implementation of the BSC. "The overall effect size in our sample was 0.433. Our study indicates that the Balanced Scorecard (BSC) contributes favorably to achieving desired organizational outcomes, as evidenced by statistical data from published sources. Although the effect is moderate, it holds relevance.

Casual Relationship

The lack of clarity regarding the practical application of the Balanced Scorecard (BSC) and its ability to establish a causal relationship between financial, operational, learning, and customer-related indicators with strategic goals contributes to the uncertainty in evaluating BSC effectiveness, as previously mentioned. To address this issue in our quantitative synthesis, we investigated how the presence of causal linkage influences the effect sizes reported in empirical publications included in our meta-analysis.

Among the eleven studies analyzed, seven did not explicitly mention the application of causal linking in BSC measurements within their sample. However, two studies specifically examined scenarios where causal linkage was absent, while two studies incorporated causal linkage using strategy maps. Furthermore, we found four additional studies that explored the impact of strategy maps on company performance, distinguishing between businesses utilizing only the BSC and those incorporating a strategy map alongside it.

In essence, these studies sought to compare the performance of companies employing solely the BSC with those integrating a strategy map. The meta-analysis of these eight studies revealed a notable enhancement in the association between BSC adoption and firm performance when causal linkage was established, resulting in an increased effect size of .321. This finding strongly suggests that the effectiveness of the BSC significantly improves when it incorporates causal linkage, thereby underscoring the theoretical significance of establishing such a relationship.

A Performance Metric

The research conducted for our study employed two distinct methods to collect information regarding the performance of companies that adopted the Balanced Scorecard (BSC): financial data (objective) and questionnaires (subjective). Each approach carries its own set of advantages and disadvantages. Subjective performance measurement techniques are deemed more effective in capturing the influence of the BSC on achieving company-specific strategic goals (Olson & Slater, 2002). However, there exists a potential for confirmation bias when gathering performance data from those responsible for BSC implementation (Nickerson, 1998), which was highlighted earlier. On the other hand, objective metrics for company success are less prone to confirmation bias, yet they may lack precision in reflecting the unique strategic goals of a particular company (Olson & Slater, 2002). Within our sample, five out of eleven studies used objective financial data to measure company performance, while the remaining six relied on subjective survey data. The overall effect size of the entire group was 0.188, while within the subjective group, it was notably higher at 0.747. This outcome suggests a significant variation in data concerning the adoption of BSC and its association with company performance. It also indicates that while the BSC is observed to have a substantial influence on business performance, its tangible impact on specific objective measures of firm performance is comparatively less significant.

Extra Information

Through our quantitative synthesis, we uncovered several additional strategic and environmental factors that may influence the effectiveness of BSC implementation in companies. According to the meta-analytic data, the correlation between BSC adoption and company performance remains unaffected by factors like strategy type, industry type, or organizational size.

This underscores the adaptability and broad applicability of the BSC, confirming previous research in diverse domains. However, it's important to acknowledge the limitations of this study. Despite yielding statistically significant results, the meta-analysis had a relatively modest sample size. We encourage researchers to leverage our findings as a guide for future investigations into the relationship between BSC implementation and company performance. Moreover, the data included in the meta-analysis originated from research employing various methodologies (e.g., surveys, experiments) across diverse sectors (e.g., banking, energy, telecom). While this enhances the findings' generalizability, it may overlook nuanced variations in BSC effectiveness among different industries.

Now What? Managerial Suggestions

Our findings represent robust empirical support for the connection between BSC adoption and business performance, shedding light on the influencing variables. Interestingly, our results seem contradictory: while the BSC aims to enhance firm performance through more effective strategy implementation, its complete potential hinges on successful implementation itself.

Drawing insights from the strategy implementation (SI) literature, we propose strategies for the successful deployment of the BSC to address this paradox. SI research underscores three vital elements essential for successful project execution: coordinated activity, competence, and commitment (Tabesh *et al.,* 2019; Tawse & Tabesh, 2021). Competence refers to the knowledge, skills, and abilities required for effective BSC implementation (Tawse & Tabesh, 2021, p. 5). Commitment reflects the level of dedication displayed by individuals within the organization to execute BSC implementation successfully (p. 6). Lastly, coordination, which involves integrating interdependent tasks, is crucial for BSC implementation (p. 6). To heighten the prospects of BSC success, organizations must ensure proficient creation, commitment to effective usage, and stakeholder coordination during its development and implementation. Based on our review and synthesis, we have outlined three evidence-based recommendations (refer to Table 1) to improve these conditions, thereby significantly enhancing the likelihood of realizing the benefits of BSC adoption.

Table 1: An overview of suggestions for the successful implementation of the BSC

Suggestions	Effect on Proficiency(Prof.)	Effect on Dedication	Effect on Arrangement
Develop a strategy map alongside BSC	Establishes a causal relationship between metrics, a crucial capability for BSC adoption.	Explains the selection of BSC measures, reducing opposition to their acceptance.	Enhances mutual comprehension of the interconnectedness between procedures and metrics, a prerequisite for efficient synchronization.

Ensure TMT security for BSC implementation	Enhances the capacity for successful BSC implementation by optimizing resource allocation and resolving disputes efficiently.	Translates to increased dedication within the company.	Increases accountability and clarifies boundaries, both necessary for efficient coordination.
Encourage widespread involvement and regular horizontal communication during BSC growth	Enhances comprehension of strategic goals and the causal relationship between BSC measurements.	Increases comprehension and organizational dedication to the results.	Strengthens corporate fundamental values, reduces myopic decision-making, and fosters shared understanding.

First and foremost, Kaplan and Norton (1996a, 1996b) advocate the primary importance of creating a strategy map in conjunction with the BSC. This approach simplifies the establishment of causally connected metrics aligned with strategic goals. A strategy map, described as a powerful systems-thinking tool (Moraga *et al.,* 2020), assists BSC adopters in visualizing the complexities of process linkage (Kaplan & Norton, 2008a, 2008b). According to Crittenden & Crittenden (2008), incorporating a strategy map enhances implementation success by serving as both a structural action and a skill-related interactive process. Our meta-analysis underscores that employing a strategy map significantly improves the link between BSC adoption and business performance. Research indicates that it achieves this by strengthening the organization's ability to prioritize and streamline goals (Quesado *et al.,* 2018), evaluating the strategic significance of intricate information (Malagueño *et al.,* 2018), mitigating managers' motivational reasoning biases (Lueg, 2015), and fostering more sustainable change through enhanced comprehension of the BSC and improved assessment of the external environment (Lueg & Julner, 2014).

Furthermore, the integration of a strategy map enhances organizational coordination by fostering a shared understanding of interdependent organizational processes in relation to strategic objectives. It also boosts organizational commitment by reducing resistance to BSC adoption (Capelo & Dias, 2009). To counter the primary critique of the BSC-that it is more compelling rhetoric than convincing theory (e.g., H. Nørreklit, 2003)-a successful integration of a strategy map into the BSC creation process is imperative.

Secondly, substantial evidence supports that the success of BSC implementation relies significantly on the support from the top management team (TMT). According to literature reviews on performance management and senior strategic performance management consultants' surveys, effective management through metrics depends significantly on management commitment (Franco & Bourne, 2003). TMT commitment is a crucial lever that facilitates corporate communication, demonstrates leadership, elucidates goals, and reinforces structure (Noble, 1999).

More specifically, TMT commitment facilitates the allocation of sufficient resources, including manpower, training, and time, for creating efficient metrics aligned with data from the strategy map. These committed resources enhance the organization's capacity to develop and utilize the BSC effectively. Bourne *et al.* (2002) highlight that TMT commitment enhances organizational competency by expediting the resolution of issues and disputes. Additionally, TMT commitment boosts organizational commitment by conveying the message that supporting BSC adoption benefits everyone in the organization (Tawse *et al.,* 2019; Olve *et al.,* 1999).

Empirical evidence from a study involving 455 senior finance officers from Australian organizations supports the significant correlation between TMT support and BSC effectiveness (Tung *et al.,* 2011). Ultimately, TMT support fortifies organizational coordination by solidifying accountability and clarifying responsibilities-both crucial prerequisites for efficient coordination (Okhuysen & Bechky, 2009).

Ultimately, extensive involvement and consistent horizontal communication among relevant stakeholders are essential for the successful implementation of BSC. Interestingly, this illustrates another paradox: while adopting the BSC can improve communication (Oliveira *et al.,* 2021), effective BSC adoption necessitates ongoing communication. The BSC must be consciously utilized through broad involvement, regular communication, and discourse (Atkinson, 2006). During the development phase, when establishing causal relationships and selecting metrics, communication and information exchange among functional groups are critical. A comprehensive understanding of strategic objectives and the relationships between organizational learning, consumer demands, and internal processes is required of all pertinent stakeholders. Therefore, active engagement in the strategy mapping and BSC creation process enhances communication regarding these matters.

Effective communication and broad engagement improve employee commitment and effort towards tasks supporting strategy execution (Farrell *et al.,* 2012). Conversely, insufficient communication negatively impacts the acceptance, perceptions, and reported usage of the BSC (Malina & Selto, 2001, p. 70). When linked causally to strategy, communicating the advantages and significance of the BSC also aids in internalizing the organization's core principles and objectives (Deem *et al.,* 2010). This reduces short-sighted behavior and encourages organizational alignment. In essence, by integrating strategy into everyone's daily responsibilities, involvement and communication foster shared understanding–an integral element of effective coordination. Ultimately, a company's ability to leverage the benefits of the BSC to enhance performance is boosted by effective communication. This enables the enhancement of BSC creation, utilization, and continuous improvement (Olve *et al.,* 1999), as employees' comprehension of the BSC promotes communication and organizational learning (Oliveira *et al.,* 2021)."

Final Words

While the Balanced Scorecard (BSC) has been lauded as one of the most significant management tools of the 20th century, conflicting empirical data have led to confusion regarding its impact on corporate performance. To sift through these conflicting variables, we conducted a qualitative assessment of study findings and employed meta-analytic techniques to synthesize statistical data. Our goal was to gain a clearer understanding of the empirical evidence concerning the relationship between BSC adoption and business performance.

In summary, our results indicate that BSC adoption generally improves firm performance, albeit with a mild strength of association. Notably, we found a stronger link between BSC adoption and business performance when scorecard metrics are purposefully aligned with strategic goals. Moreover, our research revealed a greater association between BSC adoption and business performance when success is subjectively evaluated through surveys rather than objectively measured through financial accounting performance indicators. While the BSC has the potential to enhance organizational performance, its full potential can only be realized through effective implementation.

Based on our analysis and extensive review of BSC literature, we offer three evidence-based recommendations to enhance the likelihood of successful BSC adoption. Firstly, creating a strategy map during BSC adoption is crucial; it establishes a causal relationship between BSC metrics and strategic objectives, a step often overlooked but essential. Secondly, we emphasize the necessity of Top Management Team (TMT) commitment to BSC adoption, as it facilitates resource allocation and positively influences organizational commitment and cooperation. Lastly, we advocate for frequent updates on BSC deployment and widespread engagement in the BSC development process, as these actions involve important stakeholders. These managerial steps effectively enhance three fundamental criteria for successful strategy execution: organizational competency (Proficiency), commitment (Dedication), and coordination (Arrangement) (Tabesh *et al.,* 2019; Tawse & Tabesh, 2021).

References

Aguinis H, Pierce CA, Bosco FA, Dalton DR, Dalton CM. Debunking myths and urban legends about meta-analysis. *Organizational Research Methods.* 2011 Apr;14(2):306-31.

Amer F, Hammoud S, Khatatbeh H, Lohner S, Boncz I, Endrei D. The deployment of balanced scorecard in health care organizations: is it beneficial? A systematic review. *BMC health services research.* 2022 Dec;22(1):1-4.

Asiaei K, Bontis N. Using a balanced scorecard to manage corporate social responsibility. *Knowledge and Process Management.* 2019 Oct; 26(4): 371-9.

Atkinson H. Strategy implementation: a role for the balanced scorecard. *Management decision.* 2006 Dec 1; 44(10): 1441-60.

Borenstein M, Hedges LV, Higgins JP, Rothstein HR. Introduction to meta-analysis. John Wiley & Sons; 2021 Apr 6.

Bourne M, Neely A, Platts K, Mills J. The success and failure of performance measurement initiatives: Perceptions of participating managers. *International Journal of Operations & Production Management,* 2002 Nov 1; 22(11): 1288-310.

Capelo C, Dias JF. A system dynamics-based simulation experiment for testing mental model and performance effects of using the balanced scorecard. System Dynamics Review: *The Journal of the System Dynamics Society.* 2009 Jan; 25(1): 1-34.

Cohen J. Statistical power analysis for the behavioral sciences. Academic press; 2013 Sep 3.

Cokins G. The strategy map and its balanced scorecard. *EDPACS.* 2020 Mar 3;61(3):1-6.

Crittenden VL, Crittenden WF. Building a capable organization: The eight levers of strategy implementation. *Business Horizons.* 2008 Jul 1; 51(4): 301-9.

De Geuser F, Mooraj S, Oyon D. Does the balanced scorecard add value? Empirical evidence on its effect on performance. *European Accounting Review.* 2009 May 1; 18(1): 93-122.

DeBusk GK, Crabtree AD. Does the balanced scorecard improve performance?. *Management Accounting Quarterly.* 2006 Nov 1;8(1).

Deem JW. The relationship of organizational culture to balanced scorecard effectiveness. Nova Southeastern University; 2009.

Dinesh D, Palmer E. Management by objectives and the balanced scorecard: will Rome fall again?. *Management Decision.* 1998 Aug 1; 36(6): 363-9.

Elbanna S, Kamel H, Fatima T, Eid R. An investigation of the causality links in the balanced scorecard: The case of the Gulf Cooperation Council hospitality industry. *Tourism Management Perspectives.* 2022 Jan 1; 41: 100934.

Low J, Siesfeld T. Measures that matter: Non-financial performance. *Strategy & Leadership.* 1998 Feb 1; 26(2): 24-38.

Farrell AM, Kadous K, Towry KL. Does the communication of causal linkages improve employee effort allocations and firm performance? An experimental investigation. *Journal of Management Accounting Research.* 2012 Dec 1; 24(1): 77-102.

Fatima T, Elbanna S. Balanced scorecard in the hospitality and tourism industry: Past, present and future. *International Journal of hospitality management.* 2020 Oct 1; 91: 102656.

Franco M, Bourne M. Factors that play a role in "managing through measures". *Management Decision.* 2003 Oct 1; 41(8): 698-710.

Hansen EG, Schaltegger S. Sustainability balanced scorecards and their architectures: irrelevant or misunderstood?. *Journal of Business Ethics.* 2018 Jul; 150: 937-52.

Hasan RU, Chyi TM. Practical application of Balanced Scorecard-A literature review. *Journal of Strategy and Performance Management.* 2017 Jul 1; 5(3): 87.

Hoque Z. 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *The British accounting review.* 2014 Mar 1; 46(1): 33-59.

Kalender ZT, Vayvay Ö. The fifth pillar of the balanced scorecard: Sustainability. *Procedia-Social and Behavioral Sciences.* 2016 Nov 24; 235: 76-83.

Kaplan RS. The balanced scorecard measures that drive performance. Harvard business review; 1992.

Kaplan RS, Norton DP. Using the balanced scorecard as a strategic management system.

Kaplan RS, Norton DP. Linking the balanced scorecard to strategy. *California management review.* 1996 Oct; 39(1): 53-79.

Kaplan RS, Norton DP. Mastering the management system. *Harvard business review.* 2008 Jan 1; 86(1): 62.

Kaplan RS, Norton DP, ANSARI S. The execution premium: Linking strategy to operations for competitive advantage. *The Accounting Review.* 2010 Jul 1; 85(4): 1475-7.

Lueg R. Strategy maps: the essential link between the balanced scorecard and action. *Journal of Business Strategy.* 2015 Apr 20; 36(2): 34-40.

Lueg R, Julner P. How are strategy maps linked to strategic and organizational change? A review of the empirical literature on the balanced scorecard. A Review of the Empirical Literature on the Balanced Scorecard (July 6, 2014). *Corporate Ownership & Control.* 2014 Jul 6; 11(4): 439-46.

Malagueño R, Lopez-Valeiras E, Gomez-Conde J. Balanced scorecard in SMEs: effects on innovation and financial performance. *Small Business Economics.* 2018 Jun; 51: 221-44.

Malina MA, Selto FH. Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard. *Journal of management accounting research.* 2001 Jan 1; 13(1): 47-90.

Moraga JA, Quezada LE, Palominos PI, Oddershede AM, Silva HA. A quantitative methodology to enhance a strategy map. *International Journal of Production Economics.* 2020 Jan 1; 219: 43-53.

Nickerson RS. Confirmation bias: A ubiquitous phenomenon in many guises. *Review of general psychology.* 1998 Jun; 2(2): 175-220.

Noble CH. Building the strategy implementation network. *Business Horizons.* 1999 Nov 1; 42(6): 19-.

Nørreklit H. The balanced scorecard: what is the score? A rhetorical analysis of the balanced scorecard. *Accounting, organizations and society.* 2003 Aug 1; 28(6): 591-619.

Nørreklit L, Jack L, Nørreklit H. Beyond the post-truth turn: From habitus based to paranoiac based performance management. *Proceedings of Pragmatic Constructivism.* 2018 Dec 12; 8(1): 17-8.

Okhuysen GA, Bechky BA. 10 coordination in organizations: An integrative perspective. *Academy of Management annals.* 2009 Jan 1; 3(1): 463-502.

Oliveira C, Martins A, Camilleri MA, Jayantilal S. Using the balanced scorecard for strategic communication and performance management. In Strategic corporate communication in the digital age 2021 Feb 19 (pp. 73-88). Emerald Publishing Limited.

Olson EM, Slater SF. The balanced scorecard, competitive strategy, and performance. *Business Horizons.* 2002 May 1; 45(3): 11-6.

Roy J, Wetter M. Performance drivers: A practical guide to using the balanced scorecard. John Wiley & Sons; 2001 May 8.

O'sullivan D, Abela AV. Marketing performance measurement ability and firm performance. *Journal of marketing.* 2007 Apr; 71(2): 79-93.

Othman R. Balanced scorecard and causal model development: preliminary findings. *Management Decision.* 2006 Jun 1; 44(5): 690-702.

Quesado PR, Aibar Guzmán B, Lima Rodrigues L. Advantages and contributions in the balanced scorecard implementation. *Intangible capital.* 2018; 14(1): 186-201.

Rigby D, Bilodeau B. Management tools & trends 2013. London: Bain & Company. 2011 May 11.

Rigby D, Bilodeau B. Management tools & trends 2013. London: Bain & Company. 2011 May 11.

Speckbacher G, Bischof J, Pfeiffer T. A descriptive analysis on the implementation of balanced scorecards in German-speaking countries. *Management accounting research.* 2003 Dec 1; 14(4): 361-88.

Strohhecker J. Does a balanced scorecard management cockpit increase strategy implementation performance. Insystem dynamics society conference 2007 Jul.

Tabesh P, Mousavidin E, Hasani S. Implementing big data strategies: A managerial perspective. *Business Horizons.* 2019 May 1; 62(3): 347-58.

Tawse A, Patrick VM, Vera D. Crossing the chasm: Leadership nudges to help transition from strategy formulation to strategy implementation. *Business Horizons.* 2019 Mar 1; 62(2): 249-57.

Tawse A, Tabesh P. Strategy implementation: A review and an introductory framework. *European Management Journal.* 2021 Feb 1; 39(1): 22-33.

Tung A, Baird K, Schoch HP. Factors influencing the effectiveness of performance measurement systems. *International Journal of Operations & Production Management.* 2011 Nov 15; 31(12): 1287-310.

Yu L, Perera S, Crowe S. Effectiveness of the balanced scorecard: The impact of strategy and causal links. *Journal of Applied Management Accounting Research.* 2008 Jul 1; 6(2): 37.

Zeng K, Luo X. The balanced scorecard in China: Does it work?. *Business Horizons.* 2013 Sep 1; 56(5): 611-20.

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Impact of Curriculum Management and Digitalization on the Service Quality Standards of Higher Education Systems

*Mamta Thakur, **Kapil Sharma

Abstract

Due to high credence attribute, it is always challenging to estimate the service quality in higher education systems. There are certain factors which directly influence the service quality in education, viz., digitalization, implementation of national education policy and dynamic industrial needs. Post COVID, digitalization is taking space in the education delivery system and extensively effecting the quality of service in higher education system. The SERVQUAL model developed by Parasuraman, Zeithaml and Berry is applied by many researchers to measure service quality gap in various service industries. ***Objective:*** The research aims to study the Gap 5 of SERVQUAL model for the service quality measurement in higher education systems with special reference to the curriculum management. Present study also includes the impact of digitalization on perceived service quality and eventually on the student's satisfaction. ***Method:*** The study is performed systematically in a quantitative approach. The data collection has been carried out through survey; the indicators reliability has been assessed through factor analysis. The internal efficiency of constructs has been ensured using Cronbach's alpha. Regression analysis has been implied for the hypothesis testing. ***Results:*** The findings of the research implies that the frequent curriculum update as per the industry need and skill component in the curriculum plays a vital role to enhance perceived service quality and to achieve student's satisfaction; likewise it has been observed that digitalization also, contributed in perceived service quality. ***Originality:*** Seven quality criteria have been developed by the national assessment and accreditation council,out of which, curriculum management and digitalization has been used as a quality variables in PZB model for the assessment of perceived service quality.

Introduction

The education sector in India is passing through a drastic transformation due to increasing mobility of the students, rapid changing industrial needs, technology advent in education, post COVID-19 pandemic digitalization emerging in the higher education systems, and rapid growing private organizations in the sector. Under such situations, service quality is the most relevant subject to study. For public and private organizations, it is now challenging to attract students and thereafter to retain them till the completion of the programs.

The higher education institutes (HEI's) are operative in different models in India, viz., Universities, Colleges, Institute, and training centres. The common objective of all categories of HEI's is to impart education; but the operational aspect of all the organization may vary on the basis of teaching pedagogy, curriculum aspect, level of technology adaptation, assessment method, control methods etc. Curriculum is the back bone of the education, it is a framework designed to impart education to fulfil certain prescribed objectives and outcomes. The objectives should be such that it trains the learner to perform any job with accuracy and proficiency. The quality assessing agency in India viz., National assessment and accreditation council (NAAC), university grant commission (UGC) and All India council of technical education (AICTE) also focuses on the factors related to the curriculum such as- design, implementation, updation, and outcome. Post COVID pandemic, most of the organizations adopted digital platforms for the exchange of study materials, assignments, tracking of curriculum coverage and for many more purposes; therefore digitalization can be considered as a new additional factor that influence the perceived service quality.

Due to high credence attribute service quality measurement is challenging in higher education systems[1].

* Symbiosis University of Applied Sciences, Indore
** Institute of Management Studies DAVV Indore

It has also been observed that the service is a key differentiator even in manufacturing sector.[2] In service marketing literature, service quality is defined as a difference between customer expectation and perception.[3] In the higher education systems, students pursue their education as a service product.[4] On the same line as other service products, it is worthy to study the perceived service quality of education by the students. In higher education systems there are numerous factors formulating the service quality. Although it is important to focus on each factor thoroughly but in the present study,exclusively two factors have been taken into consideration i.e., curriculum management (CM) and digitalization (DZ)in higher education. These two variables are selected to study their impact on perceived service quality (PSQ). The SERVQUAL model's[5] framework proposed by Zeithaml V.A *et al.* has been applied in the current study to analyse the Gap 5 of the model. The importance of studyind PSQ lies in the fact that it ultimately leads to student satisfaction (SS).

Literature Review

Service Quality:

According to Eshghi *et al.,*[6] Service quality is defined as an overall assessment of the service by the customer. Asubonteng *et al.,*[7] Parasuraman *et al.,*[3] define service quality as "The discrepancy between consumer's perceptions of services offered by a particular firm and their expectationsabout firms offering such services" if perceived quality is below expectation, then quality of service is considered as low, if it is equal to expectation, the quality will be considered as satisfying; if perceived quality is above expectation, then service will delighted the customer. The customer satisfaction and delight will eventually lead to their loyalty.

Douglas & Connor[8], Parasuraman *et al.*[3], and Ladhari[9], claimed that it is difficult to assess the quality of the service products due to the following elements of service products- intangibility, inseparability, heterogeneity, perishability and variability. The first model developed by the Parasuraman *et al.,*[10], Gronroos,[11] to measure the service quality is named as SERVQUAL model. The SERVPERF model developed by Cronin & Taylor,[12], uses the performanceapproach method which measures service quality based on customer's overall feelingtowards the service. This model is good to measure service quality but does not provideinformation on how customers will prefer service to be in order for service providers tomake improvements.

Sureshchander *et al.,*[13] state that "The veritable gains of a quality revolutioncome only from customer delight, which again to a very great extent depends on thecustomer's perceptions of overall service quality.

Service quality dimensions in HEI's

Latif *et al.*[14] mentioned about the measurement of different factors to ensure the service quality in higher education and student experiences and outcomes.

Quinn *et al.,*[15] highlighted the heterogeneity in the expectations of the students about the services in higher education. Some students may consider curriculum as a prime factor in the education, while other may consider research and innovation as an important prospective of the education. This variability in needs further complicates the service quality assessment.

Trautwein and Bosse,[16], quoted that 'student learning is more influenced by their perceptionof the learning context than by the learning context itself". Abbas,[17], claimed that regular quality management in higher education is required to attract and retain students.

Gupta and Kaushik,[18]; claimed that people, procedures and systems are subject matter of continuous improvement to attain service quality satisfaction. Measuring service qualitycan be categorized into five key factors that relate to teachingand learning, they are:reliability, assurance, tangibles, empathy and responsiveness (RATER) (Latif *et al.*, 2019,)[14]. Tangibles refer toaspects of a student's learning experience such as facilities, campus, technology and quality of learning materials (Latif *et al.,* 2019)[14]. It is also necessary to analyse the institution'sreliability and responsiveness (Gupta and Kaushik, 2018)[18], whichis not limited to, but includes items such as consistent gradingcriteria, precise student records, or conduct by staff.

Research Gap:

1. Literature revels that the quality parameter in HEI's that has beentaken into consideration by the researchers is based on RATER, which is same as in the other service products. HEI's has predefined quality parameters by the quality assessment agency i.e., NAAC. The NAAC has defined seven quality parameters- curriculum aspect, teaching learning evaluation, research & innovation, infrastructure and learning resources, students support and progression, governance leadership & management, and institutional practices and values. www.naac.gov.in
2. Currently no research has been conducted by taking

into consideration a NAAC parameters as a quality parameters.

Objective:

The research aims to study the Gap 5 of SERVQUAL model[5] for the service quality measurement in higher education systems. The study was conducted with the special reference to the impact of curriculum management as one of the quality variable out of seven quality parameters framed by NAAC on perceived service quality and subsequently to the student's satisfaction. Present study also includes the impact of digitalization on the perceived service quality followed by student's satisfaction.

Scope of the study:

In the current study, only curriculum has been taken into consideration as one out of seven quality parameters; the reason of selecting only one out of seven is that each parameter possessed immense research possibilities; and it is only possible to cover one parameter as a scope of research paper. In addition to curriculum management, the digitalization is also considered in the present study because digitalization is one of the prime factor which arose in the HEI's recently during the COVID pandemic.

The targeted population for this study were the undergraduate and postgraduate students of management, science and engineering colleges. Through convenience sampling the data has been collected from Indore and surrounding cities viz., Ujjain, Dewas, Ratlam, and Bhopal. The students of various demographical background were covered during data collection to obtain more generalized responses.

Hypothesis of the Study

H1: Curriculum Design, development and planning (Curriculum Management) will have positive impact on perceived service quality in HEI's.

H2: Use of digital applicationswill have positive impact on perceived service quality in HEI's.

H3: Higher the perceived service quality, higher will be student's satisfaction.

Research Methodology

Data collection and purification

The undergraduate and postgraduate students pursuing last or last but one year of their program are identified as a population to analyse Gap 5 of SERVQUAL model. The random sampling has been selected to collect data easily and faster. Cross sectional study is relevant to the objective of the study. Data is collected through survey method by circulating the questionnaire after piolet study.

Studentsatisfaction is measured by the expectations and performance dimensions of the educational service[19]. Primary data is collected through 32 item questionnaire comprises of 7 items in curriculum construct, 8 items in digitalization construct, 6 items in perceived quality construct and 6 items in student's satisfaction construct. The remaining five items are pertaining to the demographic information of the respondents. All items except demographic items are on five point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree & 1 = strongly disagree). The perceived service quality is also recorded on 5 pointer scale as– 5 = very high, 4 = high, 3 = moderate, 2 = low and 1 = very low. In accordance with the recommendation by Roscoe (1975)[20], questionnaire is circulated among 515 respondent, out of which 403 responses were received, after removing the missing data and outliers, the data set of 362 is found suitable for analysis.

The framework of the study on the basis of which hypothesis has been formulated is represented in Figure 1

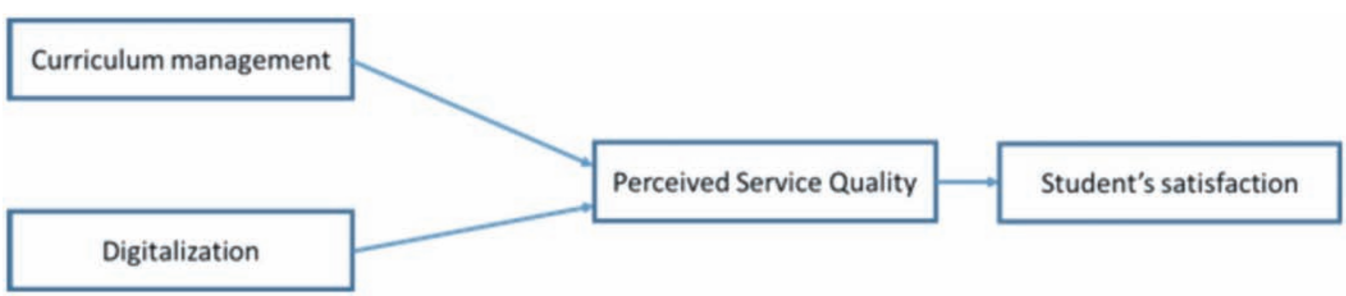

Figure 1: Conceptual model of Gap 5 analysis with special reference to curriculum management and digitalization in HEI's

Reliability of the scale

Cronbach's alpha[21] is implied to ensure the consistency and dependability of the measures of construct. Cronbach's alpha is widely used method to ensure the reliability of the construct, it is estimated using SPSS 20.0. It's value ranges from 0 to 1, representing poor to accurate reliability. However, the Cronbach's alpha value equal to or more than 0.6 is considered statistically significant.

Data Analysis

Factor analysis is used to test the validly of each factor in the construct[22]. Regression analysis has been used to obtain the relationship between quality parameters (independent parameters) and perceived service quality (dependent parameter). Normal distribution, missing values& outlier has been tested before using data for analysis. Cook's distance is used to identify the outliers, normality of the data is ensured by histogram.

Results of Data Analysis and Discussion

Demographic distribution of the respondents

The demographic details are presented in Table 1:

Table 1: Demographic description of the respondents

Demographic details	Percentage (%)
Gender	
Male	59 (214)
Female	41 (148)
Age	
18-19	18.2 (66)
20-21	32.04(116)
22-25	46.13 (167)
More than 24 years	3.6 (13)
Program	
Undergraduate Management	12.7 (46)
Undergraduate Science	11.3 (41)
Undergraduate Commerce	6.1 (22)
Undergraduate Engineering	12.2 (44)
Postgraduate Management	19.3 (70)
Postgraduate Science	14.6 (53)
Postgraduate Commerce	11.6 (42)
Postgraduate Engineering	4.1 (15)
Ph.D	8.01 (29)

As per the data presented in Table 1; it is clearly reflected that the large portion of the data is collected from the students in an age group 20-21 and 22-25. The reason of focusing more on this age group is the high credence attribute of the service in higher education. The students will be able to assess the quality long time after availing it. The data of 153 respondent is obtained from the students pursuing education in undergraduate programs (BBA, B.Sc, B.Com and B.Tech); whereas dataset of 180 responses is obtained from students pursuing education in postgraduate and remaining 29 from the Ph.D scholars. More weightage is given to the students pursuing post-graduation and Ph.D to obtain mature opinions.

Reliability and validity of constructs Test

Table 2 presented theconstruct, symbols of the items within each construct, description of each item, factor loading and respective Cronbach'sAlpha value of the constructs.

Table 2 contain reliability and validity data after extraction of the item possessing low value of loadings

Table 2: Reliability test of the data after extraction or reduction of items

Construct	Symbol of items in construct	Description	Factor loading	Cronbach's Alpha value
Curriculum management (CM)	CM1	Outcome based curriculum	0.86	0.83
	CM2	Implementation of curriculum	0.71	
	CM3	Flexibility of curriculum	0.82	
	CM4	Application aspects of the curriculum	0.88	
	CM5	Feedback from stakeholders	0.72	
Digitalization (DZ)	DZ1	Time saving	0.84	0.88
	DZ2	Easy access	0.78	
	DZ3	Easy tracking of progress	0.88	

	DZ4 DZ5	User friendliness Error free communication	0.90 0.90	
Perceived Service quality (PSQ)	PSQ1 PSQ2 PSQ3 PSQ4	Curriculum of the program mapped with the job roles Level of digitalization in education Curriculum coverage in the classroom Frequent revision	0.7 0.69 0.66 0.72	0.72
Student's Satisfaction (SS)	SS1 SS2 SS3 SS4	Curriculum in your program boosted your expertize in the concern field Curriculum of your program is required in industry Digitalization helped you to increase your learning pace Will you recommend others to pursue the same education as yours	0.77 0.76 0.68 0.62	0.74

Regression Analysis

Regression analysis has been performed to estimate the strength of association between dependent variable(Perceived service quality) and independent variables (Curriculum management and Digitalization). Subsequently, the relationship between perceived service quality and student's satisfaction is also studied. The result summary is presented in Table 3.

Table 3: Summary of regression models

Model ----→	PSQ (DV) & CM, DZ (IV) (Model 1)	SS (DV) & PSQ (IV) (Model 2)
R	0.88	0.90
R square	0.77	0.81
Adjusted R square	0.769	0.81
Standard error of the estimation	0.35	0.44
Durbin Watson	1.642	1.53

IV = Independent variable; DV = Dependent Variable

Objective 1 : Impact of Curriculum management and Digitalization on the perceived service quality

To achieve the first objective i.e., the impact of curriculum management and digitalization on perceived service quality, the variables under the curriculum management, digitalization and perceived quality management is converted into new variables. Mean of all reliable and validated variable in the corresponding construct is calculated using compute variable in the transform tab of SPSS.

Table 3 revels significant impact of both the independent variable viz., curriculum management and digitalization on the perceived service quality (R= 0.88); R^2 value of 0.77 depicts that 77 percent of perceived service quality is explained by curriculum management and digitalization. Standarderror of estimation of 0.35 indicate high predictive ability of the model. The Durbin Watson value for model 1 is 1.642, which lies between 1.5 to 2.5, which indicate data is not auto-correlated

Objective 2: Impact of perceived service quality on student's satisfaction

The highest R value 0.9 obtained in the model 2 indicate that perceived service quality is playing a dominating role to satisfy student's need. Model 2 also satisfied all statistical parameters such as R^2 = 0.81, adjusted R^2 = 0.81, standard error of estimation = 0.44 and Durbin Watson value = 1.53

Table 4 represents the fitness of the model 1 and 2 with p= 0.000 and F = 178.23, 188 respectively. This further justifies the significant relationship between dependent and independent variables in both model 1 and model 2.

Table 4: ANOVA

Model		Sum of square	df	Mean square	F	Sig
1	Regression	186.5	5	38.6	178.23	.000
	Residual	72.3	345	0.236		
	Total	258.8	350			
2	Regression	174.3	6	31.42	188	.000
	Residual	68.56	342	0.183		
	Total	242.86	348			

The model 1 obtained as a result of multiple regression analysis is represented as Eq (1); which explains coefficient of independent variables and relative impact of two independent variables (CM and DZ) on dependent variable (PSQ)

PSQ=1.33(±0.48) CM+0.62 (±0.56) DZ+1.62 Eq(1)

Eq (1) depicts the dominating role of curriculum management as compared todigitalization in higher education systems. However, improvement in both the independent variables will increase perceived service quality.

Impact of PSQ on student's satisfaction (SS) studied in the model 2 is represented as Eq(2)

SS 1.26 (±0.8) PSQ + 1.25 Eq(2)

PSQ shows positive relationship with SS; higher the perceived service quality; more will be the student's satisfaction. Equation 2 also depicts the mediating role of perceived service quality in the student's satisfaction. In other words, curriculum management and digitalization eventually affect student's satisfaction through perceived service quality.

Result of Hypothesis testing

H1: Curriculum Design, development and planning (Curriculum Management) will have positive impact on perceived service quality in HEI's :

Alternative: Accepted

H2: Use of digital application will have positive impact on perceived service quality in HEI's

Alternative: Accepted

H3: Higher the perceived service quality, higher will be student's satisfaction

Alternative: Accepted

Conclusion

The study aims to provide the insights about the importance of curriculum management and digitalization in higher education institutions. Due to high competitive ecosystem, rapid privatization, dynamic industry needs, it is very challenging for the higher education institute to attract students and to retain them till the end of the program. The current study therefore focuses on the Gap 5 which is directly concerned with the perception of the students. The results of the study shows that the students are giving preference to curriculum management which largely includes, the topics included and distributed in the curriculum, how much practical component is included in the curriculum, whether the designed curriculum is implemented in the organization in a true spirit, monitoring and control of curriculum throughout the program.

Similarly post COVID pandemic, the digitalization has also become a hygiene factor which was earlier a motivatorfactor in the services of higher education. By developing more relevant and flexible curriculum management system and by adopting digital application in higher education, the universities and colleges can improve the organizational performance and can increase competitive advantage. Based on current empirical results, it is inferred that the perceived service quality plays mediating role in student's satisfaction. The study has some limitation such as; the data has been collected from limited universities and colleges by convenience sampling and only two quality parameters are considered in the study out of seven NAAC parameters. Thus, it gives further possibilities to study in this area.

References

1. Thakur, M. (2023). The Conceptual Supply Chain Framework and Configuration for Higher Education Sector in India. In: Hannoon, A., Mahmood, A. (eds) Artificial Intelligence, Internet of Things, and Society 5.0. *Studies in Computational Intelligence,* vol 1113. Springer, Cham. https://doi.org/10.1007/978-3-031-43300-9_35.
2. Gebauer, Heiko&Gustafsson, Anders & Witell, Lars, (2011). "Competitive advantage through service

differentiation by manufacturing companies," *Journal of Business Research,* Elsevier, vol. 64(12), pages 1270-1280. DOI:10.1016/j.jbusres. 2011.01.015

3. Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1985), A conceptual model of service quality and its implications for future research of service, *Journal of Marketing,* (49)4, 41-50.DOI:10.2307/ 1251430

4. Hill, F.M. (1995), "Managing service quality in higher education: the role of the student as primary consumer", *Quality Assurance in Education,* Vol. 3 No. 3, pp. 10-21. https://doi.org/10.1108/ 09684889510093497

5. Zeithaml V.A., Berry, L.L., Parasuraman, A. (1996). The behavioral consequences service quality. *J Mark,* 60(2), 31-46.https://doi.org/10.2307/1251929.

6. Eshghi, A., Roy, S. K., &Ganguli, S. (2008). Service quality and customer satisfaction: An empirical investigation in Indian mobile Telecommunications services, *Marketing Management Journal,* Vol 18, Number 2, p. 119-144.

7. Asubonteng, P., McCleary, K.J. & Swan, J.E. (1996). SERVQUAL revisited: a critical review of service quality, *The Journal of Services Marketing,* Vol.10, Number 6, p.62-81.

8. Douglas, L. & Connor, R. (2003). Attitudes to service quality- the expectation gap, *Nutrition & Food Science,* Vol. 33 Number 4, p.165-172.

9. Ladhari, R. (2009). A review of twenty years of SERVQUAL research, *International Journal of Quality and Service Sciences,* Vol. 1, Number 2. P.172-198.

10. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing,* Vol. 64, Number 1, p.12-40.

11. Gronroos, C. (1982). A service quality model and its marketing implications, *European Journal of Marketing,* Vol.18, Number 4, p.36-44.

12. Cronin, J. J., & Taylor, S. A. (1992) Measuring service quality; a re-examination andextension. *The Journal of Marketing,* Vol. 56, Number 3, p. 55-68.

13. Sureshchandar, G.S., Rajendran, C., Anantharaman, R.N. (2002) The relationship between service quality and customer satisfaction - a factor specific approach, *Journal of Services Marketing,* vol. 16, no. 4: 363-379, Retrieved 18 April 2013, doi: 10.1108/ 08876040210433248

14. Latif, K. F., Bunce, L., & Ahmad, M. S. (2021). How can universities improve student loyalty? The roles of university social responsibility, service quality, and "customer" satisfaction and trust. *The International Journal of Educational Management,* 35(4), 815-829. https://doi.org/10.1108/IJEM-11-2020-0524

15. Anita Quinn, Gina Lemay, Peter Larsen & Dana M. Johnson (2009) Service quality in higher education, *Total Quality Management & Business Excellence,* 20:2, 139-152, DOI: 10.1080/ 14783360802622805

16. Trautwein, C., and Bosse, E. (2017). The first year in higher education-critical requirements from the student perspective. *Higher Educ.,* 73, 371-387. doi: 10.1007/s10734-016-0098-5

17. Abbas, J. (2020). HEISQUAL: A modern approach to measure service quality in higher education institutions. *Stud. Educ. Evaluat.,* 67: 100933. doi: 10.1016/j.stueduc.2020.100933

18. Gupta, P., and Kaushik, N. (2018). Dimensions of service quality in higher education-critical review (students' perspective). *Int. J. Educ.Manag.,* 32, 580-605. doi: 10.1108/IJEM-03-2017-0056

19. Fares, D. (2013) The Impact of Service Quality, Student Satisfaction, and University Reputation on Student Loyalty: A Case Study of International Students in IIUM. *Inf. Manag. Bus. Rev.,* 5, 584-590.

20. Roscoe, J.T. (1975). Fundamentals Research Statistics for Behavioural Sciences. "What Sample Size is Enough? in Internet Survey Research". Interpersonal Computing and Technology: *An electronic Journal for the 21st Century.*

21. Cronbach, L.J. (1951), Coefficient alpha and the internal structure of tests. *Psychometrika,* 16, 297-334.

22. Byrne, B.M.; Gavin, D.A. (1996) The shavelson model revisited: Testing for the structure of academic self-concept across pre-, early, and late adolescents. *J. Educ. Psychol.,* 88, 215.

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Indian Manufacturing Sector: Challenges and Opportunities for Economic Growth

*Jyoti Yadav, **Jyoti Dahinwal

Abstract

The present research explores the characteristics of the manufacturing sector in India, utilizing a SWOT analysis to evaluate the industry's advantages, disadvantages, opportunities, and threats concerning economic expansion. Over the years, the sector–a cornerstone of the country's financial strategy–has encountered domestic and international difficulties. The study looks at how these issues–shifting consumer tastes, trade disruptions, environmental concerns, and introducing Industry 4.0–have impacted the business climate.

The Indian manufacturing sector has several internal strengths and weaknesses, as shown by the SWOT analysis. These include competent labour, a vital infrastructure, and innovation opportunities. On the other hand, there are certain obstacles, like regulatory complications and infrastructure shortages. Externally, the research evaluates the risks associated with geopolitical unpredictability, supply chain weaknesses, and variations in the world economy, in addition to the potential offered by global marketplaces, technology breakthroughs, and sustainability trends. It looks at how digitization and technology may boost innovation and competitiveness in the industry. The study assesses the efficacy of government programmes such as "Make in India" and "Skill India" in fostering domestic production, exports, and employment generation.

The results provide a nuanced picture of the sector's situation today and point out possible directions for development. Policymakers, business executives, and other stakeholders can use the SWOT analysis as a strategic framework to help them create focused initiatives. Through identifying strengths to leverage, flaws to rectify, chances to grasp, and threats to reduce, the research provides practical guidance for guiding the Indian Manufacturing Sector towards long-term economic expansion amidst obstacles and prospects.

Introduction

The manufacturing industry in India has long been a pillar of the nation's economy, significantly boosting its Gross Domestic Product (GDP) and supporting millions of jobs. The average growth rate between 1981-1982 and 2007-08 was under 6 per cent per year, which has increased since 2008-09 or the post-GFC (Global Financial Crisis) period with an annual growth rate of just above 6 per cent. The Indian manufacturing industry has expanded an average of 7 per cent annually. The manufacturing industry saw average yearly growth rates of 6.7 per cent from 1981-1982 to 2007-2008 and about 7.2 percent from 2008-09 to 2018-19 (Goldar, 2022). Export competitiveness and trade liberalization are the two main pillars of the Indian trade. At the beginning of 1990, India implemented economic reforms to reduce trade barriers, which launched the nation towards economic liberalization. Dr. Manmohan Singh, who was the prime minister at that time, said the Indian government chose to lower the tariff protection in 1991 as part of its strategy for economic reform and it was a vital component of this policy.

Its durability and adaptability have been tested due to its numerous domestic and international challenges. However, as the 21st century progresses, the industrial sector in India finds itself at a crossroads, ready to use the difficulties it encounters to spur economic growth and transformation(S. John, 2023). These manufacturing sectors will reach $ 1 trillion by FY28. India became the 6th largest economy globally, contributing 3.1 per cent to the total world GDP and export contribution in global trade is 1.6 per cent (Jain *et al.,* 2022).

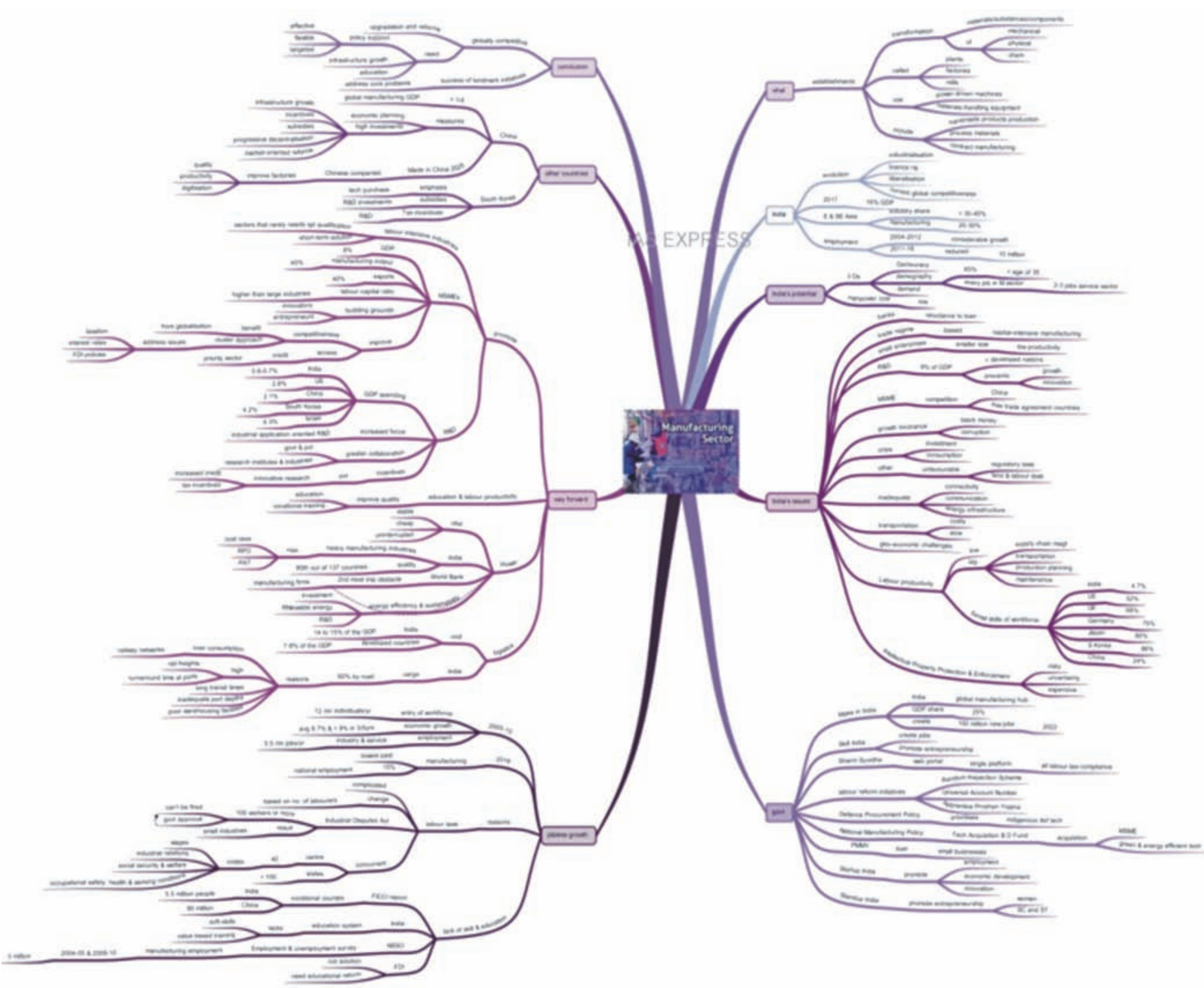
Recent seismic changes in the global environment have directly influenced India's manufacturing industry. Manufacturers have had to revaluate their strategy and adjust to this quickly changing climate due to the COVID-19 epidemic, trade conflicts, and shifting customer tastes. Additionally, India's bold "Make in India" project, introduced in 2014, aims to establish the nation as a

* Research Scholar, Indira Gandhi University, Meerpur, Rewari

powerhouse for global manufacturing. This program has sparked many governmental changes and infrastructure improvements to support the manufacturing industry. The ability of the Indian manufacturing sector to use these global difficulties for economic progress is not just a theoretical possibility but also a requirement. India can overcome the obstacles posed by these issues and emerge more assertive on the international scene by embracing technology, innovation, sustainable practices, and strategic alliances. This essay explores the many difficulties the Indian manufacturing industry encounters in the context of the shifting global environment. It will examine how to turn these difficulties into gains and spur economic expansion. This study aims to provide a thorough knowledge of the way forward for the Indian manufacturing sector in the face of global problems by looking at case studies, policy interventions, and industry-specific initiatives. It is crucial to look into new ideas, use technology, and promote cooperation between the public and private sectors. India seeks to diversify its manufacturing base, increase exports, and create job opportunities. The manufacturing industry's need for talent development, sustainability, and resilience is also highlighted in this study. These factors are all essential for surviving in today's challenging global economy.

Diagram-1 Shows the Demographic Manufacturing Sector- Issues, challenges and Government Initiatives.

Due to problems and a lack of growth and profit, India's industrial sector is compelled to lay off most of its workforce. With a pitiful contribution of 16-17% of the GDP, this industry has performed poorly over the last few decades compared to other countries.



Source- IAS, Express Manufacturing Report, 2022

Literature Review

The paper examines how trade in manufactured goods benefits developing nations. It covers how trade in manufactured goods can significantly impact the structure and size of the manufacturing sector in these nations (Rodrik, 2006). The linkages are between global marketing and economic expansion. It effectively emphasizes the reciprocal nature of this relationship, supporting the notion that developed countries engage in more trade. This claim gains credence thanks to the mention of East Asia's export-led growth model. Including this empirical evidence strengthens the argument for the significance of trade in economic development (Alessandrini *et al.,* 2009). This study looks at global production sharing in the automotive and electronics sectors. It sheds light on how the size and composition of manufacturing industries in different nations are influenced by trade in intermediate goods (Koopman *et al.,*2010). Trade liberalization affects economic expansion and the scope and composition of the manufacturing sector. The study adds to the ongoing discussion of the effects of changing trade policy (Khandelwal *et al.,* 2011). This aligns with the findings that Free trade agreements (FTAs) must also be mentioned to show how trade policies can affect the expansion of the manufacturing sector (IBEF 2023). Concurs that FTAs have facilitated the growth of India's manufacturing sector. It highlights that countries tend to get richer as they trade more and that this relationship is reciprocal (Kaushal, 2022). It mentions how India's manufacturing sector is expanding quickly and how much it contributes to India's GDP (WTO, 2022). The "Make in India" initiative, launched by Prime Minister Narendra Modi to support India's manufacturing sector, is discussed in the content (IBEF, 2023). It also mentions India's participation in signing free trade agreements (FTAs), which have boosted investment and trade in the manufacturing sector (Kaushal, 2022). With notable increases in exports and imports, it emphasizes the evolution of trade patterns in the Indian manufacturing sector (World Bank, 2023). It discusses how trade patterns have evolved, from protectionist laws to strategies for export-led growth. The content suggests incorporating more detailed firm-level data and updating trade policy analysis tools (Cernat, 2015). The importance of a systematic framework is emphasized as it discusses the idea of trade competitiveness and the metrics for measuring it (Farole *et al.,* 2010). It highlights policy initiatives taken by the government to support domestic manufacturing in India, such as production-linked incentives (PLIs) (WTO, 2017). It highlights the achievements of significant sectors of the Indian manufacturing industry (Jain *et al.,* 2022). A study on the leading causes of the trade deficit in Somalia, including factors like Foreign Direct Investment (FDI), exchange rates, and inflation, is briefly mentioned in the content (Sabrie, 2010).

Research Methodology

1. ***Research Design:*** This is the overarching plan or strategy for the study. Experimental, correlational, descriptive, and qualitative designs are frequently used in research. The study question, objectives, and resources influence the design choice.
2. ***Literature Review:*** Before starting any new work, an in-depth analysis of previous research is necessary. Reviewing prior research, theories, and ideas associated with the research topic are included here. It aids researchers in comprehending the context, spotting knowledge gaps, and expanding on prior studies.
3. ***Data Collection:*** This is a review study based on the literature review, articles, and government reports.

3.4. Techniques: In this study used SWOT Analysis.

Objective

a. To examine the Challenges and opportunities in the Indian manufacturing industry.

b. To analyze the sub-sector analysis in the Indian manufacturing industry.

c. To evaluate the trends analysis in the Indian manufacturing industry and their policy.

Challenges and Opportunities in the Indian Manufacturing Industry

Challenges	Opportunities
Infrastructure Woes	Make in India Initiative
Low Productivity	Demographic Dividend
Skill Gap	Technological Advancements
Regulatory Bottlenecks	Focus on High-Value Manufacturing
Financing Constraints	Global Trade Opportunities

Source- Ministry of Commerce and Industry, 2022.

Challenges

Infrastructure: India's youthful population provides a rich talent pool, but the effectiveness and marketability of manufactured items are constrained by inadequate infrastructure. This impacts both domestic consumption and global competitiveness.

Productivity: Low productivity makes it more difficult for India to compete in the global market on both price and scale, which could impede the country's capacity to build its export industry and the economy.

Skills Gap: When industry demands and available skills are out of sync, resources are underutilized, technical breakthroughs are hampered, and innovation and economic growth are slowed.

Rules: Difficult and onerous laws deter innovation and investment, slowing down the expansion of the industrial sector and hurting the creation of jobs.

Financing: SMEs, in particular, have limited access to funding, which limits their potential to grow and promote economic dynamism.

Opportunities

Made in India: This government programme has the potential to strengthen the economy by luring in foreign capital, encouraging homegrown manufacturing, and generating employment.

Demographic Dividend: India's sizable and youthful population can supply labour for developing sectors, boosting demand and the country's economy.

Technology: Using automation and AI to your advantage may boost competitiveness, productivity, and the creation of new, highly skilled jobs–all of which can spur economic growth.

High-Value Manufacturing: Concentrating on industries like medicines and electronics can lead to greater earnings, more capital investment, and economic diversification.

Global Trade: Regional alliances and free trade agreements may help Indian products enter new markets, boosting exports and promoting economic expansion.

General Interpretation: The industrial sector in India offers a complicated web of opportunities and problems. Realizing the full potential of the prospects requires overcoming obstacles, especially those related to infrastructure and skills. By creating jobs, higher exports, and enhanced productivity, leveraging the demographic dividend, embracing technology, and concentrating on high-value manufacturing can propel economic growth. But for government efforts like Made in India to succeed, they must be implemented well, and rules must be reduced.

Share of GDP

Aspect	Potential Impact on Share of GDP
Infrastructure Woes	It may hinder growth, potentially slowing down the increase in the share of GDP.
Low Productivity	It can drag growth, limiting the expansion of the sector's contribution to GDP.
Skill Gap	It may constrain innovation and competitiveness, potentially impacting GDP growth within the sector.
Regulatory Bottlenecks	It can discourage investment and growth, potentially limiting the rise in the share of GDP.
Financing Constraints	May restrict expansion and job creation, hindering the potential increase in the sector's contribution to GDP.
Make in India Initiative	It aims to significantly boost the sector, potentially increasing its share of GDP to 25% by 2025.
Demographic Dividend	It can provide a large skilled workforce, driving potential expansion and increased contribution to GDP.
Technological Advancements	It can enhance productivity and competitiveness, potentially leading to a larger share of GDP.
Focus on High-Value Manufacturing	It may generate higher profits and attract more significant investments, potentially boosting the sector's share of GDP.
Global Trade Opportunities	It can open up new markets for Indian goods, stimulating exports and potentially increasing the share of GDP.

Source- MOSPI

Sub Sector Analysis of Indian Manufacturing: Challenges, Opportunities and GDP Share

Challenges	Opportunities	Current GDP Share	Impact
Hide dependence on the import of bulk drugs. Limited R&D and Innovation.	Focus on API (Active Pharmaceutical Ingredient) manufacture	12%	Increase 15-18%
Lack of robust supply chain infrastructure. Stringent emission regulation.	Develop local auto components ecosystem. Transition to electric and hybrid vehicles.	8%	Increase 12-15%
Heavy reliance on cotton imports. Low productivity and outdated technology. The skill gap in specialized areas. Competition from global players.	Promote the Cultivation of organic cotton and alternative fibres. Modernise machinery and adopt automation. Invest in skill development and training programs. Focus on high-value segments. Adobtsustainable practices	10%	Increase 12-15%
High dependence on import components Limited R&D and innovation Lack of skilled workforce, Complexregulatoryenviron,ment. Competition from established players.	Develop a domestic electric component ecosystem. Promote research and development initiatives. Upskill and reskill workforce. Streamline regulation and create a conducive policy framework. Focus on niche segments and high-tech products	3%	Increase 8-10%

Source- Ministry of Commerce and Industry

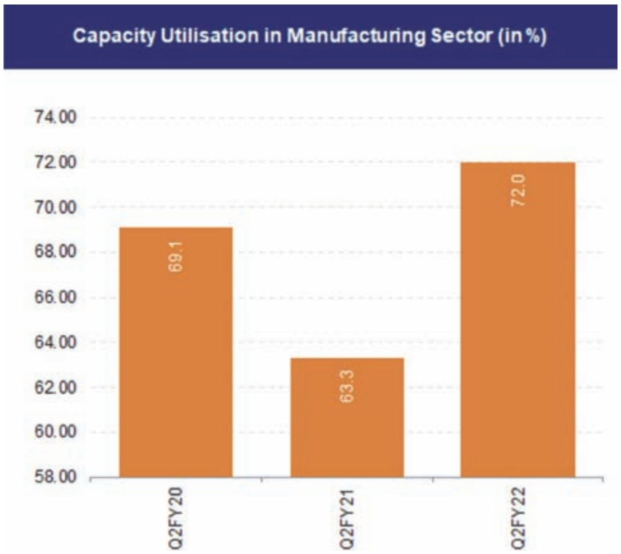
Trends Analysis in Manufacturing Industry

We can examine the patterns in the GDP share for the manufacturing sector and its several subsectors. This can assist us in comprehending how opportunities and difficulties have impacted the sector's GDP contribution throughout time and possible future trajectories (India Brand Equity Foundation).

By 2030, India might export items valued at USD 1 trillion, which is headed toward becoming a significant hub for global manufacturing. The manufacturing industry employs about 27.3 million people and contributes 17% of the country's GDP to the Indian economy. By 2025, the Indian government aims to achieve its goal of 25% manufacturing output in the economy through various programs and regulations (IBEF). The manufacturing sector in India is divided into three categories: end-user industries (automotive, manufacturing, textile and apparel, consumer electronics, construction, food and beverage, and other end-user industries), ownership (public, private, joint, and cooperative sectors), and raw materials used (agro-based and mineral-based industries). (*Source:* India Manufacturing Sector Market Report, Industry Reports, Moldor Intelligence). In the projection period (2023-2028), the manufacturing sector market in India is anticipated to grow at a compound annual growth rate (CAGR) of about 4%.

During COVID-19, India's industrial industry saw several stages of development. About 20% of the workers in the nation are employed in this industry, which accounts for 16-17% of the GDP. During the pandemic's initial wave, the lockdown imposed limitations on the flow of people and goods, badly affecting labour availability, shattered supply lines, and almost wholly stopped manufacturing. India is a desirable location for international manufacturing ventures. Numerous businesses, including luxury, automobile, and mobile phone companies, have established or planned to launch their manufacturing facilities nationwide. With a GDP of USD

2.5 trillion and a population of 1.32 billion, India will become a single market once the Goods and Services Tax (GST) is implemented, which would attract many investors. According to the Indian Cellular and Electronics Association (ICEA), with the help of policy interventions, India might increase its total capacity for producing laptops and tablets to USD 100 billion by 2025 (India Manufacturing Sector Market Report, Industry Reports, Mordor Intelligence).



Source- IBEF

India's gross domestic product (GDP) at current prices in the first quarter (Q1) of 2023-24 is estimated to be Rs. 70.67 trillion (US$ 850 billion), as against Rs. 65.42 trillion (~US$ 829 billion) in Q1 of 2022-23, showing a growth rate of 8.0%. India's overall exports during April-September 2023 were estimated at US$ 376.29 billion. India's exports in FY23 (April-March 2023) increased by 13.84% to US$ 770 billion. India's exports in September 2023 were estimated to be US$ 63.84 billion and the overall imports in September 2023 were estimated to be US$ 68.75 billion. India's merchandise exports exhibited a positive (y-o-y) growth in 20 out of 30 sectors in September 2023 compared to last year. Imports showed negative growth in 17 of 30 industries (y-o-y) in the same period. Among the commodity groups, exports of iron ore (8,054.78%), oil meals (72.66%), ceramic products & glassware (50.49%), cotton yarn/fabs./made-ups, handloom products etc. (27.39%), meat, dairy, & poultry products (19.4%), cereal preparations & miscellaneous processed items (17.65%), tobacco (9.18%), drugs & pharmaceuticals (9.01%), oil seeds (8.77%), carpet (7.51%), engineering goods (6.79%), and marine products (4.66%) registered positive growth (y-o-y) in September 2023 (IBEF Report).

Current GDP Share in Different Indian Manufacturing Sector (2023)

Sector	Estimated GDP Share (%)	Key Sub-Sectors
Total Manufacturing	17-18%	N/A
Textile & Apparel	9-10%	Cotton textiles, synthetic textiles, garments
Chemical & Petrochemicals	7-8%	Basic chemicals, pharmaceuticals, fertilizers
Food Processing	6-7%	Grain milling, dairy products, packaged food
Automobiles & Auto Components	5-6%	Passenger vehicles, commercial vehicles, automotive parts
Electronic & Hardware	3-4%	Consumer electronics, telecommunications equipment, electronic components
Other Manufacturing	13-14%	Paper products, leather goods, rubber products, construction materials

Source- World Bank, 2023

National Manufacturing Policy

The Policy on National Manufacturing The six goals of the NMP, are: To contribute at least 25% of the country's GDP by 2022, the following goals must be met: i) increase the manufacturing sector's growth to 12-14% over the medium term; ii) encourage the creation of manufacturing jobs, with a target of 100 million new jobs by 2022; iii) develop the necessary skills among urban poor and rural migrants to make growth inclusive; iv) increase domestic value addition and technological depth in manufacturing; v) boost Indian manufacturing's competitiveness abroad; vi) Ensure growth is sustainable, especially concerning the environment. The NMP gives special attention to the so-called Special Focus Sectors, which include public sector enterprises, small and medium-sized businesses, industries with a high employment rate, those that produce capital goods, those with strategic importance and where India has a competitive advantage (such as the automobile, pharmaceutical, and medical equipment industries). The NMP calls for establishing national manufacturing and investment zones (NIMZs)

Make in India

Prime Minister Modi unveiled the "Make in India" initiative in September 2014 to boost the manufacturing industry and create jobs. The Prime Minister invites international businesses to invest in India and commits to smooth and efficient governance to support India's development into a significant hub for global manufacturing. The main goals are simplifying rules and reporting requirements while ensuring more stable policies–including tax policies. Critical features of Made in India: • Relaxing laws and policies: It is intended to take a comprehensive approach that involves upscaling infrastructure, improving skills, relaxing FDI regulations, and changing labour laws. • A team from Invest India and a particular website for business inquiries: The government has established an investor facilitation team that will serve as the primary point of contact for international investors seeking guidance on policy and regulatory matters and Brochures have been created with the data and details prospective investors require for each area. A specialized team has been assembled to respond to business inquiries via a recently developed website, promising to respond to inquiries within 72 hours. • Faster security clearances and consolidated services: An e-Biz single window internet interface will house all central government services. All investment applications will receive security clearances from the Ministry of Home Affairs within three months, and government agencies are urged to expedite the approval process. • Twenty-five industries have been identified where India may lead the world: In these industries–capital goods and engineering, defence equipment, pharmaceuticals, food processing, auto and auto component manufacturing, textiles, and electronics–Made in India will prioritize job creation and skill development Made in India is a continuation of the National Manufacturing Policy (NMP) and is broadly compatible with it, albeit it gives more open support to international companies.

Findings

India's manufacturing sector, essential to the nation's GDP and employment, faces internal and international problems. The COVID-19 epidemic and shifting consumer preferences are recent worldwide upheavals that called for strategic adjustments. India's "Make in India" project, introduced in 2014, aims to elevate the country as a centre for global manufacturing by promoting infrastructure development and regulatory reforms. Indian manufacturing must embrace technology, innovation, sustainability, and partnerships to flourish. This analysis highlights the industry's capacity to turn obstacles into chances for economic growth, highlighting talent development, sustainability, and resilience as essential elements.

Conclusion

The Indian manufacturing sector is at a crossroads where it must decide whether to give in to the pressures brought on by global dynamics or use them as a springboard for economic development and increased competitiveness on a worldwide scale. To ensure the Indian manufacturing sector's continued growth and success in a constantly changing world, this paper sheds light on the latter route. It offers insights into the strategies, regulations, and activities necessary. India's industrial industry oscillates between formidable obstacles and stimulating prospects. Issues threaten growth with infrastructure and productivity, but "Make in India" programs and a young labour population open the door to possible supremacy. The industry's full potential can be realized through technological developments, a concentration on high-value products, and clever international alliances, promoting economic growth and employment creation. Overcoming obstacles and seizing chances, India has the potential to revolutionize its manufacturing sector and emerge as a significant player in the international arena.

References

Alessandrini, M., Fattouh, B., Ferrarini, B., Scaramozzino, P., Alessandrini, M., Fattouh, B., & Ferrarini, B. (2009). ADB Economics Working Paper Series Tariff Liberalization and Trade Specialization in India. 177.

Challenges and Opportunities of Indian Manufacturing Sector. OECD Economic Department Working Paper No. 1183.

Crafts, N. (2012). The Industrial Revolution. The Cambridge Economic History of Modern Britain, 1, 68-92.

Creswell, J.W. (2012). Designing Qualitative Inquiry and Research: Five Approaches to Consider. *Publications by Sage.*

Goldar, B. (2015). Productivity in Indian Manufacturing (1999-2011): Accounting for imported materials input. *Economic and Political Weekly,* 50(35), 104-111.

IAS, Express (2022), Indian Manufacturing Sector-Challenges, Policies and Government Initiatives, Report.

Indian Manufacturing Report, 2023. Mordor Intelligence.

Jain, B. D., Pasricha, S., & Patra, S (2022). The Trillion-Dollar Manufacturing Exports Opportunity for India. Report Bain & Company.

John Smith (2023), Indian Manufacturing Sector: Leveraging Global Challenges for Economic Growth, *International Journal of Economics and Business.* 35(3) (2023), 1-10.

Krueger, A. O. (1978). Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences. *National Bureau of Economic Research.*

Ministry of Commerce and Industry, Press Report, 2022.

MOSPI, 2022. Report.

R. Kumar (2014). Research Techniques: A Brief Introduction. *Publications by Sage.*

Rodrik, D.(2006). Trade in Manufacturing and Developing Countries. *Broking Paper on Economic Activity,* 1, 1-135.

Stake, R.E. (1995). Case study research: an art. *Publications by Sage.*

World Bank, 2023. Report.

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Social Media As An Entrepreneurial Strategy for Sustainable Global Growth of Women Entrepreneurship

*Megha Panjwani, **Dr . Geeta Nema

Abstract

The present study aims at understanding the role of social media as an entrepreneurial strategy for sustainable global growth of women entrepreneurship. Entrepreneurs play a key role in any economy. These are the people who have the skills and necessary initiatives to take some new ideas to market or provide a service and make the right decisions to make their ideas profitable. A women entrepreneur is a female, or group of females, who launch and run a commercial enterprise. They ought to investigate the possibility of starting a new business; take calculated chances, implement novel ideas, and handle coordination, administration, and administration of the company and exercise strong leadership in every facet of the enterprise. This is a kind of applied research.

For the present study combination of exploratory and cross sectional descriptive research design is used as the study consists of primary and secondary data. The sampling framework is composed of women entrepreneurs who have promoted their business by using different social media platforms. Structured questionnaire is designed in order to achieve the desired objectives. The sample area includes women entrepreneurs in India. The sample size is 50 women entrepreneurs. Collected data is analyzed with the help of statistical test like reliability statistics, normality test, chi-square test, regression analysis and correlation analysis. The results of analysis are presented in the form of tables and graphs. The research concludes that social media is playing an important role as an entrepreneurial strategy for sustainable growth of women entrepreneurship.

Introduction

Social media refers to a variety of technologies that facilitate the sharing of ideas and information among their users. From facebook and instagram to twitter and youtube no platform is left unused or unturned. Social media refers to a variety of technologies that facilitate the sharing of ideas and information among their users.more than 4.7 billion people use social media. In recent years, social media has emerged as a powerful tool for online communities to enhance awareness and mobilize campaigns on various issues. Women are increasingly participating in various social media such as Facebook, Instagram, Twitter, Youtube, etc and giving a boost to women entrepreneurship in social media.

Popular women's networks have led to changes in laws and norms. The recent emergence and explosion of social media have transformed and influenced the business environment so that women entrepreneurship in social media is encouraged.

In fact, women never had the easiest way to be entrepreneurs and gain economic independence and increase market share. Social media can enlarge the business opportunity for women and it provides a conducive environment for the revelation of entrepreneurial activities and the promotion of women entrepreneurship in social media also for sustainable global growth of them. Women can now communicate with one another from the convenience of the household also with the network, assistance and availability of work in other companies. They might never have accomplished this on such a large scale, even without the help of social media.

Recognizing and aiming for the appropriate audience is very important to construct a successful online business. Women are now creating jobs rather than looking for them. The present study focuses on use of social media for promoting their business at global level thereby increasing the reach and market share of their product or service.

* Research Scholar, International Institute of Professional Studies, Devi Ahilya University, Indore

** Professor, International Institute of Professional Studies, Devi Ahilya University, Indore

Literature Review

In order to carry on the present study, certain other studies were reviewed, some of them are mentioned as under:

- ***Women's entrepreneurship and social media*** Researcher - Julie Thompson, Year -2022

The author explains that women who have historically been discouraged from working outside the home or building independent businesses are finding success with micro businesses that depend on online tools like social media. Indonesian women, in particular, rely on social media to attract new customers' attention– 63 percent of their enterprises use sites like Instagram and Facebook for promotion, according to a Women's World Banking Report.

Women all over the world are realizing their true potential for several reasons. Social media allows female entrepreneurs to connect not only with other women who are building businesses, but also with their ideal customers, who are often women as well Because the internet has made entrepreneurship accessible for millions of women worldwide, we're seeing a welcome surge in companies in 2021, up from 28 percent in 2019, as reported. While not all of these businesses will succeed over the long term, many women are creating sustainable enterprises that continue to grow.

- ***A Study on Women Entrepreneurship in India*** By- Dr. Suman Gulia, Year -2022

This research paper examines the issues and challenges in the way of women entrepreneurs and analyzes the available financial assistance and Government schemes for women entrepreneurs. There is a long way to go before empowerment of women through entrepreneurship. To cover up this segment of population, constant efforts should be taken to provide the benefits of financial schemes introduced by the Government for business. This study revealed that various Government schemes proved a great help for the women entrepreneurs in the context of their self-employment, self-development and financial stability.

- ***How women entrepreneurs are taking over social media,*** Year-2022

The study explains about how the economies worldwide have been disrupted by the pandemic, but it has also created new opportunities, but it has also created new opportunities to do business through social media. Women owned businesses have received a big boost in recent years. And with a second income coming in, the standard of living of most families has improved. This means the women are not only being empowered financially but are also getting family support and acceptance for their role as working women.

- ***Women Entrepreneurs and The usage of social Media for Business Sustainability In the time of Covid-19,*** Published- September 2021

Ninik Sri rahayu- Islamic University of Indonesia: This paper has investigated how women entrepreneurs have ensured the survival of their businesses during the COVID-19 pandemic by surveying 130 respondents in Yogyakarta, Indonesia. This study explored the innovative ways that women have secured their businesses during a time of crisis. These findings are important, as they offer insight into how women entrepreneurs in a developing economy face the challenge of economic instability. These findings are important, as they offer insight into how women entrepreneurs in a developing economy face the challenge of economic instability. The knowledge generated through this work may help reduce the unplanned losses that businesses face during times of crisis and help policymakers address the economic and social vulnerabilities of women entrepreneurs.

- ***A study on Women Entrepreneurship in India,*** Published - June 2020

Authors- Ritwik Saraswat from VIT University

Remya Lathabhavan from Indian Institute of Management Bodh Gaya

This study has been able to convey to women of different sections of society how they should change their mindset from being confined to walls to taking up entrepreneurship. These methods have motivated existing entrepreneurs to take their entrepreneurship skills to greater heights which they are capable of. Discussions will surely increase the women workforce as they will be good enough to take up responsibilities as good as men. Personal opinions would help women get an inspiration to take up entrepreneurship for living. The whole motive behind this is to highlight that women can contribute to the economy. It is these innovative minds which can cause growth of the economy to a level which even men can't imagine. India needs women to stand up and contribute towards the economy.

Objectives and Hypothesis

Objectives

- To explore different social media platforms used by women entrepreneurs.

- To study the impact of social media as an entrepreneurial strategy on growth of women entrepreneurship
- To correlate growth of women entrepreneurship with sustainable global growth

Hypothesis

- H_0- Social media as an entrepreneurial strategy does not significantly affect sustainable global growth of women entrepreneurship.
- H_1- Social media as an entrepreneurial strategy significantly affects sustainable global growth of women entrepreneurship.
- H_{01}- Educational qualification does not significantly affect entrepreneurship strategies used by women entrepreneurs through social media.
- H_1- Educational qualification significantly affects entrepreneurship strategies used by women entrepreneurs through social media.
- H_{02}- Age does not significantly affect entrepreneurship strategies used by women entrepreneurs through social media.
- H_1- Age significantly affects entrepreneurship strategies used by women entrepreneurs through social media.
- H_{03} -Annual income does not significantly affect entrepreneurship strategies used by women entrepreneurs through social media.
- H_1- Annual income significantly affects entrepreneurship strategies used by women entrepreneurs through social media.

Research Methodology

Research methodology is the framework of the entire research. For the present exploratory and study cross sectional descriptive research design is used as the study consists of primary and secondary data. Exploratory research is a methodology approach that investigates research questions that have not previously been studied in depth. A cross-sectional study describes a type of observational research study that gathers information about a population at a moment in time. Cross-sectional studies are a type of descriptive research which collects data from a population at a single point in time to describe the characteristics of that population or to examine the relationship among variables.

The sampling framework is composed of women entrepreneurs who have promoted their business by using different social media platforms. Structured questionnaire is designed in order to achieve the desired objectives. The sample area includes women entrepreneurs in India. The random sample size is 50 women entrepreneurs. Collected data is analyzed with the help of statistical tests like reliability statistics, chi-square test, regression analysis, descriptive statistics and correlation. The results of analysis are presented in the form of tables and graphs.

Data Analysis and Interpretation

In this study the sample size is 50 women entrepreneurs and Cronbach's alpha reliability test is used to assess the reliability of the data. The demographic variables used in this research are-

1. Age
2. Educational qualification
3. Family background
4. Annual family income

On the basis of these variables we have formulated the hypothesis in this research. Age is classified in 4 segments–20 to 30 years, 31-40 years, and 41 to 50 years. Educational qualifications are classified in 3 segments–High school, bachelor's degree and master's degree. Further, family background is either service or business type. Annual family income is divided between 2 lakhs to 6 lakhs and above. Descriptive statistics and frequency analysis is done on these demographic variables to get the results. Chi square test is applied on the demographic variables to find out which variables out of the above mentioned play a significant role in helping women entrepreneurs to use social media for becoming global entrepreneurs.

Case Processing Summary

	N	%
	50	100.0
Excluded	0	.0
Total	50	100.0

The valid sample size is 50 women entrepreneurs using social media for promoting their business.

Reliability Statistics

Cronbach's Alpha	N of Items
.866	15

Cronbach's alpha is a way of assessing reliability by comparing the amount of shared variance, or covariance, among the items making up an instrument to the amount of overall variance. A general accepted rule is that α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater a very good level. In this research it is 0.866 that means that it is at a good level and the data is reliable to undergo further analysis.

Descriptive Statistics

	N	Maximum	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Age	50	3	.682	.337	-.661	.662
Educational Qualification	50	3	-.202	.337	-.764	.662
Annual Family income	50	4	.000	.337	-2.085	.662
Valid N (listwise)	50					

The spread and height of your normal distribution are described by skewness and kurtosis. It is evident from the descriptive statistical table above that the values of kurtosis and skewness for each of the three variables are non-zero. It means that data is not normally distributed hence nonparametric tests can be applied on the data.

Chi-Square Test:

Test Statistics

	Age	Educational Qualification	Annual Family income
Chi-Square	11.320[a]	20.440[a]	.000[b]
Df	2	2	1
Asymp. Sig.	.003	.000	1.000

For the purpose of this analysis chi-square test statistic is needed. The p-value for the chi-square statistic for age is .003 which is smaller than the alpha level of 0.05 therefore there is enough evidence to reject the null hypothesis. The p-value for the chi-square statistic for educational qualification is .000 which is smaller than the alpha level of 0.05 therefore there is enough evidence to reject the null hypothesis.The p-value value for the chi-square statistic for annual family income is 1.00 that means there is no significant difference. This shows that age and educational qualification play a significant role in helping women entrepreneurs to use social media for becoming global entrepreneurs whereas annual family income is not affecting women entrepreneurs to use social media for becoming global.

Frequency Table

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
20-30 years	25	50.0	50.0	50.0
31-40 years	19	38.0	38.0	88.0
41-50 years	6	12.0	12.0	100.0
Total	50	100.0	100.0	

This table indicates that most of the sample is of age between 20-30 years that is 50% of the total sample size whereas age between 30-40 years is 38% and between 40-50 years is only 6%. This means that youngsters take moderate risks to be entrepreneurs.

Educational Qualification

	Fre-quency	Per-cent	Valid Percent	Cumulative Percent
High school	2	4.0	4.0	4.0
Bachelor's degree	27	54.0	54.0	58.0
Master's degree	21	42.0	42.0	100.0
Total	50	100.0	100.0	

This table indicates that majority of women entrepreneurs are graduated in their educational background which is 54%, which is very near to post graduates that is 42%. This is due to the use of social media from a technologically driven perspective where educational qualification plays a significant role for the women entrepreneurs.

Family background

	Frequency	Percent	Valid Percent	Cumulative Percent
Business	50	100.0	100.0	100.0

This shows that all the respondents are from a business background. That means that a business background motivates the women to be entrepreneurs.

The data collection for this research is done by sending questionnaires to 50 women entrepreneurs asking them the usage and utilization of social media platforms as a part of their entrepreneurial strategy for their business.

Have you utilized social media platforms as part of your entrepreneurial strategy for your women-led business

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	46	92.0	92.0	92.0
No	1	2.0	2.0	94.0
Somewhat	3	6.0	6.0	100.0
Total	50	100.0	100.0	

In this table we can see that 92% of the women entrepreneurs are using social media platforms as a part of their entrepreneurial strategy for their business and this shows that social media plays a very important role in their sustainable global growth.

The women entrepreneurs have been given various options for social media platforms which they find most effective in promoting their business globally. The options given to them are as follows:

1. Facebook
2. Instagram
3. Pinterest
4. Youtube
5. Combination of above platforms
6. Whatsapp

Which specific social media platform do you find most effective in promoting and growing your business globally?

	Fre-quency	Per-cent	Valid Percent	Cumulative Percent
Facebook	3	6.0	6.0	6.0
Instagram	23	46.0	46.0	52.0
Pinterest	3	6.0	6.0	58.0
Youtube	3	6.0	6.0	64.0
Combination of above platforms	1	2.0	2.0	66.0
Whatsapp	17	34.0	34.0	100.0
Total	50	100.0	100.0	

This table shows that 46% of women entrepreneurs choose instagram as the most effective platform for promoting and growing business globally because it's more likely to know what people say about your services, product and location and can build business. 34% women entrepreneurs prefer whatsapp for their business because of new updates such as display of catalogs of the business or services on a separate base of business whatsapp. Facebook, Pinterest and Youtube have 6% of women entrepreneurs choosing them as their main platform.

The women entrepreneurs have been asked whether they use targeted advertising on social media to reach a specific audience for their business.

Do you use targeted advertising on social media to reach a specific audience for your Business?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	38	76.0	76.0	76.0
No	3	6.0	6.0	82.0
Somewhat	9	18.0	18.0	100.0
Total	50	100.0	100.0	

The table shows that 76% women entrepreneurs use targeted advertising on social media to reach a specific audience for their business. Targeted advertising is a form of advertising that is directed towards an audience with certain traits, based on the product or person the advertiser is promoting. 6% of women entrepreneurs do not use it and 18% of women entrepreneurs are not sure about it. This shows that target advertising benefits the women entrepreneurs who are using different social media platforms for growing business globally.

Annual Family income

	Frequency	Percent	Valid Percent	Cumulative Percent
2 to 4 lakhs	25	50.0	50.0	50.0
6 lakh above	25	50.0	50.0	100.0
Total	50	100.0	100.0	

This table shows that we have women entrepreneurs whose income is between 2 to 4 lakhs or 6 lakhs and above.

After the descriptive statistic the second table is Model summary and in the present study the dependent variable is whether social media contributes to the sustainability of your business in the long term.

Model Summary

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.750a	.723	.661	.651	1.249

The R-value is .75 is greater than 0.4 that means it can be taken for further analysis and in this case the value is good. It represents the relationship between dependent and independent variables. Here in this research the dependent variable is whether social media contributes to the sustainability of your business in the long term. R square shows the total variation for the dependent variable that could be explained by the independent variable. In this research the value is .661 which is greater than 0.5 and which is good. It shows the positive correlation between social media and its contribution to the sustainability of the business in the long term. There is no major difference in R square and adjusted R square The model summary table is satisfactory to proceed further.

The value of Durbin Watson is coming to be 1.249 which shows that independent variables are auto correlated with each other.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.565	10	.556	1.314	.001b
	Residual	16.515	39	.423		
	Total	22.080	49			

In the above table the p-value is 0.001 which is less than 0.05 for 95% confidence level and 5% level of the significance level is chosen for study, thus we can reject all the null hypothesis in further analysis. The F-ratio is also greater than 1 which yields an efficient model.

Thus it can be interpreted that the null hypothesis namely "Social media as an entrepreneurial strategy does not significantly affect sustainable global growth of women entrepreneurship"is rejected.

This shows that social media is significantly affecting the growth of women entrepreneurship at global level.

Coefficients

MODEL	Unstandardized coefficients		Standard coefficients	T	Sig.
	B	Std Error	Beta		
1 (constant)	.338	.521		.649	.001
Have you utilized social media platforms as part of your entrepreneurial strategy for your women-led business?	.073	.210	.054	.346	.003
Do you use targeted advertising on social media to reach a specific audience for your business?	-.222	.136	-.260	-.1.636	.001
Have you encountered any challenges or obstacles in using social media for your entrepreneurial efforts?	-.021	.127	-.028	-.167	.002
Have you ever participated in online communities or groups on social media to network with other women entrepreneurs and share experiences?	.063	.152	.064	.416	.001
Does customer feedback on social media influence the evolution and improvement of your products or business?	.327	.318	.166	1.029	.310
Have you considered collaborations or partnerships through social media to enhance Sustainability and growth of your business?	-.109	.233	-.085	-0466	.001
Has the use of social media positively impacted your ability to create a brand identity for your venture globally?	.344	.196	.347	1.757	.001
Do online communities or groups on social media platforms contribute to your knowledge sharing and learning as a woman entrepreneur?	-.010	.147	-.011	-.070	.004
Do you foresee the continued evolution of social platforms influencing the future sustainable global growth of women entrepreneurship?	.151	.272	.108	.554	.002

a. Dependent variable: Do you believe that social media contributes to the sustainability of your business in the long term?

The above table interprets that all the significant values are below 0.05 for 95% confidence interval in this study except one variable which is 0.310 for customer feedback on social media influence the evolution and improvement of your products or business. The values below 0.05 signifies that Social media as an entrepreneurial strategy significantly affects the sustainable global growth of women entrepreneurship. Thus it can be interpreted that except customer feedback on social media on the other independent variables are significantly affecting use of social media as an entrepreneurial strategy for the global growth of women entrepreneurs.

In order to find an association between the utilization of social media platforms and continued evolution of social media platforms influencing the future sustainable global growth of women entrepreneurship, Pearson correlation test was applied.

Correlations

	Have you utilized social media platforms as part of your entrepreneurial strategy for your woman led business?	Do you foresee the continued evolution of social platforms influencing the future Sustainable global growth of women entrepreneurship?
Have you utilized social media platforms as part of your entrepreneurial strategy for your woman led business?	1 .50	.100 .795 50
Do you foresee the continued evolution of social platforms influencing the future Sustainable global growth of women entrepreneurship?	.100 .795 50	1 50

This table of correlation shows that the value of coefficient is positive and close to 1 which is 0.795. This clearly means that there is a positive correlation between the variables of the

study. Women entrepreneurs utilize social media platforms as a part of their entrepreneurial strategy and they foresee the continued evolution of social platforms influencing the future sustainable growth of women entrepreneurship.

Conclusion

The current study aims to explore the role and importance of social media as an entrepreneurial strategy for sustainable global growth of women entrepreneurship. In this study we used descriptive and exploratory statistical test and tested the reliability of data and the data was found reliable. The data was not normally distributed so we applied a nonparametric chi square test. The test shows that age and educational qualification plays an important role in helping women entrepreneurs to use social media for becoming global entrepreneurs whereas annual family income did not show any effect at this. The most effective platform for women to promote their business is found to be Instagram which also helps them to use targeted advertisements and boost sales as well. Certain other platforms are also used by women entrepreneurs such as whatsapp, youtube, pinterest and facebook. The study shows a positive correlation between the variables and shows that women entrepreneurs utilize social media platforms as a part of their entrepreneurial strategy and they foresee the continued evolution of social platforms influencing the future sustainable growth of women entrepreneurship.

In recent years, social media has emerged as a powerful tool for online communities to enhance awareness and mobilize campaigns on various issues. Women are increasingly participating in various social media platforms as seen in the study and giving a boost to women entrepreneurship in social media. Social media revolution gives women incredible options to succeed in women entrepreneurship in social media with different platforms. There are a lot of great online tools available for women who want to grow their business and build an empire, but before they can be a leader, they have to think like a leader. Social media is a great way to promote businesses and grow networking. It helps women grow their personal brand, be more confident about their professional successes, and become entrepreneurs in their businesses. If a woman takes advantage of social media properly, she can generate much more outcomes than ever imagined when she first started her business.

As new ventures increase so has the creative use of social media to promote everything. Right from fashion, real estate, IT, beauty and jewelry brands to home bakers and pay-per-consult fitness/astrologers, everything can easily be promoted.Since the development of the media, women have gained awareness of their own characteristics, rights, and working conditions. The opportunities and problems facing women in the digital age are expanding so quickly that these formerly job searchers are now creating new jobs. As an entrepreneur, if you make a firm commitment, you must persevere through all three scenarios, regardless of what may happen. This will help your business's brand as well as your personal brand and all other elements to thrive. For a long time, women had to fight against the glass ceiling to succeed in business. However, things have changed, and now, it's time to celebrate and acknowledge women entrepreneurs' dreams. In order to achieve this goal women entrepreneurship through the entrepreneurial strategy of social media will help in sustainable global growth.

Bibliography

Neha Tiwari, I.I.S.E Group of Institutions, Lucknow, India– research paper Year - 2017

Rupal Anand Shroff, Assessing the role of social media on emerging marketing opportunities for women entrepreneurs a sample survey in the selected cities of Maharashtra- 2017

Women Entrepreneurship- A study of Indian Scenario by Dr. Sadhna Arya Satyawati College (evening), University of Delhi.

Dr. Neel Rai, Dr. Rajeev Sijariya, Use of Social Media for Women Entrepreneurship (With special reference to Bhopal).

Dr. Suman Gulia, A Study on Women Entrepreneurship in India - 2022

Julie Thompson, A study on women entrepreneurship and social media Year - 2022

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Navigating the Digital Divide: Bridging Skill Gaps for Career Advancement in Commerce Graduates

*Ms. Madhavi Tarani, **Prof. (Dr) Vishal Mehta

Abstract

In an era defined by rapid technological advancements and digital transformation, the landscape of professional careers is undergoing a profound shift. Nowhere is this transformation more evident than in the realm of commerce, where the convergence of technology and business has become inseparable. As we navigate the complexities of the digital age, the success of commerce graduates hinges not only on their foundational knowledge but also on their ability to adapt and thrive in an ever-evolving technological ecosystem.

In this research endeavours are to delve into the nuanced dynamics of skill gaps faced by commerce graduates, meticulously analyzing their impact on career advancement. By examining the interplay between traditional commerce education and the demands of the digital age, this study seeks not only to identify existing gaps but also to propose actionable strategies for bridging them. As we embark on this exploration, the aim is to contribute valuable insights that not only enrich academic discourse but also offer pragmatic solutions to empower commerce graduates for success in the dynamic and digitized professional landscape.

Introduction

The professional career environment is undergoing a significant upheaval in an era characterized by swift technological breakthroughs and digital transformation. The fusion of technology and business has become indispensable in the field of commerce, where this transition is best seen. The success of graduates in business depends not only on their core skills but also on their capacity to adjust to and prosper in a rapidly changing technical environment as we traverse the complexity of the digital age.

It is impossible to overestimate the importance of closing skill gaps for commerce graduates in order to successfully advance their careers in the digital era. The demands of a global economy that is technologically advanced and linked are reshaping traditional job paths. It is now required of commerce professionals to have a broad skill set that goes beyond traditional knowledge, including data analytics, digital literacy, and a sophisticated grasp of how technology shapes businesses.

In this situation, the mutually beneficial relationship between career advancement and technology competency makes it imperative to close skill gaps. Commerce graduates with a broad skill set are not only better positioned to land a job but also move up the career ladder quickly as firms automate their processes more and more. Proficiency in navigating the digital terrain serves as a stimulant for innovation, tactical decision-making, and enduring career advancement.

In the pages that follow, this study aims to explore the complex dynamics of skill gaps that graduates in commerce encounter, carefully examining their effects on career progression. This study looks at how traditional commerce education interacts with the needs of the digital age in order to find holes in the market and suggest practical solutions for closing them. Our goal as we begin this investigation is to provide insightful analysis that will enhance scholarly conversation and provide workable ideas that will equip commerce graduates for success in the fast-paced, digitally-changing workplace.

Review of Literature

1. Coban, M., Bolat, Y.I., & Goksu, I. (2022), This study looked at how virtual reality (VR) affects learning. They combined the results of many studies to see if VR helps students learn better. They found that overall, VR has a small positive effect on learning. They also found that the effect of VR on learning depends on things like the level of education and the subject being taught. While VR seems to

* Asst. Prof., St. Paul Institute of Professional Studies, Indore
** Professor, College of Professional Studies-ATC, Indore

be helpful in some situations, more research is needed to fully understand how it can be used effectively in education.

2. Vimala Venugopal Muthuswamy (2023), This study investigates the impact of total quality management, job placement, vocational skills, and digital literacy on students' career progression, with a focus on soft skills development and socioeconomic status. Conducted through a quantitative survey of university employees in Saudi Arabia, the findings reveal that digital literacy and vocational skills positively influence career advancement, while other variables show insignificant effects. The study concludes with a comprehensive analysis, summary, and discussion of limitations.

3. M. Olaniyan, D. Graham, D. Nielsen (2012), Higher Education Institutions (HEIs) must align digital literacy offerings with student expectations to enhance the undergraduate experience and meet employer demands. Incorporating digital literacy into pedagogic activities can produce highly employable graduates. A holistic curriculum development model, such as "Digital Literacy in HE," can integrate digital literacy into the student journey, enriching their learning experience. This paper explores this comprehensive approach.

4. Mohammadyari, S., & Singh, H. (2014), With the proliferation of Web 2.0 tools like podcasts and blogs, e-learning has gained popularity for individual training. However, the link between e-learning and improved performance is not automatic. This paper proposes that an individual's digital literacy level influences their performance and effort expectations. By integrating digital literacy with the Unified Theory of Acceptance and Use of Technology (UTAUT), we examine this relationship using survey data from New Zealand accountants in SMEs. Results show that digital literacy impacts performance and effort expectations, which in turn affect e-learning continuation and performance. Thus, digital literacy plays a crucial role in enhancing e-learning effectiveness for performance improvement.

5. Itsekor, V.O., & James, J.I. (2012), The evolving role of academic libraries necessitates library staff to possess skills to serve both institutional users and surrounding communities. This study surveyed 150 librarians from various institutions, analyzing responses through frequency distribution and correlation techniques. While 47.9% reported job satisfaction and camaraderie, 56.3% appreciated their colleagues and supervisors. However, 32.3% lacked digital literacy training, impacting their job satisfaction and career progression. Nevertheless, 58.3% felt satisfied with career growth due to supportive supervisors and increased remuneration over time. These findings underscore the importance of digital literacy training and supportive work environments for library staff's professional development and job satisfaction.

Objectives of Study

1. Evaluating the Effect of Digital Skills on Commerce Graduates' Career Advancement.
2. Assessing the Congruence Between Academic Inclusion of Training for Digital Skills and Industry Demands.

Theoretical Background

This study's theoretical framework is essential for providing a conceptual framework and directing the research strategy. Several pertinent ideas and models can be taken into consideration when examining career progression chances and job skill gaps faced by commerce graduates in the digital age:

The Human Capital Theory, put out by Gary Becker, asserts that a person's capacity for economic productivity and earning potential is influenced by their knowledge, skills, and abilities. Within the framework of this research, this theory can be utilized to comprehend how the development of digital abilities augments the human capital of graduates in commerce, impacting their prospects for career progression.

Theory of Skills Mismatch:

According to this notion, there can be a discrepancy between the skills graduates have gained and the skills employers are looking for. By using this approach, it becomes easier to determine whether the competencies taught in traditional commerce education and the competencies needed for successful career growth in the digital age are incompatible.

Theory of Lifelong Learning:

This idea places a strong emphasis on the value of lifelong learning. By using this idea, research may be done on how graduates of commerce programs who pursue lifelong learning-especially in the area of digital skill acquisition-benefit from increased prospects for job progression.

The Social Cognitive Theory of Careers (SCCT):

Albert Bandura's SCCT focuses on how social influences and cognitive processes play a part in career development. This theory can be used to comprehend how social elements, such networking, industry exposure, and mentoring, affect career progression prospects for graduates in the field of commerce in the digital age.

Research Methodology

Research Type	Empirical Research
Research Survey	Personal & Telephonic Interviews, Survey
Geographical Area	Indore City
Random Sample	Commerce Graduates
Sample Size	100 Graduates
Data Collection & Instrument	Primary-Questionnaire Secondary- Reports, Published Thesis, News Articles, Journals
Testing of Hypothesis	Z Two Sample Test for Means & Correlation Analysis
Data Presentation & Descriptive Analysis	Frequency, Percentage, Table, Graphs

Repondents' Profile:

Table-1: Gender

Gender	Frequency	Percent
Male	58	58
Female	42	42
Total	100	100

Table-2: Occupation

Occupation	Frequency	Percent
Private Sector	51	51
Government Sector	11	11
Seeking Employment	21	21
Students	17	17
Total	100	100

Table-3: Age Group

Age Group	Frequency	Percent
20-25	32	32
26-30	34	34
31-35	14	15
36-40	11	11
40 & above	8	8
Total	100	100

Table-4: Respondents' Efficiency in using common Office Productivity Tools (On Scale 1 to 5)

	Frequency	Percentage
1	0	0
2	2	2
3	30	30
4	42	42
5	26	26
Total	100	100

Table-5: Digital Skills That Are significant for Career Advancement (Select all those who apply)

Digital Skills That Are significant for Career Advancement	Percent
Data Analysis	65.1%
Social Media Management	53.5%
E-Commerce Platforms	62.8%
Digital Marketing	62.8%
Cyber Security	41.9%
Artificial Intelligence	53.5%
Mobile App Development	39.5%
Business Intelligence	39.5%
Data Visualization	41.9%
Accounting Software	74.4%
Financial Modelling	60.5%
Advance Excel	74.4%
Other	10%

Table-6: Methods of Acquiring Digital Skills

Methods of acquiring Digital Skills	Responses	Percent
Formal Education	16	16
Online Courses	21	21
Self-Learning	48	48
On-the-Job Training	14	14
Other	01	01
Total	100	100

Table-7: Importance of advanced digital skills for career advancement

Importance of advanced digital skills for career advancement	Frequency	Percent
Yes	90	90
No	5	5
May be	5	5
Total	100	100

Table-8: Interested in further developing digital skills

Interested in further developing digital skills	Frequency	Percent
Yes	88	88
No	3	3
May be	9	9
Total	100	100

Table-9: Alignment between Employers' Expectations for Digital Skills & Educational Background

Alignment between Employers' Expectations for Digital Skills & Educational Background	Frequency	Percent
Completely	65	65
Somewhat	30	30
Not Really	3	3
Not at all	2	2
Total	100	100

Table-10: Perception of Relationship between Digital Skills & Job Satisfaction (on Scale 1 to 5)

Perception of Relationship between Digital Skills & Job Satisfaction	Frequency	Percent
1	0	0
2	5	5
3	37	37
4	42	42
5	16	16
Total	100	100

Table-10 Actively engaged in continuous learning to stay updated on Emerging Digital Trends

Actively engaged in continuous learning to Stay updated on Emerging Digital Trends	Frequency	Percent
Yes	83	83
No	17	17
Total	100	100

Table-11: Relation between the level of digital skills among commerce graduates and their perceived career advancement opportunities (On Scale 1 to 5)

Relation between the level of digital skills among commerce graduates and their perceived career advancement opportunities	Frequency	Percent
1 (Strongly Disagree)	2	2
2	1	1
3	21	21
4	43	43
5 (Strongly Agree)	30	30

Table-12 Confidence in your ability to leverage digital skills for career advancement(on Scale 1 to 5)

Confidence in your ability to leverage digital skills for career advancement	Frequency	Percent
1	0	0
2	7	7
3	32	32
4	48	48
5	13	13

Table-13: Academic institution provided specific training or courses aimed at enhancing digital skills for commerce students

Academic institution provided specific training or courses aimed at enhancing digital skills for commerce students	Frequency	Percent
Yes	72	72
No	28	28
Total	100	100

Testing of Hypothesis

Null Hypothesis (Ha0): There is no significant correlation between respondents' level of digital skills and their perceived career advancement opportunities (r = 0).

Alternative Hypothesis (Ha1): There is a significant positive correlation between respondents' level of digital skills and their perceived career advancement opportunities (r > 0).

Pearson Correlation	0.10
T Statistic	0.64
p Value	0.525733
Acceptance	p>0.05, Ha0 Accepted

Table 4 & Table 11 help us to know that there is no significant correlation between respondents' level of digital skills and their perceived career advancement opportunities that means apart from Digital Skills of respondents, there can be other factors as well which contribute to respondents' level of perceived career advancement.

Null Hypothesis (Hb0): $\mu 1 = \mu 2$ (There is no significant difference in the mean confidence level between commerce graduates who actively engage in continuous learning and those who do not.)

Alternative Hypothesis (Hb1): $\mu 1 > \mu 2$ (Commerce graduates who actively engage in continuous learning have a higher mean confidence level compared to those who do not.)

z-Test: Two Sample for Means	Confident in leveraging digital skills	Actively engaged in learning
Mean	3.681818182	1.840909091
Known Variance	0.6405	0.1368
Hypothesized Mean Difference	0	
Z	13.85046476	
P(Z<=z) two-tail	0	
z Critical two-tail	1.959963985	
	P<0.05	Hb0 Rejected

As Hb0 is rejected, Table 10 & 12 states that investing in continuous learning and digital skill development can lead to increased confidence among commerce graduates, ultimately facilitating their career advancement prospects within the commerce sector.

Null Hypothesis (Hc0): There is no significant correlation between the integration of digital technology into commerce education and commerce graduates' perceived preparedness for the industry (r = 0).

Alternative Hypothesis (Hc1): There is a significant positive correlation between the integration of digital technology into commerce education and commerce graduates' perceived preparedness for the industry (r > 0)

Pearson Correlation	0.3364
T Statistic	2.23
p Value	0.03128
Acceptance	P <0.05, Hc0 Accepted

Table 8 & 13 gives us the details for above hypothesis & as Hc0 is accepted, we can say that there is no significant correlation as such, therefore, just because digital technology is incorporated into commerce school, it doesn't guarantee that graduates of that field will feel better equipped for the workforce. Graduates' preparedness may also be influenced by other variables, such as the curriculum's structure, the way it is taught, real-world experiences, or a student's ability and motivation.

Null Hypothesis (Hd0): There is no significant difference in the mean overall job satisfaction between commerce graduates who are continuously engaged in developing digital skills and those who are not.

Alternative Hypothesis (Hd1): Commerce graduates who are continuously engaged in developing digital skills have a higher mean overall job satisfaction compared to those who are not.

	Perceived relationship between your digital skills and your overall job satisfaction	Actively engaged in continuous learning to stay updated on emerging digital trends in the commerce sector
Mean	3.681818	1.840909091
Known Variance	0.6405	0.1368
Hypothesized Mean Difference	0	
z	13.85046	
P(Z<=z) two-tail	0	
z Critical two-tail	1.959964	
	P<0.05	Hd0 is rejected

Table 10 & 11 help us to have details on this hypothesis, as Hd0 is rejected, we can say that yes commerce graduated who are actively engaged in continuous learning to stay updated on digital skills will have more job satisfaction compared to those students who do not. So it is very much important to get updated to facilitate work related problems & ultimately improving job satisfaction.

Findings

1. ***Digital skills, while valuable, do not solely dictate career advancement:*** The study reveals that while proficiency in digital skills is important, it doesn't guarantee perceived opportunities for career progression among commerce graduates. This suggests that factors beyond technical abilities play a significant role in navigating career trajectories in the digital age.

2. ***Continuous learning enhances confidence and job satisfaction:*** The research indicates a positive correlation between active engagement in continuous learning, especially in digital skills, and heightened levels of confidence among commerce graduates. Furthermore, those who consistently update their digital skill sets tend to report greater overall job satisfaction, highlighting the importance of lifelong learning in career fulfillment.

3. ***Integration of digital technology in education falls short in preparing graduates:*** Contrary to expectations, simply incorporating digital technology into commerce education programs does not significantly improve graduates' readiness for the industry. This finding underscores the need for a more comprehensive approach to education that goes beyond technology integration to address broader skill development and industry relevance.

4. ***Continuous learning in digital skills positively impacts career outlook:*** Commerce graduates who prioritize continuous learning in digital skills demonstrate a greater sense of preparedness for the evolving demands of the industry. This proactive approach not only enhances their employability but also positions them for long-term career growth and adaptability in a rapidly changing digital landscape.

5. ***Holistic strategies are crucial for bridging skill gaps:*** The study emphasizes the importance of holistic strategies in addressing skill gaps and fostering career advancement opportunities for commerce graduates. Beyond technical proficiency, interventions should focus on cultivating a culture of continuous learning, soft skill development, and industry engagement to equip graduates with the multifaceted skills needed to thrive in the digital economy.

Conclusion

The present study concludes by shedding light on the complex interplay among digital competencies, job advancement, and educational readiness among commerce graduates. Although there is no denying the value of digital literacy, our study shows that perceived chances for job progression are not guaranteed by it alone. Instead, a diverse strategy that includes industry interaction, soft skill development, and ongoing learning becomes essential for negotiating the intricacies of the labor market in the digital age.

Our results highlight the value of lifelong learning, especially in the area of digital competencies, as a means of enhancing graduates' confidence, sense of fulfilment in their jobs, and prospects for a long career. Our analysis indicates a significant gap in graduate preparation for industrial expectations, despite the growing incorporation of digital technologies in educational programs. This emphasizes how important it is for educational establishments to take a more comprehensive strategy that goes beyond technical training to include more extensive skill development and practical application.

Moreover, our study indicates that graduates in commerce who place a high value on continuous education in digital skills are better equipped to deal with the rapidly changing digital economy. In addition to improving their employability, these people develop resilience and adaptation in the face of technology upheavals by making proactive investments in skill growth.

These observations make it clear that comprehensive solutions are necessary to close skill gaps and provide chances for professional growth. Beyond technical competence, interventions should include developing soft skills, encouraging a culture of lifelong learning, and creating significant industry ties. We can better prepare graduates for success in the changing job market by giving them a wide skill set that will enable them to succeed in the competitive and dynamic digital ecosystem of the future.

Recommendations:

1. Revise the curriculum for commerce education to provide a more thorough instruction in digital skills. This should cover topics like data analysis, digital marketing, and e-commerce techniques in addition to fundamental technical proficiency to make sure graduates have the necessary and in-demand skills for the modern digital economy.

2. Create programs to assist and promote lifelong learning for professionals and students studying commerce. In order to promote a culture of lifelong learning and skill development, this could involve giving access to online courses, workshops, and industry certifications in digital skills and emerging technologies.

3. To make sure that commerce education stays current and adaptable to changing industry needs, academic institutions should work more closely with industry partners. Establishing advisory boards, internship programs, and cooperative research projects that shed light on market trends and guide curriculum creation are a few examples of how to do this.

4. Provide mentorship programs and career counseling services to assist students in choosing their career routes and making the most of their digital abilities. This could entail putting students in touch with career counselors, business executives, and alumni mentors who can offer networking opportunities, direction, and assistance.

References

Osipow, S.H. (1968). Theories of Career Development. A Comparison of the Theories.

Super, D. E., & Hall, D. T. (1978). Career development: Exploration and planning. *Annual Review of Psychology,* 29(1), 333-372.

Savickas, M.L. (1994). Measuring career development: Current status and future directions. *The Career Development Quarterly,* 43(1), 54-62.

Lent, R.W., & Brown, S.D. (1996). Social cognitive approach to career development: An overview. *The career development quarterly,* 44(4), 310-321.

Herr, E.L. (2001). Career development and its practice: A historical perspective. *The Career Development Quarterly,* 49(3), 196-211.

Hoekstra, H. A. (2011). A career roles model of career development. *Journal of Vocational Behavior,* 78(2), 159-173.

Coban, M., Bolat, Y. I., & Goksu, I. (2022). The potential of immersive virtual reality to enhance learning: A meta-analysis. *Educational Research Review,* 100452. 10.1016/j.edurev.2022.100452

M. Olaniyan, D. Graham, D. Nielsen (2012) digital literacy in higher education: enhancing learning and undergraduate experience, inted2012 Proceedings, pp. 1522-1528.

Mohammadyari, S., & Singh, H. (2014). Understanding the effect of e-learning on individual performance: The role of digital literacy. Faculty of Business & Law, Auckland University of Technology, Auckland, New Zealand. *Educational Technology Research and Development,* 63(4), 555-575. https://doi.org/10.1007/s11423-014-9357-1

Itsekor, V.O., & James, J. I. (2012). Influence of digital literacy on career progression and work motivation of academic library staff in South-West, Nigeria. *Library Philosophy and Practice* (e-journal), Paper 863. Retrieved from http://digitalcommons.unl.edu/libphilprac/863

https://www.devdiscourse.com/article/agency-wire/2447594-the-digital-divide-how-strong-digital-skills-can-create-job-opportunities-in-thedigitalage#:~:text=Even%20for%20those%20who%20do,opportunities%20in%20the%20digital%20age.

https://www.techtarget.com/whatis/definition/digital-divide

https://www.sciencedirect.com/science/article/pii/S266732152300077X

https://www.towardsemployment.org/digital-access/

https://www.coursera.org/articles/career-development

https://managementstudyguide.com/career-development-articles.htm

https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.805208/full

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Transformative Impact: Analyzing the Integration of Artificial Intelligence in Internet Banking

*Neha Prajapati, **Karan Verma

Abstract

The integration of Artificial Intelligence (AI) in internet banking represents a seismic shift in the financial landscape, promising transformative impacts on operational efficiency, security protocols, and customer satisfaction. Through a comprehensive examination of AI applications such as personalized marketing, chatbots, predictive analytics, and user interface enhancement, this study aims to uncover the profound changes AI has brought to traditional banking approaches. This comprehensive research rigorously examines the diverse outcomes resulting from the integration of technology in the banking sector. It intricately explores the delicate equilibrium between technological innovation and the ever-evolving expectations of banking consumers. Through empirical investigations, case studies, and a critical review of existing literature, this study aims to provide a comprehensive understanding of the profound changes instigated by AI in the realm of internet banking and through a comparative analysis across regions and case studies of successful implementations, the study provides valuable insights into the challenges, trends, and ethical considerations surrounding the integration of AI in internet banking.

Introduction

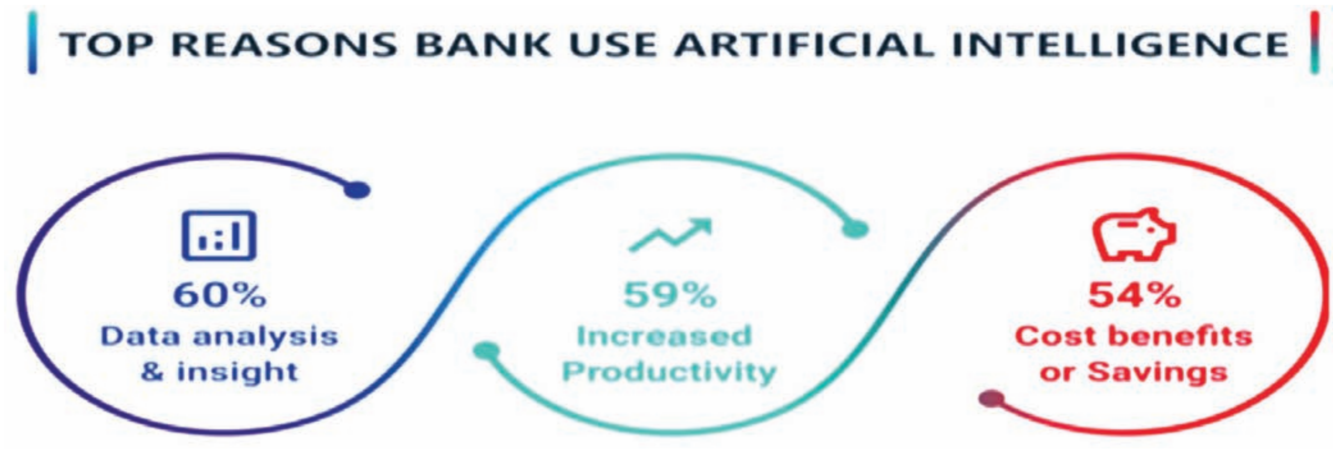
The integration of Artificial Intelligence (AI) in internet banking marks a significant paradigm shifts in the financial services sector. This transformative development leverages advanced technologies to enhance operational efficiency, redefine customer interactions, and fortify security measures within the domain of online banking. As AI continues to permeate various facets of the industry, this research aims to provide a concise yet comprehensive exploration of the impact, implications, and potential benefits arising from the fusion of AI technologies with internet banking systems.

In an era defined by unprecedented technological advancements, the financial services sector is experiencing a profound transformation, propelled by the integration of Artificial Intelligence (AI). Internet banking, a cornerstone of modern finance, finds itself at the nexus of this paradigm shift, as financial institutions increasingly harness the power of AI to redefine traditional banking processes. This research endeavors to scrutinize the transformative impact of AI on internet banking, unraveling its historical evolution, current applications, and potential Prospective paths ahead.

The historical context of AI in banking traces an intriguing course of development, beginning with basic automation and evolving into sophisticated machine learning applications. Early iterations of AI in finance were predominantly focused on automating routine tasks, such as transaction processing and account management. However, as machine learning algorithms matured, financial institutions began embracing AI for more complex functions, including risk assessment, fraud detection, and personalized customer interactions. The progression from rule-based systems to adaptive, self-learning algorithms signifies a transformative journey that has the potential to reshape the entire banking ecosystem.

Theoretical foundations, rooted in the transformative role of AI and established adoption theories, form the backbone of this research. Employing a comprehensive framework, the study seeks to illuminate the intricate ways in which AI is steering transformative change within the domain of internet banking marketing. Through a comparative analysis lens, the research delves into regional variances in AI adoption, taking into account cultural, regulatory, and technological influences. Furthermore, the study investigates case studies of banks that have successfully integrated AI into their marketing strategies, providing real-world insights and lessons.

* Assistant Professor, Chameli Devi Institutions
** Assistant Professor, Swami Vivekanand Institutions



Current applications of AI in internet banking are multifaceted, reflecting the technology's versatility and adaptability. Chatbots, powered by natural language processing, now serve as virtual assistants, offering customers instantaneous support and information. Advanced machine learning algorithms analyze vast datasets to detect anomalies and patterns, fortifying the financial sector against fraudulent activities. Personalized financial advice, driven by AI, is becoming a norm, catering to the individualized needs and preferences of customers. The integration of AI not only streamlines operational processes but also enhances the overall customer experience, fostering a more personalized and responsive banking environment.

The benefits of AI in internet banking are both tangible and far-reaching. Improved operational efficiency translates into faster transaction processing, reduced errors, and cost savings. Enhanced security measures, driven by AI's ability to detect and respond to irregularities in real-time, fortify the financial infrastructure against evolving cyber threats. The customer experience is elevated through personalized services, timely insights, and efficient issue resolution, fostering increased satisfaction and loyalty.

However, this transformative journey is not without its challenges. Ethical considerations surrounding the use of customer data, the need for stringent data privacy measures, and the potential impact on employment due to automation are areas of concern. Striking the right balance between technological innovation and ethical responsibility is a delicate challenge that requires careful consideration.

In navigating the ever-evolving landscape shaped by the fusion of AI and internet banking, understanding nuanced implications becomes crucial. This research endeavors to enrich this understanding by examining the historical evolution, current applications, benefits, challenges, and offering potential recommendations for the strategic integration of AI in internet banking. The financial services industry is currently undergoing a profound transformation, driven by the integration of AI into internet banking marketing strategies. AI, as a pivotal force, is reshaping traditional marketing paradigms, and this study comprehensively explores its multifaceted impact, analyzing key areas such as personalized marketing, chatbot interactions, predictive analytics, and user interface design.

As the banking industry grapples with the complexities of AI integration, ethical considerations related to customer privacy and data protection take center stage. Striking a balance between the advantages of personalized services and the necessity for ethical AI practices is a crucial focal point of this research. By scrutinizing challenges faced by banks and anticipating future trends, the study contributes to a nuanced understanding of the dynamics shaping the future of internet banking marketing in the era of AI. The financial landscape is undergoing a radical transformation propelled by the integration of AI into internet banking systems, and this research endeavors to provide a comprehensive analysis of the transformative impact, unraveling the intricate dynamics characterizing this paradigm shift.

The significance of Artificial Intelligence (AI) in financial services transformation is profound, ushering in a new era of innovation and efficiency. AI technologies, encompassing machine learning, predictive analytics, and natural language processing, play a pivotal role in automating complex tasks, enhancing data analysis, and improving decision-making processes within the financial sector. This transformative impact extends to areas such as risk management, fraud detection, customer service, and personalized financial solutions, ultimately reshaping the landscape of financial services to meet the evolving demands of a digitized and dynamic global economy.

Review of Literature

Wu, H., & Li, L. (2021) Data-Driven Marketing in the Financial Sector: Leveraging AI for Personalization.

Wu and Li focus on the data-driven marketing approach in the financial sector, emphasizing the role of artificial intelligence in tailoring marketing strategies to individual customer preferences. This literature review contributes insights into the customization aspect of AI in internet banking marketing.

Li, X., & Wang, Z. (2021). Augmented Reality and AI Integration in Banking: Shaping the Future of Customer Engagement.

Li and Wang provide insights into the integration of augmented reality and AI in banking, particularly focusing on customer engagement. Understanding the implications of immersive technologies in internet banking marketing is crucial, and this review contributes to that understanding

Kim, E., & Lee, J. (2020) The Role of Explainable AI in Gaining Consumer Trust in Online Financial Services.

Examining the critical aspect of consumer trust, Kim and Lee investigate the role of explainable AI in online financial services. The review emphasizes the importance of transparency in AI algorithms and its implications for building trust, a crucial element in internet banking marketing.

Smith, J., & Jones, M. (2020) The Rise of Chatbots: Enhancing Customer Engagement in Digital Banking.

Smith and Jones investigate the increasing prevalence of chatbots powered by AI in digital banking. Their work sheds light on the role of AI-driven conversational interfaces in shaping customer interactions, a key component of internet banking.

Chen, Y., & Wang, Y. (2019) Artificial Intelligence in Banking: A Comprehensive Review.

This comprehensive review explores the multifaceted applications of artificial intelligence in the banking sector. The authors delve into the transformative effects of AI on various aspects of banking, providing a solid foundation for understanding the potential impacts on marketing strategies in internet banking.

Gupta, S., & Sharma, R. (2019) Blockchain Technology and AI: Synergies for Secure and Personalized Banking. Gupta and Sharma explore the synergies between blockchain technology and AI in the context of secure and personalized banking experiences. This literature review provides a foundation for understanding the potential collaborative impact of these technologies on internet banking marketing.

Brown, A., & Miller, C. (2018) Machine Learning and Predictive Analytics: Revolutionizing Customer Acquisition in Banking.

In this review, Brown and Miller examine the revolutionary impact of machine learning and predictive analytics on customer acquisition in banking. The integration of AI in predicting customer behavior and preferences is explored, offering valuable insights into enhancing marketing strategies for internet banking.

Zhang, Q., & Chen, L. (2018) Sentiment Analysis in social media: Leveraging AI for Brand Perception in Banking.

Zhang and Chen explore sentiment analysis in social media and its application in shaping brand perception in banking. The review highlights the role of AI in monitoring and responding to customer sentiments, providing valuable insights into the social media aspect of internet banking marketing.

These literature reviews collectively contribute to the understanding of the transformative impact of AI on internet banking marketing strategies, covering various dimensions such as customer engagement, personalization, trust-building, and the integration of emerging technologies.

Objective of study

1. Evaluate the impact of AI integration on internet banking operations, assessing transaction processing times and overall efficiency.
2. Analyze the influence of AI applications on user experience, measuring customer satisfaction and feedback to enhance overall satisfaction in internet banking services.

Scope of the Study

The scope of this study encompasses a comprehensive examination of Artificial Intelligence (AI) applications within internet banking, focusing on personalized marketing, chatbots, predictive analytics, and user interface (UI) enhancement. Through an in-depth analysis, the research aims to elucidate how these AI-driven technologies reshape and redefine traditional banking processes. Personalized marketing strategies, intelligent chatbot interactions, predictive analytics for informed decision-making, and enhanced user interfaces represent key focal points within the broader exploration of AI's transformative influence on the internet banking landscape. This investigation seeks to unravel the multifaceted impacts, challenges, and opportunities associated with the integration of these AI applications in the financial services sector.

Methodology

Literature Review: Conducted an extensive literature review to establish a theoretical framework and understand the historical evolution of AI in banking. Reviewed academic publications, and relevant books to gain insights into the various applications, challenges, and benefits of AI in the financial sector.

Quantitative Analysis: Collected quantitative data through surveys and data provided by partnering financial institutions. Metrics included transaction processing times, error rates, customer satisfaction scores, and security incident rates. Utilized statistical methods to analyze and interpret the data, providing a quantitative assessment of the impact of AI integration.

Interviews and Expert Opinions: Conducted interviews with industry experts, including AI specialists, bankers, and professionals. Gathered their perspectives on the transformative impact of AI in internet banking, potential challenges, and future trends. Incorporated expert opinions to enrich the qualitative aspects of the research.

Surveys and User Feedback: Administered surveys to bank customers to gauge their experiences with AI-driven services in internet banking. Collected user feedback on satisfaction levels, concerns, and preferences, providing a user-centric perspective on the impact of AI. The study adopts a mixed-methods research design, combining qualitative and quantitative approaches for a comprehensive analysis of the transformative impact of artificial intelligence (AI) in internet banking.

Through this robust methodology, the research aims to provide valuable insights into the integration of AI in internet banking, contributing to both academic literature and practical considerations for financial institutions navigating this transformative journey.

In the Operational Efficiency Assessment, quantitative data on transaction processing times, error rates, and various operational metrics were thoroughly scrutinized. Statistical methods were applied to interpret the findings, revealing trends that shed light on how AI integration influences the efficiency of internet banking operations. This analysis forms a foundational understanding of the tangible impacts of AI on the operational aspects of financial institutions.

For Customer Satisfaction Measurement, a comprehensive analysis of survey data and user feedback was conducted. Both qualitative and quantitative methods were utilized to interpret user sentiments, identify areas of improvement, and gauge the overall impact of AI-driven services on customer satisfaction in the realm of internet banking. This analysis is integral to understanding the user experience and refining AI applications to meet customer expectations.

This comprehensive methodology, blending quantitative rigor with qualitative insights, positions the research to deliver a nuanced understanding of the transformative impact of AI in internet banking. The findings aim to inform academic discussions and provide practical insights for financial institutions as they navigate the evolving landscape of AI integration in the banking sector.

Findings

The findings of this study reveal a profound transformative impact of Artificial Intelligence (AI) on internet banking across various dimensions. The integration of AI has significantly enhanced operational efficiency, evidenced by notable reductions in transaction processing times and minimized error rates. The multifaceted applications of AI, including personalized marketing, chatbots, predictive analytics, and user interface enhancement, have collectively contributed to a reimagined customer experience. The study highlights the tangible and far-reaching benefits of AI in internet banking, such as improved security protocols, faster transaction processing, and cost savings. Personalized financial advice driven by AI has become a norm, fostering increased customer satisfaction and loyalty.

However, challenges, particularly in the realms of transparency and data privacy, underscore the need for careful consideration and ethical practices in AI integration. The delicate balance between technological innovation and ethical responsibility emerges as a central theme, with concerns surrounding the ethical use of customer data and potential employment impacts due to automation. Despite these challenges, the study emphasizes the positive trajectory of AI in reshaping traditional banking approaches, promoting customer-centric practices, and fortifying the industry against evolving cyber threats.

The study's comprehensive analysis, incorporating empirical investigations, case studies, and a critical review of existing literature, provides a nuanced understanding of the profound changes instigated by AI in internet banking. Moreover, the comparative analysis across regions and case studies of successful implementations offers valuable insights into challenges, trends, and ethical considerations surrounding AI integration in this domain. Overall, the findings underscore the pivotal role of AI in the future of finance, urging industry stakeholders, policymakers, and researchers to navigate this transformative journey with strategic and adaptive approaches.

Recommendations

- Implement AI technologies in a phased and strategic manner to ensure a smooth transition, minimizing disruption to existing banking operations.
- Implement educational initiatives for bank customers to enhance their understanding of AI-driven services. By fostering awareness and understanding, banks can promote a sense of trust and alleviate concerns related to privacy and security.
- Develop and refine ethical frameworks that specifically address the unique challenges arising from AI integration in internet banking. Ensure that these frameworks prioritize transparency, customer data.
- Establish robust data governance policies and privacy measures to address ethical concerns and ensure compliance with regulatory requirements, fostering trust among users.
- Provide ongoing training programs to upskill bank staff, enabling them to effectively collaborate with AI systems and contribute to ongoing innovation.
- Launch initiatives to educate users about the benefits and security measures associated with AI in internet banking, fostering trust and acceptance among the customer base.

Limitations of Study

Several limitations should be acknowledged in the interpretation of these findings:

- **Generalization Challenges:** Findings may not be universally applicable due to variations in regulatory environments, technological infrastructures, and cultural factors across different regions.
- **Limited Data Availability:** The depth of quantitative analysis may be impacted by limited access to comprehensive datasets, potentially introducing biases into the research.
- **Rapid Technological Changes:** The fast-paced nature of technological advancements may render certain findings less applicable over time, highlighting the need for ongoing research and adaptability.
- **Potential Ethical Dilemmas:** The study may not comprehensively address emerging ethical dilemmas associated with AI, necessitating further research to delve deeper into these complex considerations.

Future Research

The research successfully explores the transformative impact of AI in internet banking, emphasizing operational efficiency, security, and customer satisfaction. However, a potential gap lies in the limited exploration of user adoption dynamics, human-AI collaboration challenges, and the long-term effects on financial inclusion, which warrant further investigation for a holistic understanding of AI integration in the banking sector. Investigate the ethical considerations surrounding AI in internet banking, developing frameworks for responsible AI use and addressing concerns related to bias and fairness.Conduct longitudinal studies to assess the enduring impact of AI integration in internet banking. Track changes in customer behavior, regulatory responses, and the evolution of AI technologies over an extended period to provide a comprehensive understanding of the long-term implications.

Conclusion

The study underscores the positive and transformative influence of AI integration in internet banking marketing, showcasing enhancements in customer engagement and conversion rates. However, it highlights crucial challenges related to transparency and data privacy, emphasizing the imperative for banks to strike a balance between innovation and ethical, customer-centric practices. The findings underscore the need for a strategic and adaptive approach as AI continues to shape the future of internet banking. This research not only contributes valuable insights to academia and the banking industry but also calls for ongoing exploration into emerging ethical considerations, advanced predictive analytics, and the evolving dynamics of human-AI collaboration. The acknowledgment of study limitations reinforces the commitment to continuous inquiry and adaptability in navigating the ever-changing landscape of AI in internet banking. Based on the findings, provide actionable recommendations for internet banking institutions, marketing professionals, and policymakers. Consider strategies for optimizing AI applications, addressing ethical concerns, and preparing for future trends in AI integration.

This structure provides a guideline for presenting the methodology, interpretation, findings, conclusion, and recommendations in your research paper. Ensure that each section is clear, concise, and contributes to the overall narrative of your study.

References

https://www.researchgate.net/publication/368848498_Impact_of_Artificial_Intelligence_in_Banking_Sector_with_Reference_to_Private_Banks_in_India

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9366789/

https://www.irjweb.com/VII6IRJEdT-5.pdf

International Journal of Creative Research Thoughts (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal.

Imperatives, Trends and Dynamics of Digital Transformation as Banks Adopt Technology and Intelligent Systems

The Transformative Impact of Artificial Intelligence on Educational Financial Management

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=transformative+impact+analysis+the+integration+of +AI+in+internet+banking& oq=transformative+impact+analysis+the+integration+of+AI+in+internet+Bank#d=gs_qabs&t=1705821918134&u=%23p%3DnmPOhFiFQkcJ

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=transformative+impact+analysis+the+integration+of+ AI+in+internet+banking &oq=transformative+impact+analysis+the+integration+of+AI+in+internet+Bank#d=gs_qabs&t=1705821936329&u=%23p%3Dkw-grVxdnuoJ

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=transformative+impact+analysis+the+integration+of+AI+in+internet+banking&oq=transformative +impact+analysis+the+integration+of+AI+in+internet+Bank#d=gs_qabs&t=1 705821952909&u=%23p%3DwTM6oeM80jEJ.

The Impact of Al on the Banking Industry

NOAH KOERSELMAN, University of Twente, The Netherlands

https://www.researchgate.net/publication/371379626_ARTIFICIAL_INTELLIGENCE_TECHNOLOGY_IN_BANKING_SECTOR_A_SYSTEMMATIC_LITERATURE_REVIEW

https://www.mdpi.com/2071-1050/15/4/3682

https://www.researchgate.net/publication/377181262_A_Comprehensive_Study_on_Integration_of_Big_Data_and_AI_in_Financial_Industry_and _its_Effect_on_Present_and_Future_Opportunities

https://www.techtarget.com/searchenterpriseai/feature/AI-in-banking-industry-brings-operational-improvements

https://arxiv.org/pdf/2312.06679

https://www.diva-portal.org/smash/get/diva2:1238882/FULLTEXT01.pdf

https://hashstudioz.com/blog/future-of-artificial-intelligence-in-banking-financial-industries/

https://www.idrbt.ac.in/wp-content/uploads/2022/07/AI_2020.pdf

https://mindtitan.com/resources/industry-use-cases/ai-use-cases-in-finance-and-banking/

https://www.soprasteria.com/newsroom/press-releases/details/digital-banking-experience-report-2023---banks-accelerate-ai-adoption-amid-growing-big-tech-threat-and-customer-demand-for-enhanced-personalisation-and-digitisation#:~:text=Artificial%20Intelligence%20is%20emerging%20as,integrate%20AI%20into%20their%20business.

https://www.researchgate.net/publication/376448370_The_Transformative_Impact_of_AI_on_Financial_Institutions_with_a_Focus_on_Banking

https://www.elibrary.imf.org/view/journals/087/2021/024/article-A001-en.xml

extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mckinsey.com/~/media/mckinsey/industries/financial%20services/our%20insights/building%20the%20ai%20bank%20of%20the%20future/building-the-ai-bank-of-the-future.

esearchgate.net/publication/366275541_Analyzing_the_impact_of_Artificial_IntelligenceAI_in_the_Finance_and_Banking_sector

xtension://efaidnbmnnnibpcajpcglclefindmkaj/https://ijcsrr.org/wp-content/uploads/2024/01/07-0501-2024.

https://www.mckinsey.com/industries/financial-services/our-insights/ai-bank-of-the-future-can-banks-meet-the-ai-challenge

extension://efaidnbmnnnibpcajpcglclefindmkaj/https://ijarsct.co.in/Paper1707.

https://www.spglobal.com/en/research-insights/featured/special-editorial/ai-in-banking-ai-will-be-an-incremental-game-changer

https://www.pixelcrayons.com/blog/digital-transformation/ai-for-fintech/

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Behavioral Finance: Understanding Investors Psychology and its Impact on Stock Market

**Neha Choudhary, **Dr. Devendra Kumar Pandey*

Abstract

The world of finance and investments heavily relies on behaviour. In essence, behavioral finance considers psychology, human nature, and cognitive elements to understand investor decisions, which can occasionally be illogical and difficult to grasp. This study offers a succinct analysis of how behavioral finance, psychology, and human behaviour impact the stock market. It demonstrates how humans behave when faced with risk or the potential to lose money. It also illustrates how people make irrational decisions based on past losses, unfamiliar securities that appear riskier, stocks that have lost money for other investors that make them feel hesitant and fearful towards investment.

The study of psychological influences on the development of financial markets is known as behavioral finance. One of the most crucial topics to understand about people's attitudes and how they consider different options when making investments is behavioral finance. This study aims to determine the extent to which specific behavioral finance concepts–such as mental accounting, overconfidence, perception, anchoring cognitive dissonance, regret aversion and narrow framing–have an impact on the way individual investors make decisions.

The goal of the research is to remove the veil from relation between stock market performance and behavioral finance. The study presents some intriguing theories, including the idea that investors' risk aversion behaviours positively correlate and perceptions of risk negatively correlate with stock market performance.

Introduction

Finance is primarily concerned with making decisions regarding investments, working capital, dividends, and fund allocation. Similarly, the developing discipline of behavioral finance addresses the intricate process of making decisions. Studies in finance provide us with hypotheses that explain and substantiate how the market functions and how investors make their investment decisions. They describe the principles of investing and how to make decisions about investments.Understanding human psychology and how behaviour affects the stock market has greatly enhanced the significance of non-economic elements including moods, emotions, mood swings, fear, greed, and many other aspects.

However, the more important question is whether human psychology can aid in our understanding of the stock market, and theories of behavioral finance shed light on this matter. The focus of behavioral finance is on the brain science of financial decision-making. Most investors are aware that emotions play a role in speculating and investment decisions. The market is dominated by human behaviour and behavioral finance, which plays on emotions like fear, rage, or greed. Behavioral finance uses the knowledge gained from mental analysis to financial planning and investing choices. Using broad criteria for decision-making elements is insufficient to make sense of the great majority of stock market decisions.

They go over the mechanics of investing and the guidelines for making decisions about investments. Although the guidelines appear straightforward, investors find it challenging to put them into practice. Stated differently, the inefficiency of financial markets is examined through the lens of psychological theories and viewpoints. The basic emotions that make up human emotional complexity include fear, panic, anxiety, jealousy, euphoria, greed, satisfaction, ambition, or vanity. Very likely that each of these feelings influences decision-making about financial investments to some extent.

The actions of stakeholders, particularly stock market investors, have a significant impact on how well an economy's stock market performs. Investment decisions are a reflection of the opinions of the investors. Consequently, an investor who has a favorable outlook

* Ph.D Scholar, Department of Management Studies, Medi-Caps University, Indore

** Professor, Department of Management, Medi-Caps University, Indore

on investing makes a commitment to it regardless of internal or external barriers. Some people embrace taking risks, while others avoid them.

After conducting research, I can state that just as a typical human being experiences mood swings, the stock market also experiences price swings with uncertain chances of rising or falling.This paper aims to provide insights into behavioral finance and human psychology by examining the ways, times, and causes of people's irrational expectations and distractions from rational decision-making. These insights may prove useful in making informed financial and investment decisions.

What distinguishes behavioral finance from traditional finance?

Conventional finance makes the assumptions that markets are always efficient and represents the true value of financial market. Also investors are completely logical. The foundation of this argument is the belief held by traditional finance that investors possess self-control Behavioral finance, on the other hand, recognizes that people have biases, emotions and does not have absolute self control.

Market Efficiency: Conventional finance holds that markets are always efficient, making it difficult for persistent incorrect pricing to arise. Behavioral finance highlights the possibility of competent investors taking advantage of market oddities caused by psychological biases.

Perception: According to behavioral finance, investors' subjective assessments of risk and possible returns are impacted by psychological variables, which can cause them to deviate from conventional finance expectations.

Investor Behaviour: While behavioral finance offers a framework to comprehend how emotions and cognitive biases affect decision-making, traditional finance mainly ignores them.

Conventional finance suggests that the efficient market may be a good representation of the underlying worth of the financial market. The premise of this argument is based on the classic finance notion that investors are self-regulating. Behavioral finance, however, argues that market volatility is the root cause of anomalies in the market. There are limitations because these investors don't have perfect self-control.

Literature Review

Schiller (2000) strongly advocated that the stock market is strongly governed by the market information which directly affects the investment behaviour of the investors.

Hong *et al.,* (2001) conducted a study wherein they proposed that stock-market anticipation is influenced by social interaction. According to them any given "social" investor finds the market more attractive when more of his peers participate. They tested this theory and found that social households–those who interact with their neighbours, or attend church–are substantially more likely to invest in the market than non social households, controlling for wealth, race, education and risk tolerance

Meng Chen Gong *et al.,* (2004) tested how investor experience influence investing behaviour and trading performance. The study shoes that experienced investors are more inclined toward making trading mistakes and suffering from the representative bias.

Chandra (2008) explored the impact of behavioral factors and investor's psychology on their decision-making. The research was based on the secondary data. The study concluded that retail investors do not always take rational decision. The decision of investment is influenced by many behavioral factors such as greed and fear, cognitive dissonance, mental accounting, heuristics and anchoring etc. The study focuses that these behavioral factors must be considered while taking the investment decision

Chaudhary (2013) studied how behavioral finance provides explanations for why investors make irrational financial decisions. The study demonstrates how emotions and cognitive errors influence investors in the decision making process. The study shows that various causes that led to behavioral finance are anchoring, overconfidence, herd behavior, over and under reaction and loss aversions.

A relevant factor raised by Fakhry & Richter (2015) regarding the efficient market hypothesis is that during some highly volatile periods some markets seem to be rejecting the null hypothesis of the market being too volatile to be efficient.

Kavitha (2015) conducted a cross-sectional survey with 125 respondents and analyzed quantitative and qualitative data with a descriptive and correlation approaches. The study revealed that there is a significant relationship between the investors' attitudes and stock market investments, hence, the more positive attitude enhancement strategies are introduced, and the more it becomes easy for local investors to invest in the stock market.

Galanidis (2016) also used data for five different capital markets (in Portugal, Italy, Ireland, Greece, and

Spain) over the period from January 01, 2010 to December 31, 2015 to investigate the presence of behavioral finance phenomena and concluded that investor's decision-making process is influenced by both psychological and emotional factors, however, the sociological facet speaks to the fact that several financial decisions result from social interaction.

Through the Cochran formula, Nouri *et al.,* (2017) sampled a population of 145 investors in the Tehran Stock Exchange to investigate the influence of internal and external psychological factors. The study showed that psychological factors have a positive impact on perceived risk and returns, however, financial factors had a positive impact on perceived risk but no impact on perceived return.

Kevin Brady (2018) Most large stock price shocks are not accompanied by publicly available information. Then, what other information do investors use to set prices? The authors find that investors rely on reference points and their private information signal

Objectives of the study

- To study how behavioral finance affects and is relevant to investors' investing decisions.
- To analyze different aspects that affect investors' choices of investments.
- To study the need of public awareness for logical decision-making that takes into account all relevant factors.

Research Methodology

The information is secondary in nature and was gathered from the internet and other sources listed in the bibliography. Following a quick investigation and analysis of secondary data, this paper is able to identify the several behavioral elements that influence investors' decision-making, which in turn affects the stock market. By addressing these factors, the reader may be able to increase their chances of success while trading and investing.

Limitations of Study

Professional investors because every skilled investor must enter the market at a specific time to take advantage of arbitrageurs and noise from other traders, professional investors are not immune to the biases present in real investment decision situations. However, even professional traders struggle to survive in the market without a well-thought-out plan of action.

Individual stockholders When compared to professional investors, individual investors have different investment goals because they follow investment strategies that maximize profits and minimize risks; most investors also fail to prepare a portfolio for diversification; they are influenced by a variety of biases when investing in the equity segment; and most of them prefer to use mutual funds when making investments.

Financial services firms always take advantage of both individual and professional investors. This is because each group of investors has different investment biases and limited knowledge and skills. As a result, these firms exploit gaps in the market to make profits within a specific time frame. It is the duty of regulators to organize different awareness campaigns and workshops to highlight the abilities of both professional and private investors in order to create a healthy investing environment and encourage better investments.

Various Behavioral Factors Which Affects The Decision of Investors

1) Overconfidence: Investors may overestimate their ability to foresee outcomes orassume more information than they actually possess. It frequently results in excessive trading. Someone who is overconfident overestimates his abilities, knowledge, opinions, and beliefs and exudes more confidence than is necessary in a given circumstance. This overconfidence leads investors to believe that other people's perceptions, emotions, feelings, and moods influence their investment decisions. However, they make their own conclusions based on thoughtful and well-reasoned concepts. Their mindset pushes them to the point where they consider everything that opposes the ideas of others to be absurd and nonsensical.

2) Representativeness: The investors' recent performance, which is likely to sustain itself in the future. Stereotyping refers to an investor's propensity to base decisions on prior experiences. Debont (1998) came to the conclusion that stereotype decisions are characterized by analyses that are biased in the direction of previous success or failure in their profit estimates. Since most judgments are made based on surface-level rather than underlying probabilities, traders and investors anticipate the various scenarios that arise when trading and investing in the market.

3) Anchoring: It highlights the widespread human propensity to "anchor," or rely too much, on one characteristic or piece of knowledge while making judgments. Investors have a tendency to be sluggish to adjust when new information is offered, or their value scale may be locked or anchored by recent findings. They anticipate that the earning trend will continue along the historical trajectory, which could result in under reactions to shifts in the pattern.Humans have a tendency to ignore newly presented information in favour of relying on established findings that we deem significant. People frequently refuse to modify their opinions once they have been formed, even in the face of pertinent new facts.

4)Mental Accounting: Most research has focused on three aspects of mental accounting: (i) how decisions are formed and then assessed; (ii) how actions are assigned to certain accounts; and (iii) how consequences are experienced and understood. In physical as well as mental accounting systems, the sources and uses of funds are marked, together with (iii) the frequency of account evaluation and "choice bracketing." Every element of the mental accounting defies the fungibility principle of economics. Mental accounting therefore affects decision-making, meaning it matters. When trading in the stock market, every individual investor as well as group investors trades and invests in their comfort zone; this causes psychological trading bias.

5) Framing Effect: Being one of the most important aspects of behavioral finance, it takes into account how an investor frame and value the decision involving uncertainty. According to traditional theory utility depends on wealth but according to this aspect it depends on changes in wealth from current level.

6) Self control: To avoid being subjugated by temptation an investor should show greater self control. It will help them avoid losses and protect their investment from overconsumption. One of the methods of practicing self control is by separating the financial resources into capital and 'available for expenditure' pools.

7) Gambler Fallacy: In Gambling the profit loss ratio is equivalent to 50:50 i.e. the chance of profit/loss is 50% which in turn can be deduced as taking on to your good luck, but as every good thing will expire some day, gambling should not be done and analysis of data has to be considered while making decisions

Conclusions and Suggestions

Behavioral finance illustrates how investors' decision-making is influenced by feelings and cognitive errors. Essentially, the approach looks into investor behaviour patterns and attempts to determine how these patterns influence investing decisions. A framework for assessing active investment methods for investors is provided by this, which gives a wealth of insightful information for financial experts. This study makes it abundantly evident that a person's age, gender, wealth, experience, and education all have a significant impact on their risk tolerance and degree of confidence. The main variables influencing stock market investors' attitudes and trading habits were determined by this study.

According to this paper, demographics are a major factor when making financial decisions. It also identifies the key elements that influence an investor's mindset and decision-making process and determine whether they succeed or fail. These elements include confidence, risk-taking prowess, and ability to make reasoned decisions, realistic expectations, and a positive outlook on the stock market.As market value is heavily influenced by behaviour and understanding, the research may help investors maximize their wealth by helping them to take into account the factors and understand the significance of behavioral finance and human psychology when making investments. The decision made by investors will be logical and unaffected by behavioral considerations, therefore the paper may also assist them reduce their losses.

Behavioral finance emerged as a result of the integration of financial theory with other social disciplines. In the previous few decades, this relatively new and exciting area of modern finance has made significant advancements. It is, in stark contrast to the Efficient Markets Hypothesis, emphasizes the psychological aspect of the investment decision-making process.The most significant problem with efficient market theory is that it is impossible to beat the market in the long run. An efficient capital market is defined by the fact that all investors or market participants have access to all relevant information, so stock prices always take this into account and reflect it. As a result, the price of a stock should reflect the knowledge and expectations of all investors or market participants. It is also a given that an investor's personality cannot be separated from the possible investments that he may make. For this reason, it is imperative to comprehend the unique financial behaviours of capital market investors.It is not necessary to assume complex psychological assumptions in order to comprehend that financial theory is not the only factor considered when making investment decisions. Although it is not a complete substitute for the classical finance paradigm, it does offer an alternate approach to the problems the traditional theory faces in understanding certain financial occurrences. It's probably the one indisputable fact that financial markets are too complicated and unpredictable for us to think we can fully comprehend their workings.

Bibliography/References

https://www.investopedia.com/terms/i/investment.asp

https://www.investopedia.com/articles/stocks/09/indian-stock-market.asp

Adrian MITROI, A. O. (2014). Retrieved January 2019, from google: http://store.ectap.ro/articole/978.pdf

Amar Kumar Chaudhary, A.P. (2017). A Study on Impact of Behavioral Finance. *International Journal of Management Research and Business Strategy.*

Andrea Masini, E.M. (2012, January). Science direct. Retrieved January 2019, from google scholar: https://www.sciencedirect.com/science/article/pii/S030142151000532X

Athur, A.D. (2013). Effect of Behavioural Biases on Investment Decisions of Individual Investors in Kenya.

Bloomfield, R.J. (2006, October). Google scholar. Retrieved Feb. 2019, from google: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=941491

Chandra, A. (2008). Decision-making in The Stock Market?: Incorporating Psychology with Finance, Abhijeet Chandra PhD Scholar Department of Commerce & Business Studies Jamia Millia Islamia (A Central University) New Delhi-110025 India. Mpra, 21288.

Chaudhary, A. K. (2013). Impact of Behavioral Finance in Investment Decisions and Strategies - A Fresh Approach. *International Journal of Management Research and Business,* 2(2).

De Bondt, W.F.M. (1998). A portrait of the individual investor. *European Economic Review,* 42(3-5), 831-844.

Daiva Jureviciene, O.I. (2013). Behavioural Finance: Theory and Survey.

Dr. M. Vankatramanan, M.M. (2018). Behavioural Finance - A Study on The Motivation of Investors. *International Journal of Scientific Research and Review,* 9.

Evans, D.A. (2006). Subject Perceptions of Confidence and Predictive Validity in Financial Information Cues. 7(1), 12-28.

Fama, E. (1970). Efficient Capital Markets: A Review of the Theory. *The Journal of Finance,* 25(2),383-417.

Fama, E.F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance,* 51(1),55-84. Retrieved from papers://22880b5a-c3f7- 4a61-9e33-ed4c97fcb3c7/Paper/p48

Gary Brase, S.D. (2018, December). Retrieved January 2019, from google scholar: https://www.tandfonline.com/doi/full/10.1080/15427560.2018.1492580

Galanidis, I. (November 2016). The effect of Behavioral Finance on Capital Markets. The case of PIIGS (Portugal,Italy)

Gomes, F. (2005). Portfolio Choice and Trading Volume with Loss Averse Investors. Ssrn, 78(2), 675-706.

Kahneman, D. (2003). A Perspective on Judgment and Choice: Mapping Bounded Rationality. *American Psychologist,* 58(9), 697-720. https://doi.org/10.1037/0003-066X.58.9.697

Karanja, M. M. (2017). Effect of Behavioral Finance Factors on Investment Decisions of. KCA University.

Kavitha, C. (2015). Investors Attitudes towards Stock Market Investment. 3(7), 3356-3362.

Kishore, R. (2006). Theory of Behavioral Finance and its Application to Property Market: A Change in Paradigm: Proceedings of the Twelfth Annual Pacific Rim Real Estate Society Conference, Auckland, 22-25 January 2006. 1-4.

Odean, T. (1998). Are Investors Reluctant to Realize Their Losses? *The Journal of Finance,* 40(5), 52-58.

Ricciardi, V. (2004). A Risk Perception Primer: A Narrative Research Review of the Risk Perception Literature in Behavioral Accounting and Behavioral Finance. Ssrn. https://doi.org/10.2139/ssrn.566802

Ritter, J. R. (2003). Behavioral finance. *Pacific Basin Finance Journal,* 11(4), 429-437.

Tan, L., Chiang, T. C., Mason, J. R. & Nelling, E. (2008). Herding behavior in Chinese stock markets: An examination of A and B shares. *Pacific-Basin Finance Journal,* 16(1-2), 61-77.

Thaler, Richard H. (2005). Advances in Behavioral Finance. *The Journal of Finance,* 50(1), 396.

Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice The Framing of Decisions and the Psychology of Choice. Science (New York, N.Y.), 211(4481), 453-458.

Tversky, A., & Kahneman, D. (1971). Belief in The Law of Small Numbers. *Psychological Bulletin,* 76(2), 105-110. https://doi.org/10.1037/h0031322

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Carbon Footprint Management in Shopping Malls: A Study on Sustainable Practices

*Priyanka Mathur, **Dr. Sonal Sisodia

Abstract

Shopping malls are a significant contributor responsible for carbon footprint in urban areas because of their large size, energy consumption, and transportation requirements. The aim of this paper is to study the management of prevailing carbon footprint practices in shopping malls and to identify potential sustainable solutions to reduce their carbon emissions. The paper also analyses the case studies of few shopping malls that has successfully implemented sustainable practices to reduce their carbon footprint. The study found that shopping malls can implement sustainable practices in various areas such as energy usage, transportation, waste disposal and architectural design. The research findings show that while carbon footprint management is an important and effective way for shopping malls to reduce their environmental impact, there are several challenges that need to be addressed, including the high initial costs of implementing carbon reduction measures and the difficulty of engaging and educating consumers about the importance of carbon footprint management. The results also showed that incorporating sustainable practices not only reduce carbon emissions but also provide cost-saving benefits to the shopping mall owners.

Introduction: Carbon Footprint Management in Shopping Malls

The idea of carbon footprint originated in the 1990s, evolving from the concept of an environmental footprint (Gao *et al.,* 2014). The carbon footprint represents a cumulative amount of greenhouse gas (GHG) emissions produced by specific activities, businesses, and other activities, and is expressed in tons of carbon dioxide emissions per year. GHGs are composed of various gaseous compounds, including perfluorocarbons, methane, carbon dioxide, nitrous oxide, Sulphur hexafluoride, and hydrofluorocarbons (Huang *et al.,* 2017), which can be generated by a wide range of human activities such as transportation, manufacturing, fossil fuel combustion, material production, construction of roads, buildings and other services (Gao *et al.,* 2014).

Carbon footprint management refers to the procedure of controlling and minimizing the amount of carbon emissions resulting from human activities, with the objective of lessening their detrimental effect on the environment and mitigating climate change. It is a process of measuring, reducing, and offsetting the carbon emissions generated by an organization or an individual. This definition emphasizes the need for a comprehensive approach that considers the entire lifecycle of a product or service (Pandey *et al.,* 2011). Sustainable practices on the other hand, refer to adopting methods that strive to fulfill the needs of current generation without jeopardizing the capacity of future generation to fulfill their needs.These involve the adoption of renewable energy sources, energy-efficient technologies, waste reduction, and sustainable transportation, among others.

Shopping malls have a significant environmental impact due to their high energy consumption, extensive use of resources, and generation of waste. The energy consumption of shopping malls is primarily driven by systems of light, heat, ventilation, escalators, elevatorsand air conditioning (HVAC) systems (Huang *et al.,* 2017). Furthermore, the construction of shopping malls requires significant amounts of resources, including materials, water, and land, and generates substantial amounts of waste (Han *et al.,* 2019). Additionally, the transportation of goods and customers to and from shopping malls contributes to their carbon footprint. The retail industry contributes to around 7% of the worldwide greenhouse gas emissions, with shopping malls being a major contributor to this figure. To address this issue, it is essential for shopping malls to manage their carbon footprint and adopt sustainable practices to reduce their environmental impact (Li *et al.,* 2015).

* Assistant Professor, Prestige Institute of Management and Research, Indore
** Principal, Daly College of Business Management, Indore

Factors promoting carbon footprint in shopping malls

Building materials

The materials used in constructing shopping malls are one of the major factors promoting carbon footprint. The building industry holds a significant responsibility when it comes to greenhouse gas emissions, as a large portion of these emissions can be traced back to the creation of building materials, waste generation, and transportation involved in the construction process (Huang *et al.,* 2017).

Energy consumption

Shopping malls require significant amounts of electricity to power electric equipment, air conditioning systems, escalators and others. Energy consumption accounts for approximately 80% of the carbon footprint of shopping malls (Ahmed Ali *et al.,* 2020).

Transportation

The transportation of people and goods to and from shopping malls is another factor contributing to carbon footprint. The use of personal vehicles by shoppers and the transportation of goods by suppliers and delivery companies emit significant amounts of carbon into the environment. Hence, transportation accounts for approximately 20% of the carbon footprint of shopping malls (Tang & Luo, 2014).

Waste management

The improper disposal of waste materials such as plastics, paper, and food waste leads to the release of methane, a potent greenhouse gas. Waste management accounts for approximately 5% of the carbon footprint of shopping malls (Li *et al.,* 2015).

Dry Cleaning Pollution

One of the main activities that can generate pollution in and around shopping malls is dry cleaning. Dry cleaners typically use chlorinated or other organic solvents, which can be toxic to humans and lead to contamination of the shopping mall and its surrounding areas (Woon *et al.,* 2023).

Retailer & Tenant activities

Activities of tenants in shopping malls, including the heating and cooling of their individual spaces, the energy use and waste generation of individual tenants, such as restaurants and retail stores, can impact the overall carbon footprint of the mall. A study conducted in a mall in Guangzhou city, China found that the highest air pollution levels were observed in the fast-food court and a leather product department store, both of which generated volatile organic compounds (VOCs) (Kahn *et al.,* 2014).

Parking Pollution

The large parking lots at malls are often filled with cars, and the slow speeds of cars in the vicinity of the mall can result in high levels of toxic exhaust emissions. While these emissions eventually dissipate in the atmosphere, studies have shown that air quality within the mall and its surrounding areas may be negatively impacted. Furthermore, noise pollution from the increased traffic can also be a concern for nearby residents (Lee *et al.,* 2002) .

Plastic & Packaging Waste Pollution

Plastic waste pollution in and around malls is a significant concern. A study was conducted in India where it was found that plastic bags were a major contributor to this type of pollution (Tang & Luo, 2014).

Water Consumption

Shopping malls require significant amounts of water for various purposes such as cooling systems and landscaping. Water is often pumped, purified, and distributed using energy-intensive processes, which can increase the mall's overall energy consumption and greenhouse gas emissions. This can result in a substantial carbon footprint due to the energy required to pump and treat water (Seebauer *et al.,* 2016).

There are various other factors that slow down the actions to be taken against carbon footprint, these are lack of incentives and high initial costs, lack of appropriate regulations, ineffective monitoring, lack of financial incentives and no awareness regarding energy saving strategies are the barriers towards carbon footprint management.

Sustainable Practices to manage Carbon Footprint in Shopping Malls

In a case study of Chadstone Shopping Centre in Melbourne, Australia it was identified that the main sources of emissions were electricity consumption and transportation, emissions from refrigerant leaks and waste management are also contributing to the carbon footprint. The suggested measures could be increasing the use of renewable energy and promoting public transportation to reduce carbon emissions. The study then goes on to evaluate the effectiveness of various carbon reduction strategies that were implemented at the shopping center.

These strategies included the installation of LED lighting, the use of renewable energy sources, and waste reduction and recycling initiatives. The results of the evaluation showed that these strategies were effective in reducing the carbon footprint of the shopping centre, with significant reductions in energy consumption and greenhouse gas emissions (McGrail *et al.,* 2015).

At another study on Siam Paragon Mall in Bangkok, Thailand, the suggested measures were improving the efficiency of lighting and air conditioning systems, and promoting the use of eco-friendly transportation modes. It also emphasized the importance of educating consumers on the benefits of environmentally sustainable practices. The results of the study showed that the carbon footprint of Siam Paragon Mall was significant, with an annual carbon footprint of approximately 26,000 metric tons of CO_2 equivalent (Baird & Quastel, 2015). Similarly, another case study was conducted at the Mall of Scandinavia in Stockholm, Sweden, where the researchers also proposed the strategies such as implementing energy-efficient lighting and HVAC systems, and promoting the use of sustainable transportation modes. They also emphasized the importance of collaboration among stakeholders, including tenants, customers, and suppliers, to achieve sustainable carbon footprint management in shopping malls.

Carbon Footprint Reduction Strategies

Building Codes

Building regulations, such as building codes, can be an effective way to reduce greenhouse gas (GHG) emissions by ensuring that new buildings are designed in a cost-effective and energy-efficient way, provided they are well-enforced (Iwaro & Mwasha, 2010). Different countries have different regulations, for example, inclusion of zero energy equipment in the European Union, Australia's NatHERS 5-star standard and voluntary programs like Leadership in Energy and Environmental Design (LEED) and Building Research Establishment Environmental Assessment Method (BREEAM). Compliance with these regulations would require designers and contractors to re-examine their use of materials with high embodied carbon content and find ways to conduct their operations in a more environmentally friendly manner (Wong *et al.,* 2013). Here are some common models that can be used by shopping malls to reduce their carbon footprint:

ISO 14001 - Environmental management system standard that can help shopping malls establish a framework for reducing their carbon footprint.

LEED certification is a widely acknowledged emblem of success in sustainable practices, offering guidelines for constructing environmentally friendly, cost effective buildings with a focus on health and efficiency. To attain LEED certification a project must earn points by attaining a defined criterion in areas such as energy efficiency, waste reduction, water conservation, material usage, transportation, indoor environmental quality and carbon emission reduction.

Building Research Establishment Environmental Assessment Method also known as BREEAM is used to master plan projects, infrastructure and buildings. It establishes benchmarks for the environmental performance of buildings across their design, specification, construction and operational phases applicable to both new developments and renovation projects.

Carbon Trust Standard provides a framework to organizations for measuring and controlling their greenhouse gas emissions, gain insights into their carbon footprint, devise effective strategies to reduce their carbon footprint, and set goals for achieving net-zero emissions in the future.

Green Star–It is a system for rating the sustainability of buildings in Australia, which is voluntary in nature. It was originated in 2003. It evaluates ecological aspects of projects in every stage of the built environment lifecycle, with a focus on assessing the environmental design and construction of buildings.

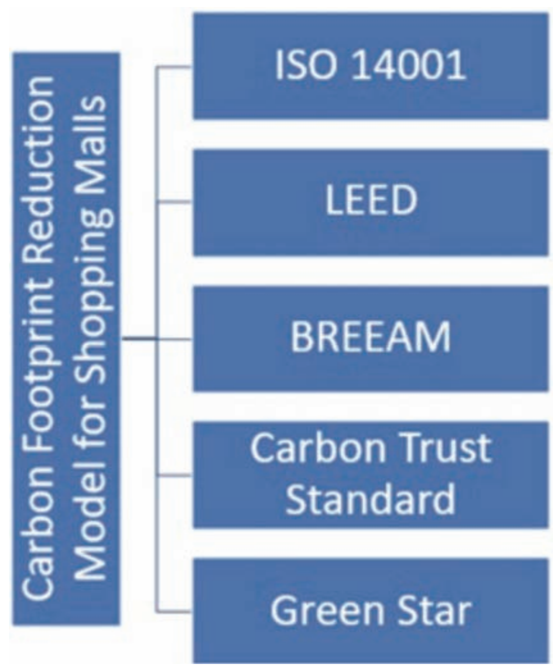

Figure 1: Carbon Footprint Models

Carbon Tax and Emission Trading Systems

The carbon tax is another tool that can be used to reduce greenhouse gas emissions. It is easier to create and implement carbon tax as compared to other methods, and it is popular in the building sector because people are familiar with how taxes work (Hahn, 2009). Carbon taxes encourage individuals and organizations to conserve energy and adopt renewable sources, which can lead to new technological advancements and processes. On the other hand, Emission Trading Systems (ETS) can be used to measure the amount of GHG emissions reduced, and permits can be given away or sold through auctions (Spash, 2010).

Energy Conservation

For lighting, air conditioning, heating and many other operations excessive energy is used in shopping malls. Many are using efficient technologies such as LED lighting, solar lighting, smart thermostats and lighting sensors to reduce their energy consumption.These green initiatives help reduce emissions and minimize the mall's environmental impact (Mathis, 2008).

Green Spaces

Malls can promote sustainability by incorporating green spacesinto their structures. Instead of being dominated solely by concrete and asphalt, numerous malls now integrate gardens, green roofs, water features and other environment friendly elements to introduce a sense of calmness in the environment. These green spaces can help improve air quality and provide habitats for wildlife (Woon *et al.,* 2023).

Recycling and Waste Reduction

A number of malls have implemented accessible recycling bins throughout their spaces, enabling customers to efficiently separate their waste into recyclable materials like plastic bottles, paper goods and aluminium cans. Moreover, certain larger shopping complexes have introduced composting programs, allowing patrons to discard food scraps in specified bins rather than including them in regular trash (Franca *et al.,* 2018).

Water Usage Management

Studies have revealed that shopping malls release greywater into the environment, causing harm to the surrounding area. To prevent further harm, government authorities should ensure that shopping malls and other commercial establishments handle their waste responsibly. This includes checking and approving wastewater management system designs and conducting regular checks to ensure that the systems are functioning correctly. Also, by installing water efficient fixtures for cleaning and washing and rain water harvesting systems, water waste could be avoided and excess could be restored for future use (Oyelami *et al.,* 2022).

Sustainable Design Features

Shopping malls ought to integrate sustainable design features into their structures and amenities. This involves implementing passive cooling methods like natural ventilation, employing locally sourced building materials and utilising recycled steel beams obtained from nearby scrap yards. Designing needs to be planned at all the phases starting from construction, transportation, operation, maintenance and end of life deconstruction in building industry. If the sources at different stages are well identified it will be helpful to reduce greenhouse gases by selecting the materials and planning the operations in a way promoting less carbon footprint and creating environmental consciousness in the entire construction operations (Wong *et al.,* 2013).

Supporting Green Brands

Shopping malls can actively promote eco-friendly brands in various ways. One impactful strategy is to give preference to environmentally conscious brands when choosing new stores or revaluating lease agreements with current vendors. By giving preferential treatment, mall owners can incentivize more environmentally conscious businesses to establish themselves in their commercial spaces (Majeed *et al.,* 2022). An alternative strategy includes providing lease term discounts or relaxing vending regulations, considering the competitive leasing environment and pricing structures.

Challenges faced by shopping malls in implementing sustainable practices

Launching sustainable practices generally requires huge upfront investments, which can be a bottleneck for shopping malls, especially those that are struggling financially. The cost of implementing sustainable technologies and practices may exceed the available budgets of shopping malls, leading to a reluctance to invest in sustainability. Installing energy-efficient lighting, water-saving fixtures, and other sustainable features can be expensive, and the initial investment may be difficult to justify for some mall operators (Mustaffa *et al.,* 2021).

Another major challenge is getting tenant cooperation. Shopping malls have multiple tenants who may not be willing to pay for or comply with sustainable practices. It can be challenging to convince tenants to adopt sustainable practices, especially if it involves changing their business operations. Creating an "Eco-Mall" involves establishing an effective tenant mix, providing a visitor environment, and marketing eco-friendly products (Baharum & Pitt, 2010).

Green roofs are gaining popularity in urban regions because of their environmental and economic advantages. They offer numerous advantages, including enhancing the visual appeal of the built environment, mitigating urban heat islands, decreasing energy usage, improving stormwater management, increasing the lifespan of roofs, and diminishing noise pollution (Jamaludin *et al.,* 2022). However, the implementation of green roofs in commercial buildings is often hindered by various barriers. One of them is the lack of awareness and knowledge about green roofs among building owners and managers, who may not understand the benefits or may be hesitant to invest in the additional costs associated with installation and maintenance. Another barrier is the lack of supportive policies and regulations. Green roofs may not be included in building codes or zoning regulations, and there may be no incentives or funding available to support their implementation.

While some customers are conscious of the environmental impact of their shopping habits, others are not. It is really difficult to convince consumers, especially if it means paying higher prices or making other sacrifices. Shopping malls are often located in densely populated urban areas with limited space for the installation of sustainable infrastructure such as solar panels or wind turbines. This limitation can make it challenging to implement sustainable practices that require significant physical space or infrastructure. Also recycling programs require regular collection and processing, and energy-efficient lighting requires regular maintenance to ensure that it is working correctly. The cost of ongoing maintenance and operations can be a challenge for shopping malls.

Financial Benefits of Carbon Footprint Management to Retailers and Mall owners

In many countries, there are government rebates and incentives available for businesses that reduce their carbon emissions. Shopping malls that implement carbon footprint reduction strategies may be eligible for these incentives, which can further reduce their costs.

Shopping malls that are committed to sustainability and reducing their carbon footprint can improve their brand image and reputationleading to increased customer loyalty and sales. Also,Sustainable and energy-efficient buildings can create a more comfortable and healthier working environment. This can result in improved employee productivity and reduced absenteeism, which can have a positive impact on the mall's bottom line (Gillingham & Stock, 2018).

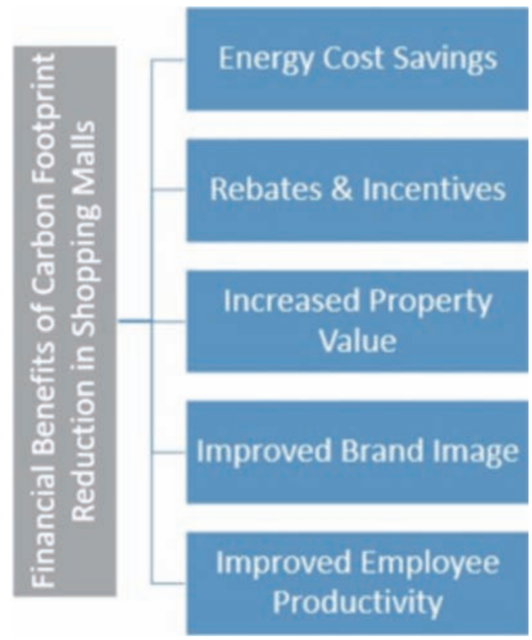

Figure 2: Financial Benefits of Carbon Footprint Reduction

In an annual report, a company can use its disclosure of its social and environmental responsibility as a means of improving its reputation and image, which can be especially important for high-profile industrial groups that have had negative impacts from their products or operations. However, changing the public perception of these companies can be difficult, which is why using strategies like including social responsibility and environmental disclosures in annual reports can be effective. This approach can alter the public's opinions, attention, and expectations of the company. Employing this strategy is an alternative for high-profile industrial groups to improve their image and reputation.

Carbon Footprint Management in Indian Shopping Malls

Numerous shopping malls in India have adopted energy efficient lightning and HVAC system to diminish their energy consumption. For example, Phoenix Marketcity in Bangalore has installed LED lighting and a building management system to optimize energy usage. Several shopping malls in India have commenced utilizing renewable energy sources . For instance, Lulu Mall in Kochi has installed a 2.6 MW rooftop solar power plant, which generates around 40% of the mall's energy requirements. Also waste reduction and recycling programs have been implemented to reduce their negative environmental impact. For instance, Inorbit Mall in Mumbai has implemented a waste management system that includes the segregation of waste at source, composting of organic waste, and recycling of plastics and paper. Some shopping malls have adopted sustainable transportation strategies, such as providing bicycle parking facilities and encouraging the use of public transportation. For example, Select Citywalk in Delhi provides a bicycle parking facility for shoppers, and also operates shuttle services to nearby metro stations.High Street Phoenix in Mumbai has achieved LEED Platinum certification,the highest level of certification for green buildings. The Green Business Certification Inc. (GBCI), acknowledged as India's foremost authority on sustainability in building design, construction, and operation recently announced the award of LEED V4.1 O+M (Operations and Maintenance) platinum certification to Oberoi Mall in Goregaon Mumbai. Another initiative by Indian Government is the Energy Conservation Building Code (ECBC), which provides a framework for energy-efficient building design and construction. The ECBC outlines directives for energy-efficient lighting, heating systems, insulation, and incorporation of renewable energy sources in structures, including shopping malls. Furthermore, the government has introduced various incentives and subsidies to promote the adoption of renewable energy sources, such as solar power, in shopping malls.

Furthermore, the government has launched various initiatives to promote sustainable transportation, for instance the National Electric Mobility Mission Plan (NEMMP), seek to encourage the widespread adoption of electric vehicles. The government has also launched initiatives to promote public transportation, such as the Smart Cities Mission, which aims to develop sustainable and liveable cities with efficient public transportation systems (NITI Aayog, 2022).

Conclusion

Carbon footprint management in shopping malls is an increasingly important topic due to the significant environmental impact of these large, energy-intensive buildings. The literature review has identified several key findings related to this topic, including the importance of energy-efficient lighting, renewable energy sources, and recycling programs in reducing carbon emissions. Studies have also highlighted the role of consumer behaviour, waste management, and transportation in contributing to carbon emissions. To address these issues, various strategies can be implemented, including the use of green materials, improved building design, and the implementation of energy-saving technologies. Yet the effectives of these approaches fluctuates based on the unique circumstances of the shopping mall and the regulatory framework within the local area. Policymakers play a critical role in promoting sustainable practices in shopping malls, and government regulations, incentives, and subsidies can be effective in this regard. The benefits of carbon footprint management include cost savings and improved environmental performance, which can enhance the reputation of the shopping mall and attract customers who are concerned about the environment.

References

Ahmed Ali, K., Ahmad, M. I., & Yusup, Y. (2020). Issues, Impacts, and Mitigations of Carbon Dioxide Emissions in the Building Sector. *Sustainability,* 12(18), 7427. https://doi.org/10.3390/su12187427

Baharum, M.R., & Pitt, M. (2010). Retail shopping centre recycling initiatives. *Journal of Retail & Leisure Property,* 9(3), 201-210. https://doi.org/10.1057/rlp.2010.10

Baird, I.G., & Quastel, N. (2015). Rescaling and Reordering Nature-Society Relations: The Nam Theun 2 Hydropower Dam and Laos-Thailand Electricity Networks. *Annals of the Association of American Geographers,* 105(6), 1221-1239. https://doi.org/10.1080/00045608.2015.1064511

Franca, L. S., Rocha, M. S. R., & Ribeiro, G. M. (2018). Carbon Footprint of Municipal Solid Waste Considering Selective Collection of Recyclable Waste. In Environmental Carbon Footprints (pp. 79-112). Elsevier. https://doi.org/10.1016/B978-0-12-812849-7.00004-0

Gao, T., Liu, Q., & Wang, J. (2014). A comparative study of carbon footprint and assessment standards. *International Journal of Low-Carbon Technologies,* 9(3), 237-243. https://doi.org/10.1093/ijlct/ctt041

Gillingham, K., & Stock, J. H. (2018). The Cost of Reducing Greenhouse Gas Emissions. *Journal of Economic Perspectives,* 32(4), 53-72. https://doi.org/10.1257/jep.32.4.53

Hahn, R. W. (2009). Greenhouse Gas Auctions and Taxes: Some Political Economy Considerations. *Review of*

Environmental Economics and Policy, 3(2), 167-188. https://doi.org/10.1093/reep/rep003

Han, H., Sahito, N., Thi Nguyen, T. Van, Hwang, J., & Asif, M. (2019). Exploring the Features of Sustainable Urban Form and the Factors that Provoke Shoppers towards Shopping Malls. *Sustainability,* 11(17), 4798. https://doi.org/10.3390/su11174798

Huang, W., Li, F., Cui, S., Li, F., Huang, L., & Lin, J. (2017). Carbon Footprint and Carbon Emission Reduction of Urban Buildings: A Case in Xiamen City, China. *Procedia Engineering,* 198, 1007-1017. https://doi.org/10.1016/j.proeng.2017.07.146

Iwaro, J., & Mwasha, A. (2010). A review of building energy regulation and policy for energy conservation in developing countries. *Energy Policy,* 38(12), 7744-7755. https://doi.org/10.1016/j.enpol.2010.08.027

Jamaludin, N., Hashim, S.Z.B., Zakaria, I.B. Bin, Ahzahar, N. B., & Ridzuan, M.A.M.A. (2022). Green Roof System: Implementation and Challenge in Commercial Buildings (pp. 195-207). https://doi.org/10.1108/S2040-726220220000026015

Kahn, M. E., Kok, N., & Quigley, J. M. (2014). Carbon emissions from the commercial building sector: The role of climate, quality, and incentives. *Journal of Public Economics,* 113, 1-12. https://doi.org/10.1016/j.jpubeco.2014.03.003

Lee, S.-C., Guo, H., Li, W.-M., & Chan, L.-Y. (2002). Inter-comparison of air pollutant concentrations in different indoor environments in Hong Kong. *Atmospheric Environment,* 36(12), 1929-1940. https://doi.org/10.1016/S1352-2310(02)00176-0

Li, J., Zhang, P., Lo, K., Guo, M., & Wang, M. (2015). Reducing Carbon Emissions from Shopping Trips: Evidence from China. *Energies,* 8(9), 10043-10057. https://doi.org/10.3390/en80910043

Majeed, M. U., Aslam, S., Murtaza, S. A., Attila, S., & Molnár, E.(2022). Green Marketing Approaches and Their Impact on Green Purchase Intentions: Mediating Role of Green Brand Image and Consumer Beliefs towards the Environment. *Sustainability,* 14(18), 11703. https://doi.org/10.3390/su141811703

Mathis, W. (2008). Measuring Ecological Footprints. In OECD Sustainable Development Studies Measuring Sustainable Production (p. 115). https://books.google.co.in/books?hl=en&lr=&id=X-nVAgAAQBAJ&oi=fnd&pg=PA49& dq=Measuring+the+carbon+footprint+of+shopping+malls&ots=7vp0SvNuVr&sig=bVlCGHEQ5-JnNFMLz8Z-UQLh_W0&redir_esc=y#v=onepage&q=Measuring the carbon footprint of shopping malls&f=false

McGrail, S., Gaziulusoy, A., & Twomey, P. (2015). Framing Processes in the Envisioning of Low-Carbon, Resilient Cities: Results from Two Visioning Exercises. *Sustainability,* 7(7), 8649-8683. https://doi.org/10.3390/su7078649

Mustaffa, N.K., Mat Isa, C.M., & Che Ibrahim, C.K.I. (2021). Top-down bottom-up strategic green building development framework: Case studies in Malaysia. *Building and Environment,* 203, 108052. https://doi.org/10.1016/j.buildenv.2021.108052

Oyelami, B.J., Sholanke, A.B., Ekhaese, O.N.E., & Olusore, S.P. (2022). Effects of Wastewater Management on the Environment: A Case Study of Selected Shopping Malls in Ota, Ogun State, Nigeria. *IOP Conference Series: Earth and Environmental Science,* 1054(1), 012034. https://doi.org/10.1088/1755-1315/1054/1/012034

Pandey, D., Agrawal, M., & Pandey, J. S. (2011). Carbon footprint: current methods of estimation. *Environmental Monitoring and Assessment,* 178(1-4), 135-160. https://doi.org/10.1007/s10661-010-1678-y

Seebauer, S., Kulmer, V., Bruckner, M., & Winkler, E. (2016). Carbon emissions of retail channels: the limits of available policy instruments to achieve absolute reductions. *Journal of Cleaner Production,* 132, 192-203. https://doi.org/10.1016/j.jclepro.2015.02.028

Spash, C. L. (2010). The Brave New World of Carbon Trading. *New Political Economy,* 15(2), 169-195. https://doi.org/10.1080/13563460903556049

Tang, Q., & Luo, L. (2014). Carbon Management Systems and Carbon Mitigation. *Australian Accounting Review,* 24(1), 84-98. https://doi.org/10.1111/auar.12010

Wong, P. S. P., Ng, S. T. T., & Shahidi, M. (2013). Towards understanding the contractor's response to carbon reduction policies in the construction projects. *International Journal of Project Management,* 31(7), 1042-1056. https://doi.org/10.1016/j.ijproman.2012.11.004

Woon, K.S., Phuang, Z.X., Taler, J., Varbanov, P.S., Chong, C.T., Klemeš, J.J., & Lee, C.T.(2023). Recent advances in urban green energy development towards carbon emissions neutrality. *Energy,* 267, 126502. https://doi.org/10.1016/j.energy.2022.126502

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Understanding Financial Literacy and its Associated Factors Among Adult Population in Emerging Economy: Evidence from India

*Saniya Marwah

Abstract

The ability to understand the financial components is part of financial literacy. To offer a steady running environment for enterprises, India must work to improve financial literacy. The goal was to assess the influence of financial literacy. The paper adopted the questionnaire to collect the data from the sampling units i.e. adult population. The sample size was 300 respondents. The variables of this study were Financial Awareness, Financial Skill, Financial Experience, Locus of Control, and Financial Well-Being. To investigate this impact, regression, correlation, and Factor Analysis, SEM were used. The estimates were found to identify the linkage among the different variables. The study was restricted to four independent variables. According to the findings, financial literacy have greatly increased financial well-being in this country, particularly among the adult population. The conclusion will be useful to policymakers aiming to integrate every citizen into an organised financial system.

Introduction

Personal financial judgement and money management are highly regarded in today's economic climate (Sinha *et al.,* 2021). Changes in the introduction of complicated financial products have posed new concerns. People must make difficult financial decisions as a result. (Avdoulas and Philippos, 2020). Financial Literacy in banks have become popular in addition to internet and mobile banking. "This led to the reduction in serving cost in rural and semin-urban areas and increased efficiency" (Schuetz and Venkatesh, 2020; Chouhan *et al.,* 2020). "Two complementary contributions are made by the formation of an inclusive financial industry" (Anagnostopoulos, 2018; Cecchetti and Schoenholtz, 2020).

First, financial inclusion and financial literacy may provide a means of connecting individuals who are shut out of the market with economic progress. Second, economic expansion attracts new participants to the financial system and the economy (Schuetz and Venkatesh, 2020; Mader, 2018). The goal of increasing access to financial services has prompted the creation of new bank types, including payment banks, small banks, and mobile money services that serve people without bank accounts (Banna *et al.,* 2021). Conversely, traditional financial and banking organizations may leverage their existing customer base to introduce digital solutions that strengthen business relationships, improve service efficiency, and broaden accessibility to accommodate evolving needs. Fintech businesses' disruptive potential might accelerate the desperately needed upgradation of the established sectors, bringing down costs and adding more bankers in the process. Under the different sectors, financial literacy plays an essential role in developing the well being of an individual. The word litercy is prevalent in the teaching field, research field and corporate field.

Through financial literacy, traditional banks and financial institutions may leverage their existing customers to develop digital solutions that establish strong business ties while improving service efficacy and increasing access to meet shifting needs. The disruptive potential of fintech boosting the number of bankers in turn. Barclays, the UK's largest bank, welcomed its sixth global fintech innovation centre in India, while "Goldman Sachs Principal Strategic Investments Group (GSPSI)" is interested in investing in Bengaluru's fintech startup industry. "The established institutions and Indian fintech startups are not mutually exclusive with the given opportunities for technological innovation" (Dang and Nguyen, 2021).

The financial literacy plays a pivotal role in making

* Assistant Professor, Department of Management Studies, Rukmini Devi Institute of Advanced Studies, Affiliated to GGSIPU, New Delhi, India

wise financial decisions, which are essential for financial well-being. According to Pahlevan Sharif *et al.* (2020), financial resource management help in achieving financial well-being which necessitates financial literacy. The direct relationship is existing between financial well-being and financial literacy.

The achievement of this concept can be done by introducing new business patterns. To study the contribution of financial literacy in the different sectors, it is essential to explore the various factors which constitutes the main purpose of this study.

Review of Literature

The intervening variable i.e. financial self-efficacy, the indirect relationship is found. The domain specific decisions or tasks are influenced by financial self- efficacy due to its increased predictive potential (Noor *et al.*, 2020). Furthermore, the possessor of knowledge and data have confidence in their capacity to close deals successfully (Noor *et al.,* 2020). The belief in respect of the ability of an individual to maintain current and predicted ideal living standards as well as financial freedom lies in the financial well being (Bruggen *et al.,* 2017). Moreover, CFPB stated that the financial well-being is a condition wherein an individual can fully meet current and ongoing financial obligations. The comprehensive study by Bruggen *et al.* (2017) shows the framework of financial well-being wherein multifaceted, complex and dynamic construct is existing. This leads to the investigation into different perspectives "Group efforts from various stakeholders can stand against the challenges" (Burke & Burke, 2021). "Furthermore, the well informed decisions can also be made through the solid financial education in the urge of current global financial crisis. The financial mindset provides the financial well-being and financial mindset is fostered by financial literacy (Philippas and Avdoulas, 2020). The financial literacy plays a pivotal role in making wise financial decisions, which are essential for financial well-being. According to Pahlevan Sharif *et al.* (2020), financial resource management help in achieving financial well-being which necessitates financial literacy. The direct relationship is existing between financial well- being and financial literacy. The intervening variable i.e. financial self-efficacy, the indirect relationship is found.

A Word cloud in "NVivo" was created through reviewing the literature and used as a first step in the analysis process to confirm earlier results. Fig 1 represents the 50 words from the 70 highly indexed journal articles were represented.

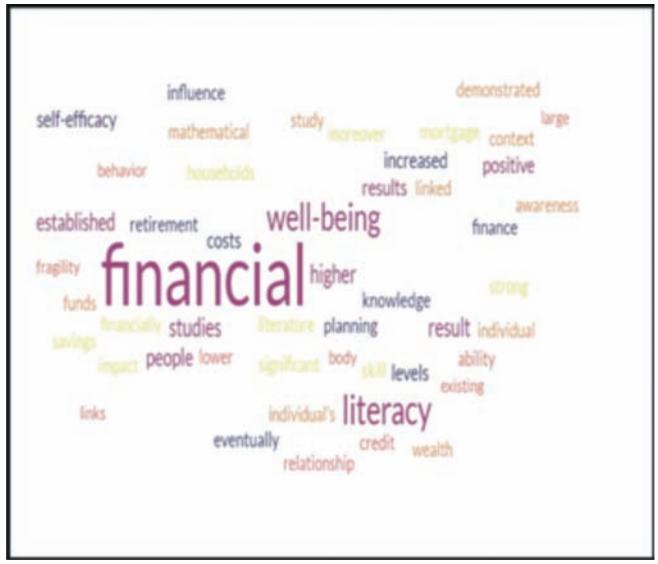

Fig.1. Word Cloud Analysis in "NVivo" Software

Research Gap and Objectives

This study aimed to bridge a slit in the current corpus of research on financial well-being and to explore the role of financial literacy in financial well-being. The current study used to assess the impact of financial knowledge on the financial well-being of the adult population.

Table 1. Scales Adapted

Constructs	Codes	Recent Literature using the dimensions
Financial Awareness Financial Experience	FA FE	Lone UM, Bhat SA, 2022 Triono, M. A.A., 2021
Financial Skill	FS	
Locus of Control	LOC	
Financial Well-Being	FWB	

Hypothesis and Conceptual Framework

The qualitative method like NVivo was used to extract the keywords involved in the research. The quantitative technique involves Confirmatory factor analysis and SEM which was utilized in the quantification of the effect of financial education on expanded well-being. This study intended, in part, to highlight the equipping of people towards financial literacy.

H1: Financial Awareness has a significant impact on financial well-being.

H2: Financial Experience has a significant impact on financial well-being.

H3: Financial Skill has a significant impact on financial well-being.

H4: Locus of Control has a significant impact on financial well-being.

Hence, the model framed in Figure 2 was proposed.

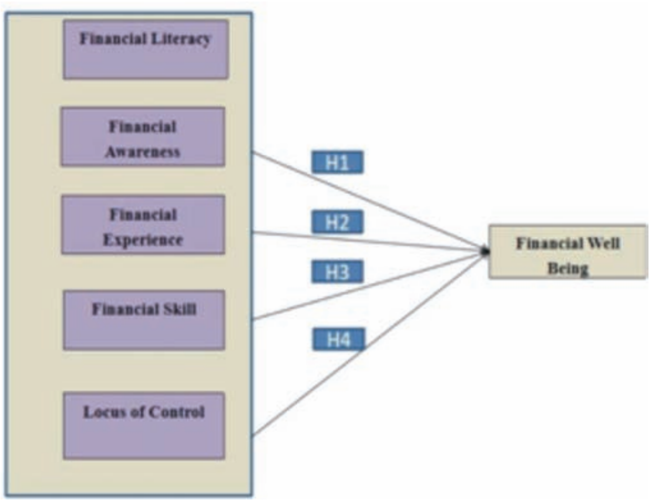

Fig.2: Proposed Model

Research Methodology

A descriptive approach has been adopted in the research. The sample of the study is made up of people who are adults , male or female varies from the age group of 18 years to 56 years and above. The research method is 'Qualitative' and 'Quantitative' in nature. Respondents from Delhi were selected at random using a process known as random sampling. The total numbers of respondents were 300 respondents. All the questions were close-ended and one choice was selected based on 5 point Likert scale i.e (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree). The data analysis has been carried out with Factor Analysis and structural equation modeling using Software Stata/ IC 15.0.

Results

As per table 3, 300 usability questionnaires were collected, including 147 (49.0%) for females and 153 (51.0%) for males. 25-35 (42.7%) people aged 36-45, 120 (40.0%) people aged 46-55, 30 (10.0%) and, people aged above 56, 22 (7.3%). The respondents' occupation consists of business/self-employed, government service, homemakers, private service, and, student. The respondents' monthly income consists of 25,000-50,000, 50,000 - 1,00,000, 1,00,000 - 1,50,000, 1,50,000 - 2,00,000, and above 2,00,000.

Table 3: Sample Characteristics

Sample categories	Frequency	Percentage
Gender		
Male	153	51.0
Female	147	49.0
Age (Years)		
18-35	128	42.7
36-45	120	40.0
46-55	30	10.0
Above 56	22	7.3
Occupation		
Business/Self-employed	120	40
Government service	60	20
Homemaker	40	13.33
Private service	80	26.67
Monthly family income (INR)		
25,000 - 50,000	205	68.3
50,000 - 1,00,000	40	13.3
1,00,000 - 1,50,000	30	10
1,50,000 - 2,00,000	20	6.67
Above 2,00,000	5	1.67

The reliability coefficient of .60 or higher is considered to be "acceptable." The internal consistency, or reliability, of a group of survey items is measured by Cronbach's alpha coefficient, which is recorded as 0.61 in the study (Fig 3).

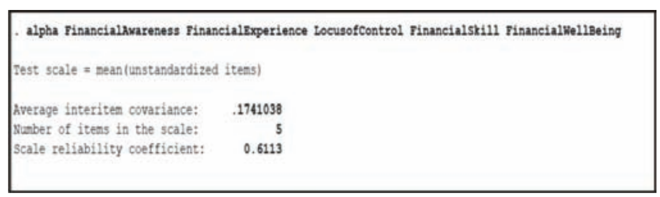

Fig 3. Cronbach's alpha

KMO value is .633 sufficiently good as it is more than .6 and Bartletts test of spherecity tests sig is less than .05 that indicates that there is a sufficient correlation. (Fig.4)

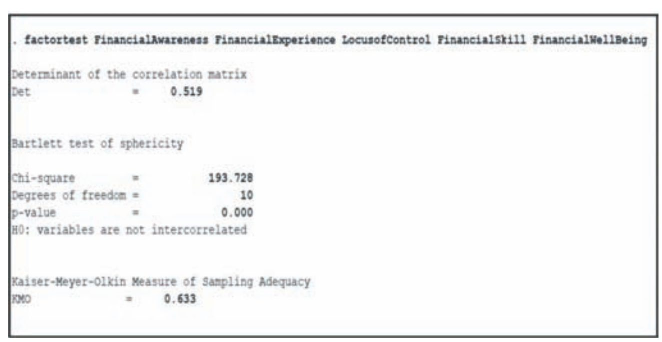

Fig 4. KMO and Bartletts test of spherecity

A positive correlation i.e. 0.0945 has been recorded between "Financial awareness" and "Financial well-being". A positive correlation i.e. 0.1459 has been recorded between "Financial skill" and "Financial well-being". A positive correlation i.e. 0.2367 has been recorded between "Financial experience" and "Financial well-being". A positive correlation i.e. 0.4673 has been recorded between "Locus of control" and "Financial well-being". (Fig.5)

```
. pwcorr FinancialAwareness FinancialExperience LocusofControl FinancialSkill FinancialWellBeing

             | Financ~s Financ~e Locuso~l Financ~l Financ~g
-------------+---------------------------------------------
FinancialA~s |   1.0000
FinancialE~e |   0.3855   1.0000
LocusofCon~l |   0.2785   0.3752   1.0000
FinancialS~l |   0.1043   0.1210   0.1842   1.0000
FinancialW~g |   0.0945   0.1459   0.2367   0.4673   1.0000
```

Fig 5. Correlational Analysis

R-squared, i.e. 24.33 % is the amount of variance in the dependent variable ("Financial well-being") which can be predicted from the independent variables ("Financial awareness", "Financial skill", "Financial experience", and "Locus of control"). The adjusted R-squared is recorded as 23.30. For significance testing, the p-value is less than the significance level, and the regression test is significant (Fig.6). The regression equation can be interpreted as:

$$y = a + bx$$

```
. regress FinancialWellBeing FinancialSkill LocusofControl FinancialExperience FinancialAwareness

      Source |       SS           df       MS      Number of obs   =       299
-------------+----------------------------------   F(4, 294)       =     23.63
       Model |  46.615138         4  11.6537845   Prob > F        =    0.0000
    Residual |  144.996902       294  .493186742   R-squared       =    0.2433
-------------+----------------------------------   Adj R-squared   =    0.2330
       Total |  191.61204       298  .642993423   Root MSE        =    .70227

------------------------------------------------------------------------------------
FinancialWellBeing |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
    FinancialSkill |   .4634482   .0549108     8.44   0.000     .3553801    .5715164
    LocusofControl |   .1319414   .0519325     2.54   0.012     .0297348     .234148
FinancialExperience |   .0369917   .0503458     0.73   0.463    -.062092     .1360754
FinancialAwareness |  -.0061557   .0490123    -0.13   0.900    -.1026151    .0903037
             _cons |   1.615786   .3117527     5.18   0.000     1.002237    2.229336
------------------------------------------------------------------------------------
```

Fig 6. Regression Analysis

The scatterplot shows the statistical measure of the relationship between the independent variables and dependent variables. If the variables are correlated, the points are closer to the line. If the variables are not correlated, the points fall apart from the line. (Fig.7).

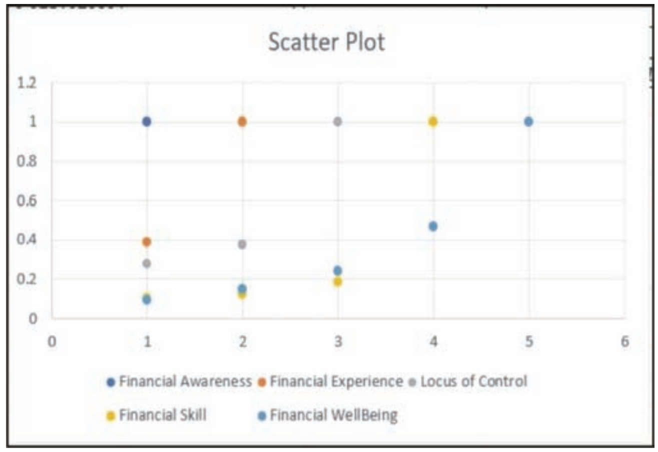

Fig 7. Scatterplot

Fifteen questions about independent factors were asked in the recent study from Lone UM, Bhat SA, 2022. Factor analysis is often used evaluate the questions coded on a five-point scale, where 1 means "strongly disagree" and 5 means "strongly agree". (Fig 8)

```
Contains data
  obs:           318
 vars:            15
 size:         4,770
-------------------------------------------------------------------------------
              storage   display    value
variable name   type    format     label      variable label
-------------------------------------------------------------------------------
FA1             byte    %10.0g                I am aware of the interest rates being charged by banks and other financial inst
FA2             byte    %10.0g                I am familiar with the fundamentals of personal finance management
FA3             byte    %10.0g                I often make a list before shopping
FA4             byte    %10.0g                I always compare financial products before making a decision
FA5             byte    %10.0g                I often gather information related to financial issues
FA6             byte    %10.0g                I am always willing to discuss financial issues
FE7             byte    %10.0g                I always hold emergency savings
FE8             byte    %10.0g                I always maintain financial records
FE9             byte    %10.0g                I have an experience in managing personal assets
FE10            byte    %10.0g                I have an investing experience in stock market
FE11            byte    %10.0g                I plan how I will spend and invest my money
FS12            byte    %10.0g                I evaluate personal financial statement on regular basis
FS13            byte    %10.0g                I manage risks through purchasing insurance
FS14            byte    %10.0g                I regularly evaluate my debt position
FS15            byte    %10.0g                I always try to diversify my investments
-------------------------------------------------------------------------------
Sorted by:
     Note: Dataset has changed since last saved.
```

Fig 8. Variable name and Label

According to the default mineigen (0) criterion, a factor must have an eigenvalue greater than zero to be retained. Only the first six factors appear to be meaningful. (Fig 9)

```
actor analysis/correlation                        Number of obs    =        298
  Method: principal factors                       Retained factors =          6
  Rotation: (unrotated)                           Number of params =         75

  Beware: solution is a Heywood case
          (i.e., invalid or boundary values of uniqueness)

  --------------------------------------------------------------------------
       Factor  |   Eigenvalue   Difference        Proportion   Cumulative
  -------------+------------------------------------------------------------
      Factor1  |      5.83197      4.15206            0.5735       0.5735
      Factor2  |      1.67991      0.45059            0.1652       0.7387
      Factor3  |      1.22932      0.20024            0.1209       0.8595
      Factor4  |      1.02908      0.09787            0.1012       0.9607
      Factor5  |      0.93121      0.81145            0.0916       1.0523
      Factor6  |      0.11976      0.11976            0.0118       1.0641
      Factor7  |      0.00000      0.00000            0.0000       1.0641
      Factor8  |     -0.00000      0.00000           -0.0000       1.0641
      Factor9  |     -0.00000      0.00000           -0.0000       1.0641
     Factor10  |     -0.00000      0.04116           -0.0000       1.0641
     Factor11  |     -0.04116      0.04181           -0.0040       1.0600
     Factor12  |     -0.08297      0.04855           -0.0082       1.0519
     Factor13  |     -0.13152      0.03025           -0.0129       1.0389
     Factor14  |     -0.16177      0.07238           -0.0159       1.0230
     Factor15  |     -0.23415            .           -0.0230       1.0000
  --------------------------------------------------------------------------
```

Fig 9. Factor Analysis

The likelihood that it is more than just a measurement error increases with uniqueness. All the variables in this problem have values less than 0.3296, which is generally regarded as high, or values greater than 0.6. If the uniqueness is low, the components can adequately describe the variable. (Figure 10)

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Uniqueness
FA1	0.2888	-0.2243	0.2868	0.2477	0.3897	-0.0235	0.5702
FA2	0.2868	-0.1977	0.2412	0.3069	0.2605	-0.0346	0.6572
FA3	0.2909	-0.1617	0.2765	0.4088	0.3841	-0.0176	0.4978
FA4	0.7849	-0.2369	0.2323	0.1848	-0.4887	-0.0435	-0.0010
FA5	0.8753	0.1242	-0.4489	0.0870	0.0906	-0.0366	-0.0002
FA6	0.7878	0.0633	0.2980	-0.5145	0.1418	-0.0552	-0.0013
FE7	0.8753	0.1242	-0.4489	0.0870	0.0906	-0.0366	-0.0002
FE8	0.7878	0.0633	0.2980	-0.5145	0.1418	-0.0552	-0.0013
FE9	0.5800	-0.0605	0.0716	-0.1244	0.0974	0.2113	0.5852
FE10	0.6611	-0.0886	0.0161	0.0640	-0.0513	0.2300	0.4952
FE11	0.7849	-0.2369	0.2323	0.1848	-0.4887	-0.0435	-0.0010
FS12	0.8753	0.1242	-0.4489	0.0870	0.0906	-0.0366	-0.0002
FS13	0.1602	0.6653	0.1861	0.1241	-0.0797	-0.0373	0.4739
FS14	0.0737	0.6950	0.1957	0.1439	-0.0522	0.0694	0.4450
FS15	0.0741	0.6787	0.2097	0.1740	0.0125	-0.0077	0.4594

Fig 10. Factor Loadings and Unique Variances

Independence suggests sphericity since factor analysis of a correlation matrix is required. It takes passing this test to make a factor analysis meaningful. When you use the ml option, Stata offers a likelihood-ratio assessment of the number of components in the model against the saturated model in addition to the "standard" output. Since this test only measures X^2, we have applied Bartlett's (1951) suggested correction. Several statistical packages use various variations of this test. (Fig 11)

```
Factor analysis/correlation                    Number of obs    =        298
    Method: maximum likelihood                 Retained factors =          6
    Rotation: (unrotated)                      Number of params =         51
                                               Schwarz's BIC    =    292.299
    Log likelihood = -.8735269                 (Akaike's) AIC   =    103.747

    Beware: solution is a Heywood case
           (i.e., invalid or boundary values of uniqueness)
```

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	1.63140	0.45480	0.2119	0.2119
Factor2	1.17660	0.56573	0.1528	0.3647
Factor3	0.61086	-1.77218	0.0793	0.4440
Factor4	2.38304	0.69411	0.3095	0.7535
Factor5	1.68893	1.47964	0.2193	0.9728
Factor6	0.20929	.	0.0272	1.0000

```
LR test: independent vs. saturated:  chi2(55) = 1051.56 Prob>chi2 = 0.0000
LR test:   6 factors vs. saturated:  chi2(4)  =    1.70 Prob>chi2 = 0.7912
(tests formally not valid because a Heywood case was encountered)
```

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Uniqueness
FA1	0.9990	-0.0437	-0.0019	-0.0000	0.0000	0.0000	0.0000
FA2	0.3916	0.6201	0.6798	-0.0000	0.0000	-0.0000	0.0000
FA3	0.4491	0.8200	-0.3547	-0.0000	-0.0000	-0.0000	0.0000
FA5	0.1998	0.1728	0.0591	0.6843	-0.1480	0.0314	0.4356
FA6	0.2432	0.0402	0.0682	0.7214	-0.1707	-0.2718	0.3111
FE9	0.2250	0.1166	-0.0572	0.5214	-0.1694	-0.0404	0.6303
FE10	0.2643	0.1810	-0.0136	0.6495	-0.2202	0.3358	0.3141
FE11	0.2407	0.1610	0.0711	0.6472	-0.2656	-0.0582	0.4182
FS13	-0.0045	0.0976	-0.0769	0.3360	0.6991	-0.0896	0.3750
FS14	-0.0214	0.0451	0.0056	0.3032	0.7068	0.0834	0.3990
FS15	0.0158	0.0488	0.0178	0.2773	0.7085	0.0402	0.4166

Fig 11: Maximum Likelihood Factor Analysis

Number of components equal to total number of variables (15). All 15 components explain the full variation in the data (1.00). The first 4 components have eigenvalues above 1 and explain 73% of variation. The first 3 components explain 66% of variation. (Fig 12)

```
Principal components/correlation               Number of obs    =        298
                                               Number of comp.  =         11
                                               Trace            =         15
    Rotation: (unrotated = principal)          Rho              =     1.0000
```

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	6.15831	3.98505	0.4106	0.4106
Comp2	2.17325	.598415	0.1449	0.5554
Comp3	1.57484	.412103	0.1050	0.6604
Comp4	1.16273	.342667	0.0775	0.7379
Comp5	.820067	.0992786	0.0547	0.7926
Comp6	.720788	.134539	0.0481	0.8407
Comp7	.58625	.0529229	0.0391	0.8797
Comp8	.533327	.0277034	0.0356	0.9153
Comp9	.505623	.0991516	0.0337	0.9490
Comp10	.406472	.0481257	0.0271	0.9761
Comp11	.358346	.358346	0.0239	1.0000
Comp12	0	0	0.0000	1.0000
Comp13	0	0	0.0000	1.0000
Comp14	0	0	0.0000	1.0000
Comp15	0	.	0.0000	1.0000

Fig 12. Principal Component Analysis

The scree plot of eigenvalues is shown in Fig. 13. The graph fluctuates from upward to downward positions.

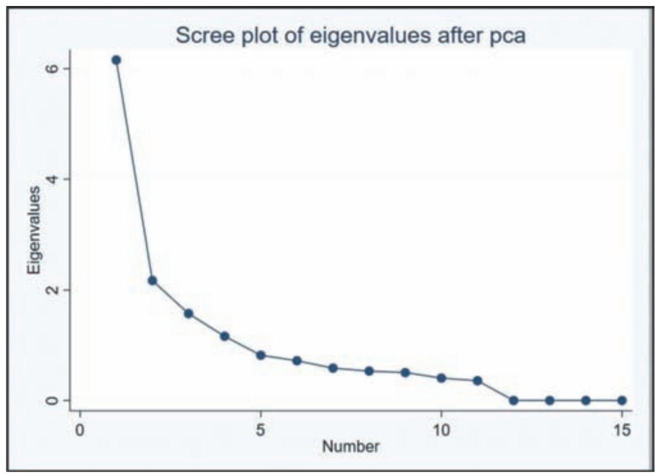

Fig 13. Screeplot

The diagram depicts the four dormant variables ("financial awareness", "financial experience", "financial skill", and "locus of control") as circles, and the 15 manifest variables as rectangles. The relationship between "financial awareness" and "financial well-being" was weak (0.13). The relationship between "financial experience" and "financial well-being" (0.11) was similarly connected, but the relationship was less than the one between "financial skill" and "financial well-being" factors. The association between "financial awareness" and "financial experience" (0.027) was determined to be the weakest of the dormant variable correlations. The relationship between "financial experience" and "financial skill" was not as strong i.e. 0.32. The relationship between the "financial skill" and "financial awareness" is 0.009. The relationship between "financial experience" and "locus of control" is recorded as 0.15. The linkage between "financial awareness" and the "locus of control" is recorded as 0.67. (Fig 14)

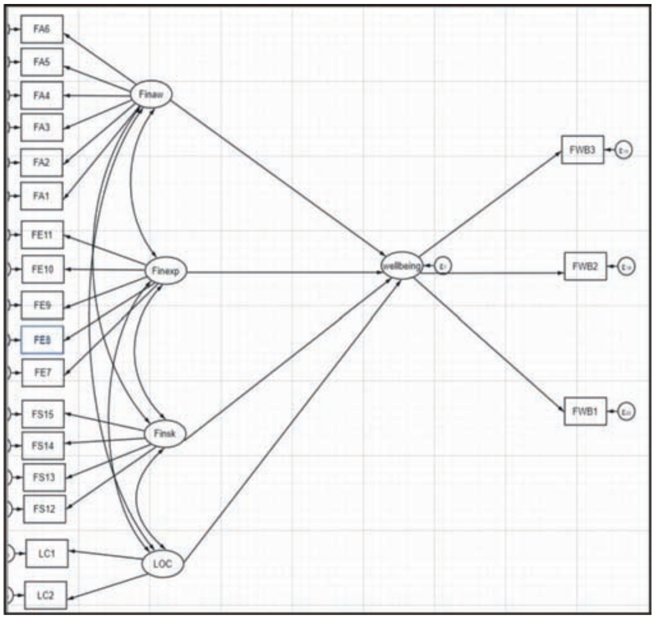

Fig 14. Conceptual Framework

The figure shows the mean value of greater than or equal to 4 for the mentioned variables. The values of standard deviation varies from 0.75 to 0.91 for the mentioned variables. The minimum value is recorded as 1 and the maximum value is recorded as 5. (Fig. 15)

. summarize FinancialAwareness FinancialExperience LocusofControl FinancialSkill FinancialWellBeing

Variable	Obs	Mean	Std. Dev.	Min	Max
FinancialA~s	299	4.177258	.9115319	1	5
FinancialE~e	299	4.013378	.9194879	1	5
LocusofCon~l	299	4.0301	.8645306	1	5
FinancialS~l	299	4.237458	.7556065	1	5
FinancialW~g	299	4.234114	.8018687	1	5

Fig 15. Descriptive Statistics

Conclusion

India thinks financial literacy is easy to understand. Their behaviour has also been influenced by those around them, especially by those who anticipate that they will use financial inclusion services. Many users expressed the view that using the financial inclusion services provided by companies has become second nature. On the other hand, they both agree that using financial inclusion services requires the utmost caution. "The study's findings suggest that financial literacy significantly influences people's financial well-being in the Indian economy".

Following this investigation, H1, H2, H3, and H4 were accepted. The H1 depicts that the Financial Awareness has a significant impact on financial well-being. The results of the tools leads to the acceptance of the hypotheses. The H2 depicts that the Financial Experience has a significant impact on financial well-being.The results of the tools leads to the acceptance of the hypotheses. The H3 depicts that the Financial Skill has a significant impact on financial well-being.The results of the tools leads to the acceptance of the hypotheses. The H4 depicts that Locus of Control has a significant impact on financial well-being. The results of the tools leads to the acceptance of the hypotheses. In actuality, "financial literacy has a significant impact on financial well-being". This study was confined to four variables.

References

Abrantes-Braga FDMA, Veludo-de-Oliveira T. Development and validation of financial well-being related scales. *International Journal of Bank Marketing,* 2019; 37(4):1025-1040. doi: 10.1108/IJBM-03-2018-0074. [CrossRef] [Google Scholar]

Agarwalla, P.S.K., Barua, P.S., Jacob, P.J. and Varma, P.J.R. 2012. A survey of financial literacy among students , young employees and the retired in India executive summary acknowledgments, Indian Institute of Management, Ahmedabad, pp. 1-32.

Agnew, J., Bateman, H. and Thorp, S. 2012. Financial literacy and retirement planning in Australian.

Australian School of Business Research Paper, WP No. 2012ACTL16, pp. 1-22.

Alessie R, Van Rooij M, Lusardi A. Financial literacy and retirement preparation in the Netherlands. *Journal of Pension Economics Finance,* 2011; 10(4): 527-545. doi: 10.1017/S1474747211000461. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

Ali A, Rahman MSA, Bakar A. Financial satisfaction and the influence of financial literacy in Malaysia. *Social Indicators Research,* 2015; 120(1):137-156. doi: 10.1007/s11205-014-0583-0. [CrossRef] [Google Scholar]

Atkinson A, Messy FA. Measuring Financial literacy: results of the OECD/international network on financial education (INFE) pilot study. *Mexico: OECD;* 2012. [Google Scholar]

Attridge M. Employee work engagement: best practices for employers-the issue and why it is important to business. *Research Works,* 2009;1(2):1-13. [Google Scholar]

Bagozzi RP, Yi Y. On the evaluation of structural equation models. *Journal of the Academy of Marketing Science,* 1988; 16(1):74-94. doi: 10.1007/BF02723327.[CrossRef] [Google Scholar]

Bandura, A. 2005. The evolution of social cognitive theory. In K. G. Smith, & M. A. Hitt (Eds.), *Great minds in management* (pp. 9-35). Oxford: Oxford University Press.

Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review.* 1977; 84(2):191. doi: 10.1037/0033-295X.84.2.191. [PubMed] [CrossRef][Google Scholar]

Beal DJ, Delpachitra SB. Financial literacy among Australian university students. *Economic Papers.* 2003; 22(1):65-78. doi: 10.1111/j.1759-3441.2003.tb00337.x. [CrossRef] [Google Scholar]

Behrman JR, Mitchell OS, Soo CK, Bravo D. How financial literacy affects household wealth accumulation. *American Economic Review.* 2012;102(3):300-304. doi: 10.1257/aer.102.3.300. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

Brown S, Taylor K, Wheatley Price S. Debt and distress: evaluating the psychological cost of credit. *Journal of Economic Psychology.* 2005;26(5):642-663. doi: 10.1016/j.joep.2005.01.002. [CrossRef] [Google Scholar]

Brüggen EC, Hogreve J, Holmlund M, Kabadayi S, Löfgren M. Financial Well-being: a conceptualization and research agenda. *Journal of Business Research.*2017; 79(1):228-237. doi: 10.1016/j.jbusres.2017.03.013. [CrossRef] [Google Scholar]

Byrne BM. Structural equation modeling with eqs: basic concepts, applications, and programming. Mahawah, NJ: Lawrence Erlbaum; 2006. [Google Scholar]

Chancellor J, Lyubomirsky S. Happiness and Thrift when (spending) less is (Hedonically) more. *Journal of Consumer Psychology.* 2011; 21(2):131-138. doi: 10.1016/j.jcps.2011.02.004. [CrossRef] [Google Scholar]

Chatterjee D, Kumar M, Dayma KK. Income security, social comparisons and materialism: determinants of subjective financial well-being among Indian adults. *International Journal of Bank Marketing.* 2019;37(4):1041-1061. doi: 10.1108/IJBM-04-2018-0096.[CrossRef] [Google Scholar]

Chen G, Gully SM, Eden D. Validation of a new general self-efficacy scale. *Organizational Research Methods.* 2001;4(1):62-83. doi: 10.1177/109442810141004.[CrossRef] [Google Scholar]

Chijwani M. A study of financial literacy among working women in Pune. *International Journal for Scientific Research & Development.* 2014; 1(11): 20-22. [Google Scholar]

Chowdhry N, Dholakia UM. Know thyself financially: How financial self-awareness can benefit consumers and financial advisors financial. *Planning Review.* 2020; 3(1):1-14. [Google Scholar]

Chu Z, Wang Z, Xiao JJ, Zhang W. Financial literacy, portfolio choice and financial well-being. *Social Indicators Research.* 2017; 132(2): 799-820. doi: 10.1007/s11205-016-1309-2. [CrossRef] [Google Scholar]

Danes SM, Haberman HR. Teen financial knowledge, self-efficacy, and behavior: a gendered view. *Journal of Financial Counseling and Planning.* 2007; 18(2):48-60. [Google Scholar]

de Bassa Scheresberg C. Financial literacy and financial behavior among young adults: evidence and implications. *Numeracy.* 2013; 6(2):5. doi: 10.5038/1936-4660.6.2.5.[CrossRef] [Google Scholar]

Dewi VI, Febrian E, Effendi N, Anwar M, Nidar SR. Financial literacy and its variables: The evidence from Indonesia. *Economics & Sociology.* 2020; 13(3):133-154. doi: 10.14254/2071-789X.2020/13-3/9. [CrossRef][Google Scholar]

Fornell C, Larcker DF. Evaluating strucutral equation models with unobservable variables and measurement error. *Journal of Marketing Research.* 1981; 18(1): 39-50. doi: 10.1177/002224378101800104. [CrossRef] [Google Scholar]

Fornero E, Monticone C. Financial literacy and pension plan participation in Italy. *Journal of Pension Economics & Finance.* 2011;10(4):547-564. doi: 10.1017/S1474747211000473. [CrossRef] [Google Scholar]

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Impact of Stress, Self-Esteem and Gender Factor on Students' Academic Achievement (With Special Reference to Commerce and Management Students of Indore)

*Tanisha Dalal, **Dr. Ravi Vyas

Abstract

This study is conducted to find out the impact of stress, self-esteem, and gender on the students' academic performance with special reference to commerce and management students of Indore. Two hundred and fifty-three students belonging to different colleges of Indore were surveyed by using purposive sampling method. Rosenberg Self-Esteem Scale and Perceived Stress Scale were used in the questionnaire. Correlation and Independent Sample T-Test was used to analyze the data. The findings revealed that there is a negative correlation between stress and self-esteem, there is a weak positive correlation between self-esteem and AGPA and there is an effect of gender on self-esteem, and AGPA, which was in line with the existing literatures. Hence, the studies reaffirmed that stress does not have effect on AGPA, which was in line with the existing studies.

Introduction

There are often different views regarding the influence of stress on students' performance. Researchers have found both positive and negative influence of stress in the students' life. There are multiple reasons or stressors, that contribute to the stress phenomenon (Sheikh Khaloon, Kazmi, & Khalid, 2006). Some common stressors that have been identified are work load, time boundation, pressure and deadlines. These stressors can make or break a students' educational journey (Von, 2011). The relationship of stress has been found with demands and resources. Demands can refer to uncertainty, obligations, commitment or even our everyday jobs. Looking at the ill-effects of stress, this study focuses on finding the stress level of the students and how it affects their academic performance. Researchers have conferred that humans are affected by various physiological and psychological factors in their everyday lifes (Laura, Friedlander, Reid, Shupak & Robert, 2007). A researcher has found a strong association between the students' academic performance and stress (Von, 2011). Some studies have also pointed to the fact that stress can overwhelm students and affect their situation handling ability. Educational institutions should find ways to reduce a students' stress (Saipanis, 2003). The study of stress and its related issues has become a vogue topic for research. It exists among individuals of different gender, age, race, location, etc. Educational institutions are also working towards producing graduates who are devoted to their grades. But it is only beneficial in the short run (Zahra, 2010). The alumni represent the organisations devotion towards the students. A long-term investment for students would be towards their unique being and not only on their well-being (Tahir, 2010).

In a study, a strong link was found between academic stress and depression and hopelessness in students. Extreme stress also resulted in suicide attempts (Rizwan, 2011). Students show commitment towards different areas or sectors, but it is often dampened by difficulties, uncertainty about the future (Inam, Shireen, & Haider, 2011). Excessive stress has led to the failure of their plans (Khan, Ahmed & Nawaz, 2011). Acknowledging the fact, that academic competition has increased, the students are not completely devoted in putting their best efforts towards their academics. A study further found a link between self- esteem and academic performance and students. Self-esteem improved the students' performance (Inam, Shireen, & Haider, 2011). A link has also been discovered between the gender of the student and the academic performance.

Literature Review

The review of literature of the study has been divided into four parts for the purpose of the study. They are:

* Research Scholar, Acropolis Institute of Management Studies and Research
** Associate Professor, St. Paul Institute of Professional Studies, Indore

- Stress,
- Relation between Stress and Self-Esteem,
- Relation between Self-Esteem and Students' Academic Performance,
- Relation between Stress and Students' Academic Performance, and
- Relation between Gender and Stress, Self-Esteem, and Students' Academic Performance.

Stress:

Khan, *et al.* (2011) in their study explained that the students are facing a lot of competition in the field of education. The institution need to have a fair competition policy for the students.

Laura, *et al.* (2007) shared that students are aware about the problems they face in theri curriculum. The signs of stress that the students showed were exhaustion, anxiety and/ or depression. The social interaction of the students was also affected due to stress.

Hanif, Tariq & Masood (2011) in their study found, as the stress increases in the educational institutions, the productivity of students is hampered.

Relation between Stress and Self-Esteem:

There is a general perception that there is a correlation between stress and self-esteem. Let us look at some researchers in this concern:

Zautra & Reich (1993) explained that when a person's self- esteem is low, they are more prone to stress. With continuous and increasing stress levels, the self-esteem levels tend to fall over time.

Tubman & Windle (1995) exclaimed that high self-esteem protects a person from episodes of stress. Persons with low self- self esteem feel high stress from their surroundings. They also observed that people with high self- esteem have a positive outlook towards situation and people with low self-esteem possess a negative outlook towards situations. People with high self-esteem have a distinctive image of self, and have a better understanding of merits and demerits.

Thombs (2000) expressed that self-esteem is built up in the early childhood stage and can improve or reduce over time as per the situations and experiences of their life.

Zuckerman (1989) in their research found that people possessing low self-esteem showmlask of assertiveness as its side effect. This leads to them accepting more work, which is more than which they could handle. Its further results in increasing stress level. Stress and self-esteem form a vicious cycle which has a disastrous result.

Relation between Self-Esteem and Students' Academic Performance:

Marsh (1990) applied the Pearson's correlation to his study to find the relation between slef-esteem and the students' academic achievement. The study showed different levels of self-esteem possessed by achievers and non-achievers. It was consistent with the review of literature done by the researcher. The study showed a positive correlation between both the factors.

Thombs (2000) study showed that first year students with low self-esteem showed behaviours like poor time management, use of alcohol and poor study habits.

Taylor and Brown (1999) in their study found that people with high self-esteem sought out direct and indirect social support. They adapted better to their college and have a better health. Self-esteem was also discovered to be one of the academic motivators.

Wiggins & Schatz (1994) showed that people with low self-esteem displayed low levels of happiness, were less social, were more prone to alcohol and drugs and were considered vulnerable to depression. It was correlated to low achievement in academics.

Relation between Stress and Students' Academic Performance:

Studies have also been conducted to find out the link or relation between stress and the students' academic performance. Their review and summary are as follows:

Lackovic-Girgin (2003) in their study, discovered no link between the stress experienced by students and their academic scores. It is due to the fact that students are used to the pressure by the end of the year and have a knowledge about how their academic year goes on.

In another study by Byrne (1996) found no correlation between stress and the students' academic performance, as they are used to the system of testing and education as the year goes by. Other researchers work was also in line with the work of Byrne.

Relation between Gender and Stress, Self-Esteem, and Students' Academic Performance:

Various researches have been conducted to find the link between gender and stress, gender and self-esteem along with its impact on the academic performance. Their summary are as follows:

Block & Robins (1993) discovered that the self-esteem score of teenage girls is lower than that of the teenage boys.

Maccoby & Jacklin (1999) research showed that the stress and self-esteem levels of both the genders are not different from each other, rather, they are the same.

Smith (2002) research agreed with the research of Maccoby & Jacklin (1999) and found no difference between the stress and self-esteem scores of men and women.

Objectives of the Study

The objectives of the study have been derived after a thorough study of the review of literature. They are:

1. To determine the correlation between Stress and Self- Esteem.
2. To analyze the effect of Self-Esteem and Stress on the AGPA among the Commerce and Management students of Indore.
3. To examine the effects of Gender on the AGPA of Commerce and Management students of Indore.

Research Methodology

The research methodology of the study is as follows:

1. Data Collection:

The data for the study has been collected from primary and secondary sources. Random sampling has been used to collect the data from the commerce and management students of Indore. The primary data was collected using a structured questionnaire containing three demographic questions and 10 questions each relating to stress and self-esteem. The questionnaire was prepared in the Google Form and was shared with the help of E-Mail and WhatsApp. To collect the secondary data various sources such as articles, journals, conference proceedings, etc. have been used.

2. Research Instrument:

To collect the data relating to stress and self-esteem the Perceived Stress Scale Questionnaire and Rosenberg Self- Esteem Scale respectively have been used.

3. Respondents:

The respondents of the study were 253 students belonging to the commerce and management field.

4. Type of Research:

This research has been classified as empirical, qualitative, and quantitative in nature.

Analysis

The data was collected from 253 respondents and analysed using the SPSS 27 software and MS-Excel. The analysis is as follows:

Demographic Responses

The study contained three demographic responses. Their analysis is as follows:

1. Age

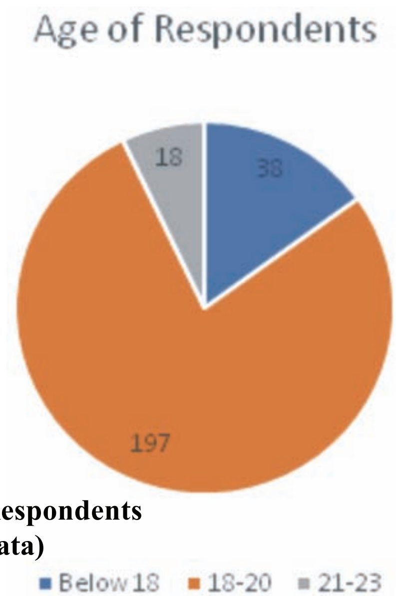

Figure 1: Age of Respondents (*Source:* Primary Data)

As per figure 1, 38 respondents are below the age of 18, 197 respondents are of the age 18-20 and 18 respondents fall in the age group of 21-23.

2. Gender

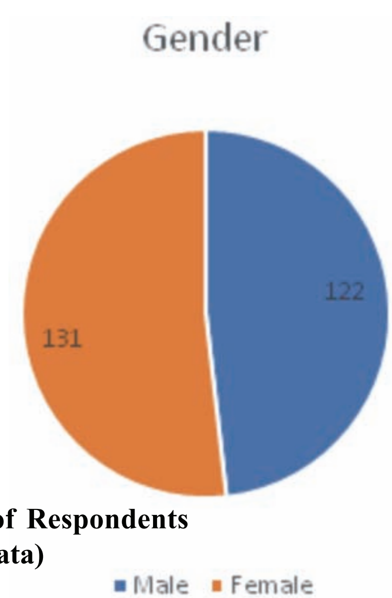

Figure 2: Gender of Respondents (*Source:* Primary Data)

As per figure 2, 122 respondents are male and 131 respondents are female.

3. AGPA

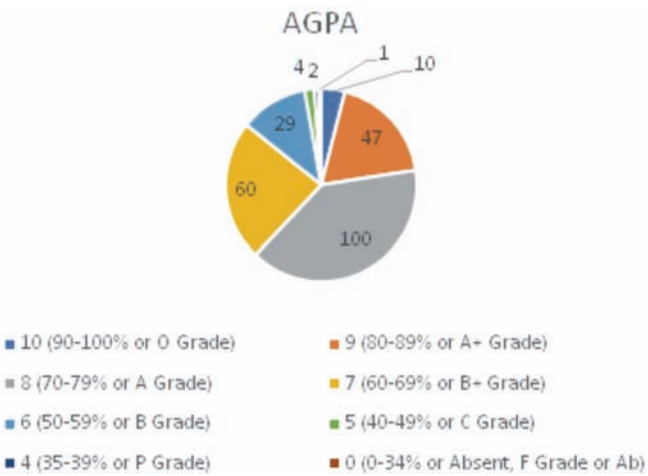

Figure 3: AGPA of Respondents
(*Source*: Primary Data)

As per figure 3, 10 students have scored 10 (90-100% or O Grade), 47 students have scored 9 (80-89% or A+ Grade), 100 students have scored 8 (70-79% or A Grade), 60 students have scored 7 (60-69% or B+ Grade), 29 students have scored 6 (50-59% or B Grade), 4 students have scored 5 (40-49% or C Grade), 2 students have scored 4 (35-39% or P Grade) and 1 student has scored 0 (0-34% or Absent, Grade F or AB).

The summarized table of demographic is as follows:

Table 1: Summary of Demographic Responses

Demo-graphic	Category	Fre-quency	Percent-age
Gender	Male	122	48.2
	Female	131	51.8
	Total	253	100
Age	Below 18	38	15
	18-20	197	77.9
	21-23	18	7.1
	Total	253	100
AGPA	10 (90-100% or O Grade)	10	4
	9 (80- 89% or A+ Grade)	47	18.6
	8 (70- 79% or A Grade)	100	39.5
	7 (60- 69% or B+ Grade)	60	23.7
	6 (50- 59% or B Grade)	29	11.5
	5 (40-49% or C Grade)	4	1.6
	4 (35- 39% or P Grade)	2	0.8
	0 (0-34% or Absent, Grade F or Ab)	1	0.4
	Total	253	100

Source: Primary Data

Testing of Hypothesis

In order to fulfill the objectives of the study, four hypothesis have been developed. They are:

- H_{01}: There is no correlation between Stress and Self-Esteem.
- H_{02}: There is no correlation between Stress and AGPA.
- H_{03}: There is no correlation between Self-Esteem and AGPA.
- H_{04}: There is no effect of Gender on Stress, Self-Esteem and AGPA.

They have been tested as follows:

H_{01}: There is no correlation between Stress and Self-Esteem

Table 2: Correlation between Stress and Self-Esteem

Variable	Stress	
	r	Sig (2-tailed)
Self-Esteem	-.433	.000

Source: Primary Data

In the testing of hypothesis, 'There is no correlation between Stress and Self-Esteem', Pearson Correlation has been used to test the hypothesis and the following values were observed:

N= 253, r= -.433 and p=0.000 ($p<0.01$).

As the p-value ($p=0.000$) is less than the level of significance ($p<0.01$), the null hypothesis has been rejected. There is a significant correlation between stress and self-esteem. It has also been observed that there is a negative correlation between stress and self-esteem ($r =-.433$).

H_{02}: There is no correlation between Stress and AGPA

Table 3: Correlation between Stress and AGPA

Variable	AGPA	
	r	Sig (2-tailed)
Stress	-.098	.119

Source: Primary Data

In the testing of hypothesis, 'There is no correlation between Stress and AGPA', Pearson Correlation has been used to test the hypothesis and the following values were observed:

N= 253, r= -.098 and p=0.119 ($p>0.05$).

As the p-value (p=0.119) is more than the level of significance (p>0.05), the null hypothesis has been accepted. There is no significant correlation between stress and AGPA.

H_{03}: There is no correlation between Self-Esteem and AGPA

Table 4: Correlation between Self-Esteem and AGPA

Variable	AGPA	
	r	Sig (2-tailed)
Self-Esteem	.139	.027

Source: Primary Data

In the testing of hypothesis, 'There is no correlation between Self-Esttem and AGPA', Pearson Correlation has been used to test the hypothesis and the following values were observed:

N= 253, r= .139 and p=0.027 (p<0.05).

As the p-value (p=0.027) is less than the level of significance (p<0.05), the null hypothesis has been rejected. There is a significant correlation between self-esteem and AGPA. It has also been observed that there is a weak positive correlation between self-esteem and AGPA (r= .139).

H_{04}: There is no effect of Gender on Stress, Self-Esteem and AGPA

Table 5: Independent Sample T-Test for Gender

Variables	Gender	N	M	S.D	df	t	Sig
AGPA	Male	122	5.34	1.237	251	-5.087	.000
	Female	131	6.04	.948			
Stress	Male	122	29.05	5.454	251	-1.499	.639
	Female	131	30.11	5.824			
Self-Esteem	Male	122	27.80	3.224	251	-.755	.026
	Female	131	28.15	4.205			

Source: Primary Data

As per table 5, we can observe that Gender has a significant effect on AGPA and Self-Esteem experienced by the students. As the p-value of AGPA and Self-Esteem are .000 and .026 (p<0.05). Hence, we can say that the null hypothesis has been rejected and we can conclude that Gender has a significant effect on AGPA and Self-Esteem of students.

Findings

The findings of the study are as follows:

1. ***Stress Levels of Students:***

The stress levels of the students were measured as per the Perceived Stress Scale. The rating is always between the scale 10-50. 27 respondents were scored between 10-23 and showed low levels of stress. 191 respondents were scored between 24-36 and showed moderate levels of stress and 35 respondents were scored between 37-50 and showed high levels of stress. The graphical representation is as follows:

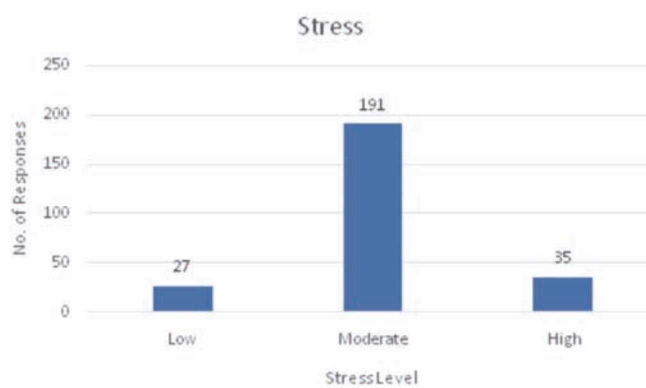

Figure 4: Stress Level of Respondents (*Source:* Primary Data)

2. ***Self- Esteem Levels of Students:***

The self-esteem levels of the students were measured as per the Rosenberg Self-Esteem Scale. The rating is always between the scale 10-40. 61 respondents were scored between 10-25 and showed low levels of self-esteem. 117 respondents were scored between 26-29 and showed medium levels of self-esteem and 75 respondents were scored between 30-40 and showed high levels of self-esteem. The graphical representation is as follows:

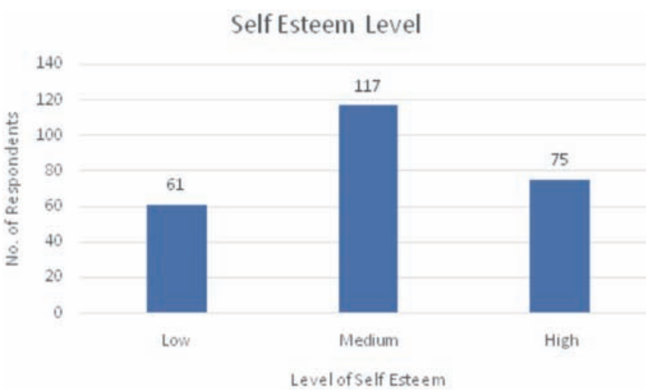

Figure 5: Self-Esteem Levels of Respondents (*Source:* Primary Data)

3. *As Self-Esteem Rises, Stress Falls:*

There was a negative correlation observed between stress and self-esteem. It means that as stress rises, self-esteem falls and vice versa.

4. *AGPA increases as self-esteem increases:*

A positive correlation was discovered between self-esteem and AGPA. As self-esteem increases, so does AGPA and vice versa.

5. *Gender influences AGPA and Self-Esteem:*

The study shows that the gender of the respondent has a relation to their AGPA and Self-Esteem experienced by them.

Limitations

The limitations of the study are as follows:

1. The study is only focused on the commerce and management students of Indore city.
2. The period of study is limited to 2021-24. Only current students have been selected for the purpose of the study.
3. A thorough in-depth study is required to find out the reason for these results.

Suggestions

The suggestions derived from the study are as follows:

1. *Identify Sources of Stress:*

Educational Institutions should make an effort to identify the stressors that are affecting the students. It can lead to the improvement in their lifestyle and habits.

2. *Reduce Stress:*

Educational Institutions should make an effort to suggest methods to students to reduce their stress levels as stress can lead to a lot of other psychological disorders such as anxiety, depression, attempted suicide, etc.

3. *Improve Self-Esteem:*

A link has been discovered between self-esteem and AGPA. Educational institutions should try to improve the self-esteem of the students and it can lead to success in their academic career.

4. *Identify Gender Factors affecting AGPA:*

A link was discovered between Gender and AGPA. The educational institutions should find the which factors of the gender are affecting the AGPA of the students.

Conclusion

This study has been an attempt to understand the effect of stress, self-esteem, and gender factors on the students' academic performance of the students. The study was based on the commerce and management students of Indore city. Analysis of the data showed that self-esteem and stress are negatively correlated to each other i.e. an increase in stress results in the decrease in self-esteem. A weak positive correlation was displayed between self-esteem and AGPA i.e. vast improvement in self-esteem would lead an improvement in AGPA. The study also showed that there is an effect of gender on self-esteem and AGPA of the students. Future studies will be conducted to find out the level and reasons of effect of gender on self-esteem and AGPA.

In conclusion, this study helps us to determine the link between stress, self-esteem and AGPA on the academic performance of students.

References

Abouserie, R. (1994). Sources and levels of stress in relation to locus of Control and self-esteem in university students. *Educational Psychology,* 14(3), 323-329.

Alves-Martins, M., Peixoto, M. F., Gouveia-Pereira, M., Amaral, V., & Pedro, I. (2002). Self-esteem and academic achievement among adolescents. *Educational Psychology,* 22(1), 51-62.

Block, J., & Robins, R. (1993). A longitudinal study of consistency and change in self-esteem from early adolescence to early adulthood. *Child Development,* 64, 909-923.

Bosacki, S., Innerd, W. & Towaon, S. (1997). Field independence dependence and self-esteem in preadolescents: Does gender make a difference? *Journal of Youth and Adolescence,* 26(6), 691-702.

Bryne, B. M. (1996). Academic self-concept: Its structure, measurement and relation to academic achievement. In B.A. Bracken (Eds.) Handbook of self-concept (pp. 287-316). New York: John Wiley & Sons, Inc.

Landis, B. D., Altman, J. D., & Cavin, J. D. Underpinnings of academic success: Effective study skills use as a function of academic locus of control and self-efficacy: *Psi Chi Journal of Undergraduate Research.* Fall 2007, 12(3), 126-130.

Chubb, N.H., Fertman, C. I., & Ross, J. L. (1997). Adolescent self-esteem and locus of control: A longitudinal study of gender and age differences. *Adolescence,* 32(132), 113-129.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior,* 24, 386-396.

Creswell, J. (2008). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. New Jersey: Pearson: Merrill Prentice Hall.

Demo H. D., & Parker, K. D. (2001). Academic achievement and self-esteem among black and white college. *The Journal of Social Psychology,* 127(47), 345-355.

Eccles, J. S. (1993). School and family affects on the ontogeny of children's interests, self-perceptions, and activity choices. In J.E. Jacobs (Eds.) Developmental perspectives on motivation (pp.145-208). Lincoln, NE: University of Nebraska Press.

Farhan, S., & Khan, I. (2015). Impact of stress, self-esteem and gender factor on students' academic achievement. *International journal on new trends in education and their implications,* 6(2), 143-156.

Hanif, R., Tariq, S., & Masood, N. (2011). Personal and job related predictors of teacher stress and job performance among school teachers. *Pak. J. Commer. Social Sciences,* 5(2), 319-329.

Inam, Q., Shireen, E., & Haider, S. (2011). Perception of academic examination stress: Effects on serumleptin, cortisol, appetite and performance. *Journal of Ayub Medical College, Abbottabad,* 23(2).

Johnson, J. H., & McCutcheon, S. (1980). Assessing life events in older children and adolescents: Preliminary findings with life events checklist. In I. G. Sarason,, C.D. Spielberger (Eds.), *Stress and Anxiety,* 7, 111-125.

Kearney-Cooke, A. (1999). Gender differences and self-esteem. *The Journal of Gender-Specific Medicine,* 2(3), 46-52.

Khan, M. M., Ahmed, I., & Nawaz, M. M. (2011). Impact of personality traits on entrepreneurial intentions of university students. *Interdisciplinary Journal of Research in Business,* 1(4), 51-57.

Lackovic-Girgin, K., & Dekovic, M. (2003).The contribution of significant others to adolescents' self-esteem. *Adolescence,* 25, 839-846.

Laura, J., Friedlander, G., Reid, N., Shupak, J., & Robert, C. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development,* 48(3), 259-274.

Lodico, M., Spaulding, D., & Voegtle, K. (2006). Methods in educational research: From theory to practice. San Francisco: Jossey-Bass.

Maccoby, E., & Jacklin, C. (1994). The psychology of sex differences. Stanford, CA: Stanford University Press.

Marsh, H. W. (1990). Casual ordering of academic self-concept and academic achievement: A multiwave, longitudinal panel analysis. *Journal of Educational Psychology,* 82, 646-656.

McNabb, D. E. (2002). Research Methods in Public Administration and Nonprofit Management: Quantitative and Qualitative Approaches. New York: M.E. Sharpe, Inc.

Moeller, T. G. (1994). What research says about self-esteem and academic performance. *Education Digest,* 34, 25-32.

Powell, T., & Enright, S. (1990). Anxiety and stress management. London: Routledge.

Rizwan, M. (2011). Self esteem deficits and suicidal tendencies among psychiatric patients. Institute of Clinical Psychology.

Rosenberg, M. (1965). Society and the adolescent self image. Princeton, N. J.: Princeton University Press.

Ruganci, N. (1988). Self-consciousness, self-esteem and depression. Unpublished Master Thesis.

Saipanis, H. R. (2003). Stress among medical students in a Thai medical school. *Medical Teacher,* 25, 502-506.

Sheikh, B. T., Khaloon, A., Kazmi, M., & Khalid, H. (2006). Students, stress and coping strategies: A case of Pakistani medical school. *Education for Health,* 17(3), 346 - 353.

Shin, K. R. (1992). Correlates of depressive symptomatology in Korean American women in New York City. Unpublished Doctoral Dissertation, Teachers College, Columbia University.

Smith, U. C. (2002). The effect of adolescence on self-esteem. Unpublished master's thesis. Truman State University: Missouri.

Stein, P. (1991). Life events, self-esteem, and powerlessness among adolescents. Texas Woman's University, Denton.

Stumm, S. V., Hell, B., & Chamorrow-Premuzic, T. (2011). The hungry mind intellectual curiosity is the third pillar of academic performance: *Perspectives on Psychological Science,* 6(6), 574-588. DOI: 10.1177/1745691611421204

Supple, A. J., Su, J., Plunkett, S. W., Peterson, G. W., & Bush, K. R. (2013). Factor structure of the Rosenberg self-esteem scale. *Journal of Cross-Cultural Psychology,* 44(5), 748-764.

Swearingen, E. M., & Cohen, L. H. (1985). Life events and psychological distress: A prospective study of young adolescents. *Developmental Psychology,* 21(6), 1045-1054.

Tahir, Q. (2010). Effectiveness of teaching stress on academic performance of college teachers in Pakistan. *International Journal of Humanities and Social Science,* 1(3).

Taylor, S. E., & Brown, J. (1988). ?llusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin,* 103, 193-210.

Thombs, D. L. (2000). A retrospective study of DARE: Substantive effects not detected in undergraduates. *Journal of Alcohol & Drug Education,* 46(1), 27-40.

Thornberg, H. D.& Jones, R. M. (1982). Social characteristics of early adolescents: Age versus grade. *Journal of Early Adolescence,* 2, 229-230.

Tubman, J. G., & Windle, M. (1995). Continuity of difficult temperament in adolescence: Relations with depression, life events, family support, and substance use across a one-year period. *Journal of Youth and Adolescence,* 24, 133-153.

Tucker, L. R., & MacCallum, R. C. (1997). Exploratory factor analysis. Retrieved 28 July 2013 from http://www.unc.edu/~rcm/book/factor.pdf.

Von, S., Hell, B., & Chamorro-Premuzic, T. (2011). The hungry mind: Intellectual curiosity is the third pillar of academic performance. *Perspective on Psychological Science,* 6(6), 574-588.

Wiggins, J. D., & Schatz, E. L. (1994). The relationship of self-esteem to grades, achievement scores, and other factors critical to school counselor. *School Counselor,* 41(4), 239-245.

Windle, M., &Windle, R. C. (1996). Coping strategies, drinking motives, and stressful life events among middle adolescents: Associations with emotional and behavioral problems and with academic functioning. *Journal of Abnormal Psychology,* 105, 551-560.

Youngs Jr., G.A., & Rathge, R. (1990). Adolescent stress and self-esteem. *Adolescence,* 25(98), 333-339.

Zahra, A. (2010). Relationship between self-concept and academic achievement of female bachelor degree students. University Institute of Education and Research.

Zautra, A. &Reich, J. (1993). Life events and perceptions of life quality: Developments in a two-factor approach. *Journal of Community Psychology,* 11, 121-132.

Zuckerman, D. M. (1989). Stress, self-esteem and mental health: How does gender make a difference? *Sex Roles,* 20(7/8), 429-444.

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Unlocking Potential: A Comprehensive Study of On-Topic Factoring Services and Their Impact on MSME Growth

*Suraj Pradhan, **Dr. Sandeep Raghuwanshi, ***Vikas Kumar Khare

Abstract

This review paper explores the multifaceted landscape of factoring services and their discernible impact on the financial performance of Micro, Small, and Medium Enterprises (MSMEs). The scope of the review encompasses an extensive analysis of scholarly articles, empirical studies, and industry reports that delve into the intricacies of factoring as a financial tool for MSMEs. The comprehensive review synthesizes findings on the utilization of factoring services, evaluating their influence on working capital management, liquidity, and overall financial health of MSMEs. Additionally, the paper scrutinizes the various factors affecting the adoption of factoring services by MSMEs and elucidates the nuanced mechanisms through which these services contribute to improved financial performance. By examining the evolving trends and challenges associated with factoring services in the context of MSMEs, this review paper provides a valuable resource for academics, practitioners, and policymakers seeking a deeper understanding of the dynamics between factoring and the financial well-being of small and medium enterprises. The synthesis of existing literature aims to guide future research directions and inform strategic decisions that can enhance the financial resilience of MSMEs through the judicious use of factoring services.

Introduction

Factoring services have been around since Mesopotamian times. It is well known that a large number of small business owners utilize factoring services to convert their accounts receivable into hard cash for a variety of purposes, including maintaining working capital, cash flow, debt repayment, and credit establishment. The concepts underlying factoring services have changed throughout time, and during the 20th century, their offerings have expanded significantly. Since MSMEs are critical to a country's growth. Policymakers' focus has recently shifted to the MSMEs sector and opening up employment opportunities for youth. Worldwide, factoring services are essential to the growth, operation, and promotion of MSMEs. Factoring services are beneficial to several MSMEs. To assist MSMEs, factoring services were also implemented in India in the 1990s, and numerous banks now provide factoring services. Many factoring institutes have emerged and are financing MSMEs as an alternative financial tool to assist working capital; cash reserve ratio, liquidity, financial health, etc. after the amendments to the Factoring Act of 2011 and 2021. One of the most critical questions to have an explanation for is why the factoring fund was chosen. The funds obtained through factoring services are not loans; rather, they are paid to you in cash by the factoring company when they purchase the account receivables from your clients. There are several uses for the cash amount when it is obtained from the factoring institute. For instance, it supports the organization's working capital and helps pay off debt, advances, and credit balances from creditors. Paying salaries and benefits on schedule would encourage more people to join the company.

Purpose

This paper's goal is to analyze previous studies that have examined the effects of factoring services on Indian MSMEs in comparison to other developed and developing nations. In many developed and emerging nations, factoring services catalyze improvements in the performance of MSMEs. The purpose of this article is to raise reader awareness of the positive effects that factoring services may have on Indian MSMEs when used properly. The impact of factoring services on the working capital management, liquidity, and general financial health of MSMEs in foreign nations is covered in many research studies. The influence of factoring services on Indian MSMEs is another topic this article attempts to examine.

* Assistant Professor at "The ICFAI University", Sikkim

** Assistant Professor at Amity Business School, Amity University Madhya Pradesh, Gwalior

*** PhD Scholar at Amity Business School, Amity University Madhya Pradesh, Gwalior

Scope

Many Indian MSMEs may become aware of the benefits of factoring services with the aid of this article, and they may go on to want factoring services in the future in significant quantities. The primary focus of future research on factoring services and Indian MSMEs will be on how owners of these businesses can use them to increase working capital, repay loans, pay creditors and clients, create job opportunities by providing an alluring compensation package, etc.

Thematic Analysis

Factoring services an aid to Indian MSMEs: By converting receivables into cash quickly, factoring facilitates working capital management. The negative consequences of bad debts on MSMEs are often mitigated by variables that assume the credit risk associated with the receivables. By outsourcing the management of their receivables, MSMEs may focus on their core business activities. MSMEs offer their goods on credit because most buyers demand payment within 30 to 90 days. MSMEs require liquid cash to support their ongoing business operations when funding is restricted to invoicing. In this case, the seller gets in touch with factoring companies to have immediate access to liquid funds. Businesses looking for rapid cash could sell factoring companies their accounts receivable at a discounted rate, which includes interest and service fees. A factor is an agent collecting unpaid balances on his client's behalf in exchange for a fee. Because the funds obtained from the factoring business act as liquid money, they can be utilized for a variety of purposes, such as working capital, loan repayment, staff and employee salaries, and creditor payments (Ashish Gupta, 2015).

The factoring service's mechanism for granting a fund to eligible clients: Customers who are interested in factoring services apply to the factoring business. The application contains details about the client's bills that they wish to factor, as well as information about the company's finances. The factoring company performs due diligence to evaluate the client's creditworthiness and invoice quality. A review of the client's credit history, payment history of their clients, and financial statements may be necessary for this. Both sides sign a factoring agreement if the factoring company decides the client qualifies. The terms and circumstances of the factoring arrangement, including the fees and other pertinent information, are outlined in the agreement, along with the discount rate. The factoring company confirms that the goods or services are delivered as promised and that the invoices are legitimate. The factoring company takes on the client's consumer payment collection. Usually, customers are informed that they need to pay the factoring provider directly. The factoring company provides the remaining portion of the invoice amount to the client after deducting the factoring charge from the complete payment made by the customer. The client receives regular updates from the factoring supplier regarding the progress of their accounts and the collection procedure. It's crucial to remember that different factoring businesses and industries might have particular information about the factoring procedure. An important component of the factoring relationship is that, although the factor assumes ownership of the entire receivable, the factor will typically advance less than 100% of the account's face value. The difference between the advance and the invoice amount (adjusted for any netting effects, such as sales rebates) is the reserve held by the factor. This reserve will be used to cover any payments that are not received in full for the related invoice (Klapper, 2006).

How factoring service can impact the growth of Indian MSMEs: Through factoring, MSMEs can quickly inject working capital into their business by turning their receivables into instant cash. This is essential for paying for ongoing operating costs, acquiring raw materials, and efficiently handling cash flow. MSMEs that use factoring to get funding quickly are better able to manage their cash flow. This makes it possible for them to seize expansion possibilities, bargain for better terms from suppliers, and stay out of financial trouble when clients don't pay on time. Factoring firms frequently provide credit protection services to reduce the risk of purchasers' nonpayment or insolvency. This offers a certain measure of protection against bad debts, which is particularly helpful for MSMEs that deal with customers that have different creditworthiness. Factoring services can help MSMEs engage in international trade by offering assistance in handling cross-border transactions. This can involve managing foreign exchange risks as well as navigating various legal and regulatory frameworks. MSMEs can focus on their main business operations by outsourcing the administration of their receivables to factoring providers. As a result of the factoring provider taking on the responsibility of managing credit and collecting payments, efficiency and production may grow. Better cash flow and financial stability allow MSMEs to take a more competitive stand in the marketplace. They can provide discounts to clients for early payments, bargain better terms with suppliers, and make investments in growth and innovation. The expansion goals of MSMEs may be hampered by the drawn-out approval process associated with traditional funding choices. A quicker and more adaptable option is offered by factoring, guaranteeing prompt access to money when needed. By encouraging MSMEs to grant trade credit to their clients, factoring enhances the appeal of their goods and services. Consequently, this might increase demand and cultivate closer bonds with customers. MSMEs may have trouble obtaining loans from conventional sources during recessions or uncertain times. During these times, factoring can be a dependable source of capital that helps companies' weather financial storms. Working with a factoring service can help an MSME become more credible in the eyes of stakeholders, including suppliers and customers. It denotes a dedication to sound financial management and ethical business practices. Factoring can help SSI units manage their credit. Factors are able to purchase their receivables, assist with collection, and shield them from delinquent payments. Factors can help SSI units in this regard and guarantee in debt collection with their organized, specialized, and professional debt-collection services (Pandey, 1994).

Growths of MSMEs through factoring services are identifies in various developed and developing countries: MSMEs in developed countries can tailor financing alternatives to their specific needs because factoring arrangements are flexible. MSMEs can gain a great deal from the flexibility of factoring services because business dynamics in developing countries can be erratic. In places with a deficient banking infrastructure, factoring can be utilized as an accessible financial instrument for MSMEs, which can promote economic expansion. Factoring services provide MSMEs with operating cash that they might not otherwise be able to get through traditional loans, which contributes to the promotion of financial inclusion. Factoring is a tactic employed by MSMEs in developed countries to expand their operations and accelerate growth by leveraging market opportunities. Factoring services assist MSMEs in developing nations to thrive, which in turn stimulates economic growth and employment creation. Any business must deal with the issue of managing its trade credit. However, factoring is an alternative to traditional term loans for short-term funding. The choice to use factoring services remained the same: to protect trade credit (Summers & Wilson, 2000). In addition to potentially enhancing cash flow and working capital positions, factoring may help small businesses expand and thrive for those that use it. With factoring and invoice finance taken into account, a probable correlation between turnover and working capital requirements is a positive one (Soufani, 2001). When considering the case of UK, factoring services are usually offered by younger, limited companies in the UK to manufacturing and associated industries. These companies are experiencing financial difficulties, have credit limitations, and have high loan and collateral values. The demand for factoring services will usually reflect the relative effects of financial constraints on businesses especially working capital (Soufani, 2002). Credits are the primary financing tool in the Croatian financial system. Thus Croatia is using factoring as a substitute financial tool. Factoring is an alternate funding approach rather than a kind of credit that helps businesses finance without taking on more debt. As a result, it works well for many businesses as a source of funding because it makes market activities more competitive (Ivanovic *et al.,* 2011). Factoring is a comprehensive financial solution that includes working capital finance, credit risk management, accounting for accounts receivable, and collection assistance. Factoring is known as essential in the case of Romania, particularly for the financial requirements of start-ups & small and medium-sized enterprises (Vasilescu, 2010). Factoring has evolve as an affordable complement to other working capital and international trade finance options accessible to small and medium-sized enterprises. Factoring, in its broadest definition, is a type of financing arrangement in which a business sells or secures a financial institution known as the "factor" with its creditworthy accounts receivable in exchange for quick cash and other credit management services. The advantages of factoring for Nigeria's SMEs as a substitute source of funding, with a focus on working capital and finance for foreign trade. Because factoring services act beyond constraints for collateral, credit ratings, business plans, and information asymmetries in favor of SMEs, it's an even better source of working capital finance than standard bank lending.

Factoring funds to overcome the credit challenges for MSMEs: MSMEs can get instant cash through factoring, which turns their receivables into cash. Working capital infusions enable MSMEs to pay for operating costs and short-term financial obligations. In order to lessen the MSME's exposure to bad debts, factoring providers frequently take on the credit risk related to the receivables. This relieves MSMEs of the stress of managing their credit and lets them concentrate on their primary business operations. MSMEs don't have to go through the drawn-out procedure of traditional finance in order to obtain capital immediately. Businesses that have to deal with unforeseen expenses or abrupt cash limitations need to have this agility. By swiftly turning receivables into cash, factoring increases cash flow and frees up MSMEs to take advantage of expansion possibilities or bridge financial shortages. Factoring firms frequently take care of billing, receivables collection, and credit checks, freeing up MSMEs to concentrate on their primary skills. Because of their improved cash flow, MSMEs can negotiate better terms with suppliers, such as early payment discounts or more lenient payment terms. Because there is a direct correlation between financing and the MSME's sales volume, factoring provides flexibility. Through factoring, receivables are the asset being sold; a loan is not being made. MSMEs can obtain capital without taking on debt, which is advantageous for companies with low borrowing capacities. Factoring is a financing solution that can be tailored to the size and growth trajectory of MSMEs, making it appropriate for a range of business sizes. MSMEs must be informed about local laws and factors connected to factoring. Despite being a non-available financial option, there is evidence that each has a positive impact on the decision made by businesses to use factoring as a means of financing working capital and as a tool to enhance cash flow (Soufani, 2005). SMEs in emerging markets face the challenge of converting their accounts receivable from creditworthy customers into working capital funds. The unique aspect of factoring is that, as opposed to depending on the supplier's overall creditworthiness, a lender's credit is directly and formulaically linked to the quantity of a supplier's accounts receivable. After conducted Empirical experiments at Mexico demonstrate that factoring services is importance for economic growth and development (Klapper, 2006). Factoring firms can assist in resolving the challenges associated with credit management, allowing sellers of accounts receivable (clients/creditors) to focus more on boosting sales and output (Siti Malikhatun Badriyah *et al.,* 2017). Factoring is becoming a popular working capital finance option since it's a new short-term financing instrument. Releasing funds held by their debtors helps firms stay solvent and maintain a competitive edge in our fast-paced, never-wait-for-anyone environment. to obtain a comprehensive assessment of factoring's present performance, to fully comprehend the advantages and disadvantages of factoring as a working capital solution, and to stay up-to-date with industry advancements (Journal *et al.,* 2019). Compared with typical forms of commercial financing, where credit is generally assessed based on the seller's creditworthiness rather than the value of the seller's underlying assets, factoring is very different. With no further obligations, the factoring service is an asset-based finance plan. The companies' liquidity position is improving by guaranteeing the quick release of money was blocked in form of account receivables. Factoring has become increasingly important due to industrialization, not just in developed nations but also at developing nations like the BRICS (Sinha, 2020). Factoring is the fastest and most straightforward way to get finance, which is one of its main advantages. Consequently, banks and factoring providers provide funding on the day the bills are generated once the factoring arrangement is signed. The improved cash flow that comes from acquiring liquidity faster than with a loan is one significant advantage. Furthermore, unlike loan funds that are allocated to a particular region, the collected funds are invested in the client's actual needs (Ionescu, n.d.)

Factoring services were used as a concept in previous studies: The use of factoring funds has a beneficial effect on operational choices and performance when compared to SMEs with limited funding. Factoring improves the operational performance of small and medium-sized businesses (SMEs), increases their resilience against cash volatility, and can release more than 10% of their working capital. Industries having longer credit terms benefit most from it. One key takeaway is that small and medium-sized enterprises (SMEs) should evaluate their participation in factoring service projects not just in terms of the short-term advantages of increased revenues and service but additionally in terms of the possibility of making profitable uses of the freed-up working capital (Lekkakos & Serrano, 2015). With regard to its Romanian link, Factors Chain International saw the activation of five members on April 1, 2007: ING Commercial Finance IFN SA, BCR SA, BRD Group, Unicredit Romania, and Factoring Company IFN SA. However, the activities of other institutions are mentioned in annual reports. In 2006, 805 of them completed factoring agreements worth 750 million euros. Despite the relatively recent introduction of these products and services and the relatively small number of factoring activities, the Romanian factoring sector is well organized (Irena & Norina, n.d.). Because bills are paid on time by a single financing institution rather than by a wide number of customers, factoring enables the participants to observe an increase in turnover and benefits, receive the cash required to continue the business, and shorten the fund of the enrollment's rotation cycle. Since liquidities don't need to be stored, they can be received faster than credits (Orheian, 2012). Factoring accelerates the collection of accounts receivable, which in turn expedites the payment of accounts payable, increasing total solvency and liquidity. The business becomes more profitable as the total capital invested turnover rises, offsetting the factoring's effective cost. The factoring operation's actual cost is higher than its nominal cost, mostly due to the participation of financial services. Nevertheless, its disadvantages are typically more than offset by the return on investment and assets. Furthermore, owners' equity and foreign capital are protected from getting immobilized in claims with varied maturities, including those that are delinquent, by collecting accounts receivable in advance. This enables the company to employ capital for financing investments to grow its operations, save money, repay short-term bank loans, and take advantage of supplier discounts for early payments (Dunarea & Galati, 2017)

The growth pattern of MSMEs in factoring services: The average turnover per client is believed to have remained quite close to EUR 3.5 million, according to an examination of FCI's 2022 annual reports. We mostly engage with SME firms in a variety of contexts that cater to the lower end of the market. Our analysis indicates that over 70% of the figures used by our members to depict their clients' portfolios in 2022 are SMEs (66% in 2020 and 65% in 2019) (International Air Transport Association, 2022). The overall factoring volume has grown over the last seven years, according to the Indian Factoring Report 2023. The factoring volume peaked in 2013 and then declined until 2015. There was an increase in volume in both 2016 and 2017. After taking COVID-19 into account, the number of factoring service providers and services provided increases annually. The primary consumer of factoring services, MSMEs, is likewise growing (Ser & Bank, 2013)

The environment of the Indian factoring services sector: As an adjunct to bank financing, factoring gives small and medium-sized businesses-particularly those with strong accounts receivable-access to critical working capital funding that they might not otherwise be able to obtain due to a deficiency in collateral or a poor credit history. Small businesses, industries, and exporters can obtain additional services like credit protection, sales ledger accounting, and receivables collection, in addition to improved cash flow and liquidity, by establishing a long-term commercial partnership with factoring organizations. By having a single point of contact for all of their business needs, they may use factoring to simplify their operations and free up resources. The government has approved the establishment of a Credit Guarantee Fund for Factoring (CGFF) with a budget of Rs. 500 crore to support MSMEs with factoring activities. By sharing a portion of the risk, the factoring credit guarantee fund has the advantage of encouraging factors to extend their lending to MSMEs against factored loans, increasing the actual credit availability for MSMEs (D *et al.,* 2021). One of the financial services that are expanding the fastest in India is factoring. All banks have received instructions from the Reserve Bank of India to offer factoring services. Factoring companies assist businesses in collecting past due invoices and keeping track of their customers' sales records. It generally assists small and medium-sized businesses and large businesses in particular, in maintaining adequate working capital and cash flows for their daily operations. With nine locations around the country, SBI Global Factors Limited is one of India's original factoring companies. Under one roof, SBIGFL offers both domestic and export financial services. The majority of the funding for factoring companies in India is held by SBI Global Factors Limited (Basha Mohammed *et al.,* 2021)

Leading Indian supplier of factoring services: In India, factoring services first became available in 1991. Since then, India has seen a significant increase in the number of factoring companies providing factoring services. Following are the key players of factoring services in India: 1. The Indian bank HSBC Ltd.'s website address is hsbc.co.in. 2. Factoring and Finance Solutions Pvt. Ltd.'s webpage. 3. A CanBank division, Factors Limited (www.canbankfactors.com). 4. SBI Global Factors Ltd.'s website, biglobal.in. 5. Check out IFCI Factors at www.ifcifactors.com http 6. DBS. It can be accessed at dbs.com. 7. Bank City, NA in India. The Citibank website Eighth B.in. SIDBI scale This website, tinyb.in, 9. ecgc.in: Export Credit Guarantee Corporation of India 10. Standard Chartered Bank. [sc.com] 11. HDFC Bank. HDFC Bank India Mart.com is the location to obtain foreign factoring services. 13. Business Factoring Company, Inc.'s webpage on Commercial Factoring Ltd. Blend Financial Services Limited, http://www.blendfinance.com/ www.yesbank.in 15. Yes Bank Ltd. 16. Genepact India/Genpact.com (Fatima, 2016). Out of above players, Canbank Factors, SBI Global Factors, HSBC Bank, IFCI Factors, India Factoring and Finance Solutions, DBS, Citibank, SIDBI, Standard Charted Foremost Factors, and Export Credit Guarantee Corporation of India (D *et al.,* 2021). Over time, Indian factoring companies have been performing better. It has been discovered that there is a noticeable compound growth rate in turnover, debt-purchase outstanding, and collection rates when compared to the Indian Factoring Institute (Banerjee, 2003).

Conclusion

According to a number of papers, MSMEs in the manufacturing sector mostly profit from factoring services. Since 80% to 90% of the money obtained from factoring institutes is hard cash, working capital is the primary application for this money. After account receivables are turned into tangible cash, they can be used with great ease in a variety of organizational operations. MSMEs in numerous nations attest to the fact that factoring money can increase an organization's operating capital. These monies are utilized for things other than working capital, such as paying off debts, loan amounts, employee salaries, and even some organization development initiatives. The unfortunate thing is that, at the moment, very few Indian MSMEs are utilizing factoring services, despite the fact that they might benefit from them as well. Lack of understanding regarding factoring services is the root cause of India's MSMEs' poor performance when compared to other countries. This ignorance also affects Indian MSMEs' low acceptance rate of factoring services. Because the RBI still manages the licensing process and no decentralized mechanism has been formed to enable factoring institutions to operate independently, there aren't many institutes in India that provide factoring services. For factoring service providers to support all MSMEs in India, branch offices of the factoring institution must be established in every district, city, and village. The regularity authority of a factoring institution must apply the fewest restrictions possible to encourage the establishment of factoring institutes by private enterprises, which is necessary for the country to create a significant number of factoring service provider institutes. The growth of factoring institutes in India has the potential to positively impact MSMEs by providing benefits.

Author's contribution

Limited awareness towards factoring service usage: It's conceivable that consumers are ignorant of the benefits factoring offers businesses. Educating people and businesses about the advantages and mechanisms of factoring is one way to raise awareness. Factoring can be a difficult concept for certain individuals to understand. Simplifying the explanation and using real-world examples could make it easier to understand. For many businesses, traditional forms of financing include loans and credit lines. Factoring may not be widely recognized or regarded as the standard option. The social stigma or misconceptions around factoring may make businesses reluctant to look into it. Clearing up any confusion and emphasizing the benefits might help calm any fears. It may possible that factoring companies aren't marketing their services or properly reaching their target audience. Plans for more effective outreach and marketing could raise awareness. There may be places or economic sectors where factoring services are more prevalent than others. This imbalance may be addressed by programs that increase awareness and reach across multiple industries. Industry associations, financial education initiatives, and factoring service providers could collaborate to solve low knowledge. This can involve collaborations with trade associations, focused advertising efforts, and instructional initiatives that highlight the advantages of factoring.

Limited presence of factoring service providers: The small number of factoring service providers may impact by several concerns within the financial services industry. Factoring is known for accounts receivable financing, is the process by which a company sells its accounts receivable to a third party (the factor) to boost cash flow. Determining a customer's creditworthiness is a necessary but risky step in the factoring process. Factoring service providers need sophisticated risk management systems to evaluate the credit risk associated with the accounts receivable. The complexity of risk management may deter certain financial institutions from offering factoring services. Legal requirements and compliance issues may affect a factoring service provider's ability to continue in business. Financial regulations may differ between countries, and navigating diverse regulatory frameworks can be challenging. Some financial institutions may be hesitant to enter markets with stringent laws or unclear factoring rules. If there is limited demand for factoring services in an explicit location, financial institutions may be unwilling to offer them. Moreover, businesses may not be aware of the benefits of factoring, which could lead to a low level of demand that limits the expansion of factoring service providers. Through factoring, businesses can obtain cash up front, secured by their accounts receivable. Not all financial institutions may be able or willing to make the significant financial investment required for factoring services. A large volume of transactions needs to be controlled, and credit risk needs to be quickly assessed, to factor. The management of these processes by financial institutions requires the use of contemporary technology and efficient techniques. Businesses that don't have the required IT infrastructure could be reluctant to enter the factoring market. Factoring is subject to competition from traditional loans and credit lines as well as alternative funding sources in the highly competitive financial services industry. Some institutions may view factoring as less significant than other financial products due to market demand or perceptions of profitability. Factoring is often associated with industries where lengthier payment cycles and cash flow management are critical. The availability of factoring service providers may impact by the status of the business environment in general as well as the economy. To address these challenges and expand the number of factoring service providers, institutions may need to invest in technology, understand and manage the risks involved, and work to enhance corporate understanding of the benefits of factoring.

The regulatory landscape of factoring services is complex: Factoring services may be subject to distinct legal frameworks and regulations in various jurisdictions. Factoring is regarded as a financial service in certain legal systems and as a type of trade finance in others. Factoring firms are frequently subject to financial authorities' requirements, which they may need to abide by. This includes adhering to know-your-customer (KYC) and anti-money laundering (AML) rules. Regulations about consumer protection may apply to factoring involving consumer debt in various jurisdictions. This could involve restrictions on interest rates or fees in addition to disclosure requirements. Usury limits, which place a cap on the highest interest rate that can be charged on financial transactions, may apply to factoring agreements. Factoring firms might need to register with the appropriate authorities or obtain licenses. The type of factoring (recourse or non-recourse) and the nature of the transactions frequently dictate the regulatory requirements. Due to variations in national rules, factoring services involving overseas transactions may present significant challenges. Understanding and adhering to the legal requirements in the buyer's and seller's respective nations is crucial.

Fear of adoption towards factoring service: Some MSMEs fear they won't be able to control over their client connections if they delegate their billing to a third party. Concerns over the perception of factoring by customers, competitors, or suppliers may exist. It could be seen as a sign of precarious finances. MSMEs may be concerned about data privacy if they provide factoring providers with sensitive financial information. MSMEs may worry about being locked into a factoring arrangement indefinitely. MSMEs can be concerned that if a factor is applied, customers won't like it and think it means they're having financial difficulties. Not understanding how factoring works might cause anxiety. If factoring service providers can addresses the aforesaid fears of MSMEs, then in future factoring services might bloom.

References

Ashish Gupta, V.S. (2015). Comparative study of public and private sector banks in India: An empirical analysis. *International Journal of Applied Research,* 1(12), 895-901.

Banerjee, P.K. (2003). Performance Evaluation of Indian Factoring Business: A Study of SBI Factors and Commercial Services Limited, and Canbank Factors Limited. Vision: *The Journal of Business Perspective,* 7(1), 55-68. https://doi.org/10.1177/097226290300700105

Basha Mohammed, S., Venkateswara, D., & Podile, R. (2021). SBI Global Factors Limited Contribution to Indian Factoring Business an Outline. *Turkish Journal of Computer and Mathematics Education,* 12(9), 2061-2064.

D, K., Prasanna, D. R., & N, D. (2021). Factoring Industry in India - An Overview. *Madras Agricultural Journal,* 108(August 2023). https://doi.org/10.29321/maj.10.000572

Dunarea, U., & Galati, D. J. (2017). Factoring - Alternative of Short-term Nicoleta Barbuta-Misu. January 2013.

Fatima, S. (2016). Volume 7 Issue 1 [Year-2016] ISSN 2319-9202 Factoring Business in India - A Critical Analysis Md . Aijaz Khan CASIRJ Volume 7 Issue 1 [Year-2016] ISSN 2319 - 9202. 7(1), 37-47.

International Air Transport Association. (2022). Annual Review 2022 | IATA. Iata, 1-46. https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/annual-review-2022.pdf

Ionescu, A. (n.d.). Factoring- Credit Opportunities in Romania. 1058-1063.

Irena, M., & Norina, P. (n.d.). The Development of Factoring Services in Romania.Analyses, Evolutions, Position in Europe, 803-808.

Ivanovic, S., Baresa, S., & Bogdan, S. (2011). Factoring: Alternative Model of Financing. *UTMS Journal of Economics,* 2(2), 189-206.

Journal, I., Minna, T., Minna, T., Minna, T., Minna, T., & Minna, T. (2019). Factoring as an Effective Working Capital Option: A Critical Review Eletta Onaepemipo Umaru Zubairu Bilkisu Abubakar Simeon Araga Hadiza Umar Abdulhafeez Ochepa

Finance and of Commerce, *International JEL Classificatio,* 5(1), 60-69.

Klapper, L. (2006). The role of factoring for financing small and medium enterprises. *Journal of Banking and Finance,* 30(11), 3111-3130. https://doi.org/10.1016/j.jbankfin.2006.05.001

Lekkakos, S. D., & Serrano, A. (2015). Supply chain finance for small and medium sized enterprises: the. *International Journal of Physical Distribution & Logistics Management,* 46(4), 367-392.

Orheian, O. M. (2012). The Advantages of Using Factoring, as Financing Technique on International Transactions Market. IV(1).

Pandey, I.M. (1994). Relevance of Factoring in a Developing Country: Case of India. *Internaional Journal of Development Banking,* 12(2), 37-51.

Ser, T., & Bank, C. (2013). دربراک لولس ئاتلووتفی تهج دیلوت قرب
نمجنا ملعی ژرنای دیشروخی اناري- لوصاو Page 1. 1969(9017), 9-10.

Sinha, M.K. (2020). Role of Factoring Service in Short-Term Business Financing: a Cross Country Analysis Role of Factoring Service in Short-Term Business Financing: A Cross Country Analysis. 39(May 2018), 3-33.

Siti Malikhatun Badriyah, S. H., Hum, M., Siti Mahmudah, S. H., & Susilowati, D. I. (2017). Factoring as a financing alternative of business development for small and medium enterprises. *International Journal of Mechanical Engineering and Technology,* 8(11), 918-931.

Soufani, K. (2001). The role of factoring in financing UK SMEs: A supply side analysis. *Journal of Small Business and Enterprise Development,* 8(1), 37-46. https://doi.org/10.1108/EUM0000000006811

Soufani, K. (2002). On the determinants of factoring as a financing choice: evidence from the UK. 54, 239-252.

Soufani, K. (2005). Factoring as a Financing Option: Evidence from the UK. *SSRN Electronic Journal,* 514, 1-20. https://doi.org/10.2139/ssrn.251407

Summers, B., & Wilson, N. (2000). Trade credit management and the decision to use factoring: An empirical study. *Journal of Business Finance and Accounting,* 27(1-2), 37-68. https://doi.org/10.1111/1468-5957.00305

Vasilescu, L.G. (2010). Factoring - financing alternative for SMEs. *Management of International Business and Economics Systems,* 13-23. https://pdfs.semanticscholar.org/35a0/cf605920c496c2aaabaaeb2568c5f0237e41.pdf?_ga=2.232115293.396441763. 1566236326-1875182895.1566236326

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Digital Marketing and its Impact on Impulse Buying Behaviour

*Priyanka Sharma, **Dr. Amit Kumar

Abstract

In the contemporary era marked by technological advancements and materialistic lifestyles, there has been a notable shift in the living patterns of Indian retail consumers. The rise in per capita income has elevated standards of living, accompanied by a significant increase in the use of plastic money and online transactions. This shift has brought about a transformation in the mind-set of consumers, making them more informed, demanding, and deeply satisfied with their purchases. In the realm of buying and consumption patterns, impulse buying decisions diverge from the normal decision-making process. It is a well-established strategy employed by retailers to capture customer interest and boost average purchase values. Keeping this phenomenon in mind, the current research has been conducted to identify the potential digital marketing techniques (strategies) and its level of impact on impulse buying behaviour. The study applies, factor analysis on 219 responses collected through self-structured questionnaire. Four factors have been determined like- *social sublime (3.367), price benefits (2.164), easy payment option (2.359) & Value added service (1.937).* The regression output reveals highest impact of 'social sublime with R=.894 & easy payment options with R=.847' followed by 'price benefits R=.687 and value added services R=.661'. Effective digital promotion strategies are identified as- digital flyers, web banners, affiliate marketing and sponsored messages.

Introduction

The Concept of Digital Marketing

Digital marketing term varies among individuals, often being used interchangeably with terms such as "internet marketing," "web marketing," "e-marketing," "e-commerce," and "e-business." While these terms are interconnected, distinctions exist among them. (Rowan, 2002). Internet marketing involves promoting goods and services online, requiring a continuous real-time internet connection (Hanson, 2007). E-business is a comprehensive term involving the application of technology in internal business processes and external transactions with third parties. It encompasses e-commerce for commercial activities and e-marketing, also known as "electronic marketing," utilizing internet and digital technologies for promoting goods or services through electronic methods or media (Hoge, 1993). Rowan (2002) defined E-marketing is the utilization of information technology to execute the marketing process, encompassing the creation, communication, and delivery of value to customers, while also managing customer relationships. (Lamb, Hair and McDaniel, 2001). E-commerce, representing the commercial aspect of business, involves buying and selling through the internet and includes financial transactions conducted via electronic media. Digital marketing sets itself apart from internet marketing by encompassing channels that operate in real-time internet connection, as well as digital outdoors, digital TVs, SMS (Short Message Service), billboards, mobile apps, MMS (Multimedia Message Service), call-back, on-hold mobile ring tones, e-books, and games on a digital platform that can also run offline. (Scharl, Dickinger and Murphy, 2005; Pandey and Shukla, 2010; Rekha and Gayatri, 2014).

Impulsive Buying

Impulse Buying: Impulse buying is defined by consumers making spontaneous and unplanned purchases without premeditated intent or thorough deliberation. It involves the impromptu acquisition of goods or services, often driven by emotional factors, external cues, or persuasive marketing strategies. (Riegger *et al.,* 2021). Impulse buying is essentially characterized by unplanned purchases (Dittmar, 1995). Applebaum (1951) Mentioned that impulsive buying results from promotional stimuli and that consumers do not pre-determine the purchase of items in their minds before embarking on a shopping trip. According to Kollat (2007), Impulsive buying behaviour is essentially unplanned, particularly when linked to

* Research Scholar, Devi Ahilya University, Indore (MP)
** Associate Professor, IPS Academy, IBMR Indore (MP)

emotional preferences during shopping. Nonetheless, the influence of internal factors cannot be ignored in this context, Impulse buying is characterized as a result of in-store behaviour, where consumers enter a shop without a specific intention to purchase any particular item (Cobb and Hoyer, 1986). Rook (1987) Re-conceptualizing the notion of impulsive buying involves defining it as a spontaneous process triggered by an unexpected and compelling urge to acquire something instantly. The impulse to make a purchase is hedonically intricate and often leads to emotional conflict. Additionally, impulsive buying tends to occur with reduced consideration for its consequences. In simpler terms, consumers, after making an impulsive purchase, tend to overlook the potential outcomes of their spontaneous buying decisions. Rook (1987) It was also mentioned that impulsive buying behaviour is frequently associated with adverse outcomes, including feelings of disappointment, self-blame, and distress related to financial troubles. According to his perspective, impulse buying tends to be concentrated and forceful.

Impulsive Buyer

An impulsive buyer is someone who seeks immediate satisfaction, engages in shopping to alleviate stress, and believes they deserve such indulgence. Their focus revolves around purchasing items they don't necessarily need, making decisions without second thoughts on whether they will actually use the items. Impulsive buying disrupts the typical decision-making patterns in consumers' brains, replacing logical sequences with illogical moments of self-gratification. Impulse purchases appeal to the psychological aspects of consumers, providing delight during impulsive buying experiences, leading to increased spending. For the impulsive buyer, acquiring something new brings extensive pleasure.

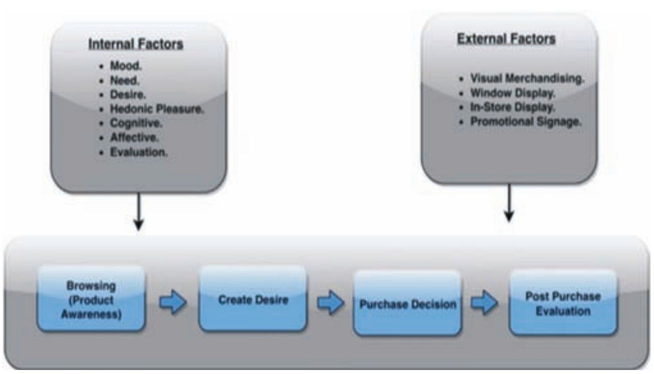


Figure 1. A model of impulse buying process
***Source:* Kim (2003)**

Factors Influencing Online Impulsive Buying

The complexities in definitions and assessments pose challenges in identifying the pivotal factors that contribute to impulse buying. These factors can be broadly categorized into two groups: internal and external. Internal factors are those primarily influenced by the consumer's own lifestyle and mindset. This includes the consumer's emotions, personal thoughts, self-concepts, lifestyle, attitudes, motivation, and memory (Kotler, 2002). These elements are alternatively termed Psychological Influences and are influenced by external factors, including situational aspects related to the product and website.

Internal Factors Affecting Impulsive Buying: Internal factors refer to the internal cues and characteristics that prompt impulsive buying behaviour. These factors include age, gender, culture, and socio-economic status. They can be broadly categorized into person-related factors and situation-related factors. The inclination towards impulse buying is defined as the "degree to which an individual is likely to make unintended, immediate, and unreflective purchases." (Jones *et al.,* 2003, p.506). Several situational factors can influence the decision to engage in impulse buying. For example, the prominence of available funds and the time availability of the consumer are more likely to contribute to an impulse purchase (Beatty and Ferrell,1998). Additional situational factors include the availability of credit and the allure of a good bargain, both integral to the impulse buying experience. Internal factors influencing consumer behaviour encompass inspiration, awareness, understanding, attitudes, desires, and thoughts. Consumer perceptions significantly impact their behaviour, and the customer's intention to acquire a particular product or service primarily depends on the desire to fulfil a specific goal or purpose.

External Factors Influencing Impulsive Buying: External factors pertain to stimuli in the marketplace or product attributes strategically controlled and established by marketers in an effort to influence the consumer to make a purchase (Dawson & Kim, 2009). These elements can alternatively be referred to as product-oriented factors and factors associated with the shopping environment. In 1962, Stern proposed that products characterized by low prices, relatively short product life, small size, and ease of storage are more likely to be purchased on impulse. The shopping environment also plays a crucial role in impulse buying, where mass advertising, prominent and eye-catching displays, and widespread distribution contribute to impulsive purchasing decisions. Customer culture is a marketing strategy involving three components: beliefs, values, and customs. Beliefs represent an individual's specific knowledge and judgment, values aid in decision-making in daily life, and customs are overt patterns of behaviour.

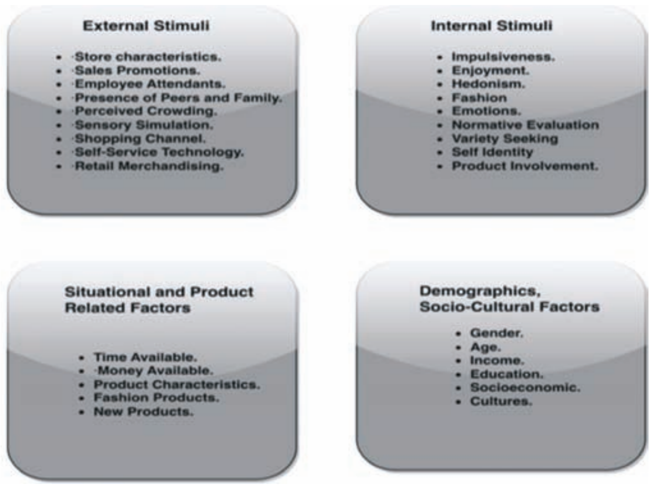


Figure 2. Different factors influencing impulse buying behavior (*Source:* Compiled by authors - Muruganantham and Bhakat)

Review of Literature

A significant amount of research in the realm of consumer behaviour highlights the substantial influence of online marketing on consumers' propensity for impulsive buying. Online marketing tactics, including personalized recommendations, targeted advertisements, and time-limited promotions, motivate customers to participate in spontaneous purchasing behaviour, driven by the perceived sense of pressure and excitement. According to Sarwari (2023) Recent research has focused on the role of technological innovation as a mediator in the relationship between internet marketing and impulse buying. Advanced features andinteractive elements in online marketing campaigns can influence consumers' impulsive buying tendencies, especially as their technological proficiency increases. A specific study delved into the application of augmented reality and virtual reality technologies within the realm of internet marketing Serafini (2021).

Digital Marketing

Digital marketing encompasses a range of online strategies, including search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, campaign marketing, data-driven marketing, e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, and the utilization of digital media on non-Internet platforms like mobile phones (SMS and MMS), call back services, and on-hold mobile ring tones. As technology advances, digital marketing is also expanding into areas such as e-books, optical disks, and games (Wikipedia, 2019). Search engine optimization (SEO) involves influencing the online visibility of a website or web page in the unpaid results of a web search engine, commonly known as "natural," "organic," or "earned" results. SEO can be categorized into two types: organic and paid advertisement. The dynamics of search engine algorithms are in constant flux, underscoring the significance of SEO in achieving online business success. The evolution of search engine algorithms is evident from the past when, in a less crowded online landscape, they primarily extracted relevant information from webpages, assigning favourable rankings. Presently, algorithms prioritize factors like user experience, design, and overall webpage quality (Zhang & Cabage, 2017)

Online Impulse Buying

The term "online shopping" refers to the practice or action of purchasing goods or services via the internet. (Moshref *et al.,* 2012). It includes browsing for products or services on digital platforms, selecting items online, and managing both delivery and payment through online methods. Payment options include making transactions in advance using a credit or debit card or settling the payment upon delivery. Fernandes *et al.* (2021). Numerous studies have been conducted to address issues related to online impulse buying. Various factors, including hedonic motivations, utilitarian motivations, adventure shopping, idea shopping, social shopping, perceived usefulness, perceived enjoyment, visual appeal, information fit-to-task, and the inclination to make impulsive purchases, influence online impulse buying, which involves unplanned buying decisions (Ozen and Engizek 2013; Akram *et al.,* 2018).

2.3 Time Scarcity Promotion

Wu *et al.* (2020) Described Limited Time Scarcity as a promotional offering available for a limited time before becoming unavailable. In the context of this literature, Shopee's twin-date marketing campaign, such as the 9.9 Super Shopping Day, serves as a relevant example, providing various promotional tools for a variety of goods within a restricted time frame. Furthermore, research has indicated that scarcity created through marketing can significantly enhance the attractiveness of items (Zheng, Liu and Zhao, 2013). Indeed, certain studies have demonstrated that time scarcity can amplify consumers' impulse to make purchases, driven by increased pressure and a heightened perception of value (Li *et al.,* 2021).

Shen (2016) Discovered that under high constraints, strong messaging resulted in a higher probability of purchasing compared to weak messages. The interaction between product shortage messages and message intensity strongly indicated engagement. Future research could explore how individuals with low and high levels of uniqueness motivation respond to scarcity control (Roy and Sharma, 2015). As also further discussed by Soliman (2017) Scarcity intensifies the impulsive purchasing environment by instilling a sense of urgency in customers, leading to shorter searches. Therefore, it can be contended that time scarcity promotions positively influence impulsive buying. Wu *et al.* (2020) Additionally, it was suggested that online retailers aiming to generate competition around their promotions strategically employ scarcity.

Price Promotion

A sales promotion stimulus based on pricing, where buyers are offered the same item at a discounted price, is typically referred to as price discounts (Xu and Huang, 2014). Consumers often seek to take advantage of cost savings and aim for the lowest prices when purchasing items. Once they have examined the products, whether online or in a physical store, they may consistently make their purchases online (Schneider and Zielke, 2020). Furthermore, considering that price discounts are argued to be a more potent precursor of the intention to make impulsive purchases. (Xu and Huang, 2014) Additionally, it is contended that the variety of pricing features on online retailers plays a crucial role in driving online impulse buying, especially for apparel products (Park *et al.,* 2012), There seems to be a potentiallypositive correlation between attributes related to price promotions and their influence on online impulse buying.

Hedonic Motivation

Hedonic shopping motivations are described as motives driven by pleasure, inherent qualities, and stimulation in the purchasing process (Nguyen, Nguyen and Barrett, 2007). Research has revealed that certain consumer promotions can stimulate customers hedonically, encouraging them to engage in shopping (hedonic motivation) and eliciting positive feelings (positive affect). Both value shopping and positive effects contribute to impulsive buying behaviour by creating impulsive desires (Bandyopadhyay *et al.,* 2021). Ozen and Engize (2014) states that impulsive purchases can serve as a means to relieve stress, with hedonic motives being assessed as drivers of online purchasing and online impulsiveness. Many online retailers aim to create a hedonic atmosphere, utilizing various atmospheric signals that influence shopping behavior. Their research also revealed that, in the presence of discounts, online customers who view online buying as an adventure and a way to relax are more inclined to engage in impulsive online shopping.

The hedonic motivations associated with purchasing advertised items (immediate promotion) stimulate consumers, ultimately resulting in impulsive buying behavior (Bandyopadhyay *et al.,* 2021). According to Chen et al. (2016) E-Impulse Buying in the realm of e-commerce encompasses various elements, including trust in the online store, design systems, website quality, attributes, atmosphere, and navigation ease. The quality of a website pertains to how the visual communication of a product influences consumer behavior, ultimately leading to purchases (Kerfoot *et al.,* 2003; Gudonaviciene and Alijošiene, 2015). Grabfood employs a theme-appropriate presentation, strategically places products in front of promotions, utilizes dynamic images, incorporates recognizable notification sounds, and customizes pop-ups based on the consumer's order history. Loudon & Bitta (1993) Discovered that the arrangement of showcased items influences impulsive purchasing. Liao *et al.* (2011) Identified that the second most significant factor impacting online purchases was sales promotion. The purpose of sales promotion is to offer incentives or motivation for consumers to engage in purchases (Kotler, 2012), Irwan *et al.* (2018) Spontaneous purchase choices occur when consumers encounter sales promotions on the website.

Research Methodology

Research Design and Method

The current study adopted empirical research method to process primary data and execution of findings. Empirical research helps to investigate the current phenomenon based on direct responses of customers. This would explain the customers' aspects towards the important digital marketing strategies influencing their impulse buying behavior. Further, findings helps to judge respondents' psychology towards the factors promoting impulse buying behavior and motivating them to keep buying online.

Data Structure & Technique

The primary data comprises 280 responses collected from the field survey of targeted respondents with the help of self-structured questionnaire prepared on five point Likert's Scale. It was strictly focuses that the respondents are frequent buyer from online channels and follow digital marketing promotions at various platforms. To select the respondents and data collection, judgmental sampling was done keeping predetermined demographic attributes in mind. Data has been collected from the respondents who are- techno-savvy, frequently buy online, earning, socially active and prefer trendy products to buy and use.

Analytical Tools

The study used two important tools for data analysis viz. 'factor analysis and multiple regression' for which SPSS20 package is used. The selection of tools is primarily based upon the objectives and the type of data. For factor analysis, 'principle component method' has been applied to extract potential factors out of selected items. Whereas, for regression analysis, stepwise technique is used to optimize the data for clear findings.

Objectives

1. Determine the factors potentially impacting impulse buying.

2. Measure the level of impact of identified factors on impulse buying behavior of customers.

Hypothesis

H_{01}: Identified factors do not have significant impact on customers' impulse buying behavior.

Analysis

Analysis of First Objective

1. Determine the factors potentially impacting impulse buying.

Table 3: Factor Description

Items	Item Load	Total Factor Load	Factor
12 Trend	0.732	3.367	Social Sublime
14 Fashion	0.716		
19 Social Adoption	0.694		
13 Peer Pressure	0.661		
15 Personal Need	0.661		
20 Heavy Discounts	0.745	2.164	Price Benefits
11 Extra Quantity	0.532		
16 Freedom of Selection	0.469		
7 Surprising Pricing	0.418		
2 Easy EMI	0.792	2.359	Easy Payment Options
8 Credit Card	0.547		
3 Pay Later	0.462		
1 E-Payment	0.558		
22 Free Shipping	0.726	1.937	Value Added Services
23 Extended Warranty	0.659		
21 Return/Buyback	0.552		

First Factor- ***Social Sublime (Factor Load 3.367):*** Theory of sublimity establishes the great relevance of issues, matters or scenario which is sublime with the prevailing and emerging trend. It is about the broader acceptance of anything in and around the society. Similarly, this concept graces the presence of digital techniques in streamlining the customers with desired communication method. Social sublime is identified as the prominent factor with factor load of 3.367. It is supported by five items viz. trend (0.732), fashion (0.716), social adoption (0.694), peer pressure (0.661) & personal need (0.661). The factor explains that, in today's society whatever and who so ever is famous, trending, mass acceptance fall into the concept of sublimity and customers predominantly follows the trend. Hence, Digital marketing techniques following the sublime trend have more chances to improve impulse buying and positively motivate customers to buy more.

Second Factor- ***Easy Payment Options (Factor Load 2.359):*** A streamlined, and user-friendly Easy payment options reduces obstacles in the purchasing journey, prompting customers to act on spontaneous buying urges. This involves accepting major cards, integrating popular mobile wallets (e.g., Apple Pay, Google Pay), using secure online gateways (e.g., PayPal, Stripe), offering cryptocurrency options, and adopting "Buy Now, Pay Later" services. Additionally, providing traditional methods like bank transfers and instalment plans caters to diverse preferences, ensuring a seamless and inclusive payment experience for all..Easy Payment Options identified as the one of the prominent factor with factor load of 2.359. It is supported by four items viz. Easy EMI (0.792), E-Payment (0.558), Credit Card (0.547), Pay Later (0.462). Therefore, by incorporating easy payment options into digital marketing strategies, not only is the overall shopping experience will improve, but it also prompts customers to engage in spontaneous and swift purchases. This reduction in transaction barriers have more chances can contribute to heightened sales and increased customer satisfaction.

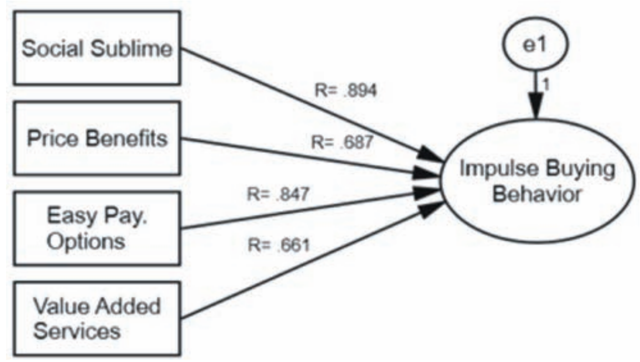
Third Factor- ***Price Benefits (Factor Load 2.164):*** Discounts, Extra Quantity, Freedom of selection, surprising pricing and exclusive offers are influential components of digital marketing by highlighting price benefits through online channels, businesses can capture the interest of potential customers and foster engagement. Digital marketing platforms offer a convenient means to swiftly reach a broad audience, allowing businesses to showcase the value of discounted prices. Price Benefits identified as the one of the prominent factor with factor load of 2.164. It is supported by four items viz. Heavy Discount (0.745), Extra Quantity (0.532), Freedom of Selection (0.469), Surprising Pricing (0.418). Strategic methods like focused email campaigns, social media promotions, and online ads can effectively convey the appeal of discounted prices, and more chances to motivate consumers to make prompt purchase choices. Incorporating price benefits into digital marketing not only can help in drawing new customers but also can help in cultivate loyalty and repeat business, fostering overall business expansion.

Fourth Factor- ***Value Added Services (Factor Load 1.937):*** Value-added services encompass additional offerings beyond the core product or service. These services are strategic components designed to set a business apart in a competitive digital landscape. Value Added Services identified as one of the prominent factors with factor load of 1.937. It is supported by three items viz. Free Shipping (0.726), Extended Warranty (0.659), Return/Buyback (0.552). factor explains that, integrating value-added services like complimentary shipping, extended warranties, and customer-friendly return/ buyback policies is crucial for enhancing the overall customer experience. Free shipping reduces financial burdens, making purchases more attractive. Extended warranties provide additional protection, boosting confidence in product durability. A flexible return/buyback policy contributes to satisfaction, showcasing a commitment to customer service and quality assurance. Hence, Digital marketing techniques following the value-added services have more chances to improve impulse buying and positively motivate customers to buy more.

Analysis of Second Objective

2. Measure the level of impact of identified factors on impulse buying behavior of customers.

H_{01}: Identified factors do not have significant impact on customers' impulse buying behavior.



ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.810	3	.937	8.236	.000[a]
	Residual	24.550	216	.114		
	Total	27.363	219			

a. Predictors: (Constant), SS, PB, EPO, VAS b. Dependent Variable: Impulse Buying Behaviour

The null hypothesis H_{01} stands rejected with sig value .000 < .05 and F(219)= 8.236, MS= .937 & SOS= 2.810. The F Test indicates that, identified factors contribute significantly to impulse buying. The test is observed significant at 95% level of confidence and supports the relationship between determinants and latent variable. The regression weights (i.e. coefficient values) indicate strong influence of 'social sublime and easy payment options' on customers' impulse buying behaviour followed by 'price benefits and value added services'. The R= .894 for 'social sublime' has highest effect on impulse buying as it helps to prepare customers' mind set to go with latest trend and fashion. Sublime effect works upon customers' psyche and predominantly intimate neurons which create desire to have latest products and service to match with the social classes. On the other hand, 'easy payment options' R= .847 is another important factor which shape customers' impulse buying behaviour. Easy and affordable payment options helps greatly in customers' readiness to accept and buy latest products. Further, 'price benefits' R= .687 is quite relevant and prominent factor which positively affect customers' view towards even though the product is no longer important. Amazing price and discounts are the key attracting points for customers. And, last but not the least, 'value added service' R= .661 hit greatly to the buying intension of customers and push a little more towards final selection

Findings

1.The research identified four potential factors influencing impulsive purchasing behaviour of customer, these potential factors are social sublime, price benefits, easy payment options, and value-added services. Social sublime emphasizes societal impact, while price benefits create urgency. Easy payments simplify transactions, and value-added services enhance perceived value, all influencing spontaneous consumer decisions. Acknowledging and addressing these factors helps businesses tap into consumer impulsivity effectively.

2. The study emphasizes the significant impact of identified factors on impulse buying behaviour. 'Social sublime' exerts the highest influence, leading customers to align with the latest trends and fashion through a psychological effect that subtly triggers desires for contemporary products. Close behind is 'easy payment options,' the second-highest influencer, shaping customers' impulse buying behaviour by encouraging readiness to accept and purchase the latest products. 'Price benefits,' ranking third with the R value of .687, play a relevant role in positively influencing customers, particularly when the product may seem less important, emphasizing attractive prices and discounts. Finally, 'value-added service' with the R value of .661 significantly influences customers' buying intentions, propelling them closer to final product selection.

Conclusion

In the rapidly evolving digital market, consumer preferences have shifted significantly towards digital marketing techniques over conventional methods of advertising and promotion. This shift is likely driven by the increasing reliance on digital platforms for information, communication, and commerce. The study underscores the importance of adapting to this changing landscape, recommending that marketers, online sellers, and producers focus their efforts on embracing the latest and emerging marketing techniques through digital platforms. This strategic shift acknowledges the dynamic nature of consumer behaviour in the digital age, urging businesses to stay current with innovative strategies, leverage technological advancements, and effectively engage their target audience through the diverse channels offered by digital platforms, such as social media, online advertising, and e-commerce platforms. By concentrating on these contemporary approaches, businesses can better align with consumer preferences and navigate the complexities of the modern digital marketplace.

References

Applebaum, W.(1951). Studying Consumer Behaviour in Retail Stores. *Journal of Marketing,* 16(October), 172-178.

Bandyopadhyay, N., Sivakumaran, B., Patro, S., & Kumar, R.S. (2021). Immediate or delayed! Whether various types of consumer sales promotions drive impulse buying?: An empirical investigation. *Journal of Retailing and Consumer Services*.doi:10.1016/j.jretconser.2021.102532

Chan, T.K.H., Cheung, C.M.K., & Lee, Z.W.Y. (2017). The state of online impulse-buying research: A literature analysis. *Information and Management,* 54(2), 204-217. doi:10.1016/j.im.2016.06.001

Cobb, C.J., & Hoyer, W.D. (1986). Planned versus Impulse Purchase Behaviour. *Journal of Retailing,* 62(4), 384-409.

Cristanto Edy. Irwan, Setyarini Sri Haryanti. (2018). Impulse Buying pada Konsumen Online. The National Conferences Management and Business (NCMAB). Jakarta: Bina Rupa Aksara.

Dawson, S., & Kim, M. (2009). External and internal trigger cues of impulse buying online. *Direct Marketing: An International Journal,* 3(1), 20-34. doi:10.1108/17505930910945714

Dittmar, H., Beattie, J., & Friese, S. (1995). Gender identity and material symbols: Objects and decision considerations in impulse purchases. *Journal of Economic Psychology,* 16(3), 491-511.

Fernandes, S., Venkatesh, V. G., Panda, R., & Shi, Y. (2021). Measurement of factors influencing online shopper buying decisions: A scale development and validation. *Journal of Retailing and Consumer Services.*doi:10.1016/j.jretconser.2020.102394

Gudonaviciene, and Alijosiene. (2017). Visual Merchandising Impact on Impulse Buying Behaviour. *Journal of Social and Behavioral Sciences,* 2(20), 635 - 640.

Hanson, W., &Kalyanam, K. (2007). Internet marketing & e-commerce. Andover, US: Cengage Learning Pvt. Ltd.

Hoge, C. C. (1993). Electronic marketing manual. NY, USA: McGraw-Hill.

Kim, J. (2003). College Students' Apparel Impulse Buying Behaviours in Relation to Visual Merchandising [Doctoral dissertation, University of Georgia].

Kotler, P., & Armstrong, G. (2012). *Prinsip-Prinsip Pemasaran.* Ed.12 Jilid 2. Diterjemahkan oleh Bob Saran. Jakarta: Erlangga.

Lamb, C. W., Hair, J. F., & McDaniel, C. (2001). Essentials of marketing (2nd ed.). Cincinnati, USA: Southwestern College Publishing.

Liao, S.-L., Shen, Y.-C., & Chu, C.-H. (2017). The effects of sales promotion strategy, product appeal and consumer traits on reminder impulse buying behaviour. *International Journal of Consumer Studies,* 33(3), 274-284.

Loudon, D.L., & Bitta, A.J.D. (2015). Consumer behavior, Concepts and Applications. Fourth edition. Singapore: McGraw-Hill.

Moshrefjavadi, M. H., Dolatabadi, H. R., Nourbakhsh, M., Poursaeedi, A., & Asadollahi, A. (2012). An Analysis of Factors Affecting on Online Shopping Behavior of Consumers. *International Journal of Marketing Studies,* 4(5). doi:10.5539/ijms.v4n5p81

Muruganantham, G., & Bhakat, R.S. (2013). A Review of Impulse Buying Behavior. *International Journal of Marketing Studies,* 5, 149.

Nguyen, T. T., Nguyen, T. D., & Barrett, N. J. (2007). Hedonic shopping motivations, supermarket attributes, and shopper loyalty in transitional markets. *Asia Pacific Journal of Marketing and Logistics,* 19(3), 227-239. doi:10.1108/13555850710772914

Pandey, U.S., & Shukla, S. (2010). E-Commerce and mobile commerce technologies. New Delhi, India: S. Chand & Company Limited.

Park, E.J., Kim, E.Y., Funches, V.M., & Foxx, W. (2012). Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *Journal of Business Research,* 65(11), 1583-1589. doi:10.1016/ j.jbusres.2011.02.043

Rekha & Gayatri. (2004). A study on the role of the internet as a communication tool. *Prabandhan Guru,* 5(1&2), 1-9.

Riegger, A.S., Klein, J.F., Merfeld, K., & Henkel, S. (2021). Technology-enabled personalization in retail stores: understanding drivers and barriers. *Journal of Business Research,* 123, 140-155. doi:10.1016/ j.jbusres.2020.09.039

Rook, D. W. (1987). The buying impulse. *Journal of Consumer Research,* 189-199.

Roy, R., & Sharma, P. (2015). Scarcity Appeal in Advertising: Exploring the Moderating Roles of Need for Uniqueness and Message Framing. *Journal of Advertising,* 44(4), 349-359. doi:10. 1080/00913367.2015.1018459

Rowan, W. (2002). Digital marketing: Using new technologies to get closer to your customers. London, UK: Kogan Page Publishers.

Scharl, A., Dickinger, A., & Murphy, J. (2005). Diffusion and success factors of mobile marketing. *Electronic Commerce Research and Applications,* 4,159-173.

Schneider, P.J., & Zielke, S. (2020). Searching offline and buying online- An analysis of showrooming forms and segments. *Journal of Retailing and Consumer Services,* 52, 101919. doi:10.1016/j.jretconser. 2019.101919

Sarwari, M.O. (2023). Analyzing the Relationship between Fear of Covid-19 and Intention Toward Online Shopping in Turkey. *International Journal of Innovative Science and Research Technology,* 8(2), 228-241. doi:10.5281/zenodo.7649264

Serafini, L. (2021). Per unascienzadei social media: la Hype Machine e il business delleemozioni. In *Hype Machine: come i social media sconvolgono le elezioni, l'economia e la salute, e come dobbiamoadattarci* (pp. 7-21). Edizioni Angelo Guerini e Associati.https://www.iris.unina.it/handle/ 11588/917225

Shen, F. (2016). Information congruity in scarcity appeal: A structural equation modeling study of time-limited promotions. *Journal of Marketing Communications,* 22(2), 135-154. doi:10.1080/13527266. 2013.828770

Shona Kerfoot, Barry Davies, Philippa Ward. (2016). Visual merchandising and the creation of discernible retail brands. *International Journal of Retail & Distribution Management,* 31(3), 143-152.

Wikipedia contributors. (2019). Digital marketing. In Wikipedia, The Free Encyclopedia. Retrieved April 25, 2019, from https://en.wikipedia.org/w/index.php? title=Digital_marketing&oldid=891655784

Wu, Y., Xin, L., Li, D., Yu, J., & Guo, J. (2021). How does scarcity promotion lead to impulse purchase in the online market? *A field experiment. Information & Management,* 58(1), 103283. doi: 10.1016/j.im.2020.103283

Xu, Y., & Huang, J. (2014). Effects of Price Discounts and Bonus Packs on Online Impulse Buying. *Social Behavior and Personality: An International Journal,* 42(8), 1293-1302. doi:10.2224/sbp.2014. 42.8.1293

Zhang, S., &Cabage, N. (2017). Search engine optimization: Comparison of link building and social sharing. *Journal of Computer Information Systems,* 57(2), 148-159. doi:10.1080/08874417. 2016.1183447

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Examining Psychological Stress and Coping Strategies in Caregivers of Children with Intellectual Disability

*Nita Vaghela, **Dr. Satishkumar Bodla

Abstract

Caring for children with intellectual disabilities (ID) is a significant challenge primarily shouldered by parents and close family members. This research, conducted in Vadodara district, Gujarat, examined the psychological stress and coping strategies of caregivers for children with ID. Through face-to-face interviews, case studies, and observations from 66 parents and 15 special educators, the study highlighted challenges in securing admission for these children in mainstream schools. Caregivers often struggle to balance professional duties with care demands, leading to time management issues. Notably, rural parents managed work commitments more effectively than urban counterparts. Many parents, faced with these challenges, either hired caretakers or left their jobs, showing the substantial impact of caregiving on employment and financial stability. Emotionally, caregivers experience a range of feelings, from joy to frustration, especially when children face communication difficulties. The study emphasizes the need for increased societal support, understanding, and resources to aid these families, improving the well-being of caregivers and the children they care for.

Introduction

Caring for a child with intellectual disability (ID) is both rewarding and challenging, particularly for caregivers who are often parents or close family members. ID is a neurodevelopmental disorder characterized by limitations in intellectual functioning and adaptive behavior, affecting cognitive, communication, social, and daily living skills. Caregivers manage the child's daily needs, medical care, and educational requirements, which can be emotionally and physically demanding. They may experience a range of emotions, including joyfulness, irritation, annoyance, and resentment, especially when the child struggles to communicate or understand feelings.

Caregivers may face increased stress and burden if the child has co-morbid conditions or severe intellectual impairment, leading to a decline in their physical and mental health, quality of life, and overall well-being. The caregiving role becomes particularly prominent when a child in the family exhibits developmental impairments. Parents are then faced with the challenges of managing their child's health problems related to biological or developmental disabilities. The core responsibility of caregivers is to manage the chronic illness by providing their cooperation and support, playing a critical but essential role in the effective management of the chronic illness. Caregivers' tasks typically consist of a comprehensive range of responsibilities that must be fulfilled daily, including personal care, instrumental tasks such as shopping and meal preparation, transportation, and household maintenance.

Caring for a child with ID can have a significant impact on the emotional and physical well-being of caregivers. They may experience a range of emotions, from joy and satisfaction to frustration and resentment. These emotions can be particularly challenging to manage when the child has difficulty communicating or understanding feelings.

Understanding the characteristics of intellectual disability and the impact on caregivers is essential for providing appropriate support and interventions to enhance their well-being and resilience. Implementing strategies to support caregivers in managing the care of their disabled children can help improve their quality of life and overall well-being. Providing access to respite care, counseling services, and support groups can be beneficial in relieving stress and improving the mental health of caregivers.

Problem Statement

Caring for children with intellectual disabilities presents a significant and complex problem for caregivers, who are often parents or close family members. According to the "National Alliance for Caregiving and American Association for Retired Persons" (2004), there

* Research Scholar, Faculty of Social Work, Parul University
** Assistant Professor, Department of Social Work , Kurukshetra University, Kurukshetra, Haryana

are approximately 440 million caregivers above the age of 18 worldwide. The demands of caregiving in daily life intensify various types of burden for parents or caregivers, leading to changes in stress levels and associated issues such as burden appraisal, coping mechanisms, and health problems. These health issues can include physical, emotional, and psychological well-being, which can indirectly affect the proper and adequate functioning of caregivers.

Talley and Crews (2007) emphasized that caregiving is a topic of concern that should be approached within the framework of both physical and mental health for both the caregivers and the care recipients. They held that the disability of a patient impacts the whole family, and caregivers themselves are unseen sufferers facing serious health problems that begin with the continuous physical and emotional demands of care recipients. This can lead to diminished attention to their personal health. The continuous and demanding nature of caregiving can lead to increased stress, anxiety, depression, and physical health issues among caregivers. Therefore, caregiving for children with intellectual disabilities can be defined as a significant problem that affects the overall well-being and quality of life of caregivers.

Review of Literature

The role of caregivers for children with intellectual disabilities (ID) is both rewarding and challenging. The psychological stress experienced by these caregivers has been a topic of growing concern in recent literature.

According to the "National Alliance for Caregiving and American Association for Retired Persons" (2004), there are approximately 440 million caregivers above the age of 18 worldwide. The caregiving demands intensify various types of burden for parents or caregivers, leading to changes in stress levels, burden appraisal, and associated health problems, including physical, emotional, and psychological well-being (Talley & Crews, 2007).

Caregivers often experience a range of emotions, from joy and satisfaction to frustration and resentment. The continuous and demanding nature of caregiving can lead to increased stress, anxiety, depression, and other psychological issues (Buwade, 2016; Saha, 2016).

Caregivers utilize various coping strategies to manage the stress associated with caregiving. Positive appraisal, problem-focused coping, and seeking social support have been identified as effective coping mechanisms (Rushda, T K, 2022; Khan, 2015).

Continuous physical and emotional demands of care-recipients can lead to diminished attention to caregivers' personal health. Implementing strategies to support caregivers in managing the care of their disabled children can help improve their quality of life and overall well-being (Valand, 2017; Gokhale, 2019).

The review of literature highlights the significant psychological stress and coping strategies in caregivers of children with intellectual disability. Further research and interventions are required to support caregivers in managing the challenges associated with caregiving and to enhance their overall well-being and resilience.

Research Methodology

The current study was conducted in the Vadodara district of Gujarat state, aiming to explore the Psychological Stress and Coping Strategies in Caregivers of Children with Intellectual Disability. A mix method approach was adopted, involving face-to-face interviews, case studies, discussions, and observations as a method of data collection. The research design consisted of four distinct phases: assess & design, discover, analyze, and document. Data were collected from 66 parents and 15 special educators using purposive and snowball sampling methods. Content and narrative analysis were employed to analyze the data.

Despite its valuable insights, the study had limitations, including its geographical focus on the Vadodara district, the limited number of respondents, and its more qualitative nature.

Results and Discussion

Based on the findings and analysis, the study elucidates the complex challenges faced by caregivers of intellectually disabled children, particularly concerning education, employment, time management, and emotional well-being. The study reveals that intellectually disabled children often face obstacles in gaining admission to regular schools. Although a majority of parents did not encounter significant admission issues, many parents perceive these challenges as prevalent. This highlights the need for inclusive educational policies and specialized support in schools to facilitate smoother admission processes for intellectually disabled children.

In today's socio-economic context, where dual-income families are common, balancing professional responsibilities with caregiving demands becomes a daunting task for parents of intellectually disabled children. The study underscores that these parents frequently struggle to maintain a harmonious work-caregiving balance, leading to compromised professional performance and productivity. Time management emerges as a critical concern, with parents grappling to effectively juggle work commitments and the care needs of their intellectually disabled child. Notably, the study indicates varying time management capabilities between rural and urban parents, with rural parents often exhibiting better management skills.

In response to these challenges, parents often face difficult employment decisions. While some opt to hire caretakers, others choose to resign from their jobs to provide full-time care. Irrespective of their urban or rural background, a majority of parents seek external assistance to ensure proper care for their intellectually disabled child.

Furthermore, the study highlights the emotional and psychological strain on parents, impacting their quality of life and enjoyment. A significant majority of parents feel that they cannot enjoy life similarly to other parents due to the constant caregiving demands. The study also emphasizes the sacrifices made by parents, both personally and professionally, to ensure the well-being and proper care of their intellectually disabled child.

Suggestions & Recommendations

1. **Educational Inclusivity:** Implement inclusive education policies and train educators to support intellectually disabled children in mainstream schools.
2. **Flexible Work Arrangements:** Introduce flexible work policies to assist parents in balancing work and caregiving duties. Employers should provide counseling and support.
3. **Community-Based Support Services:** Establish community services like respite care, counseling, and support groups. Promote awareness to reduce stigma around intellectual disabilities.
4. **Financial Aid and Subsidies:** Offer financial support, subsidies, or tax benefits to families with intellectually disabled children. Help them access available financial resources.
5. **Caregiver Training and Development:** Provide training programs for caregivers to improve their skills and resilience. Create peer support groups for mutual assistance.
6. **Integrated Care Models:** Develop collaborative caregiving approaches involving healthcare, education, and community organizations for comprehensive support.
7. **Research and Evaluation:** Fund further research to better understand caregivers' needs and challenges. Adapt support programs based on research insights for enhanced effectiveness.

Implementing these recommendations can significantly improve the well-being and quality of life for caregivers of children with intellectual disabilities.

Conclusion

The study in Vadodara district, Gujarat, highlights the challenges faced by caregivers of children with intellectual disabilities (ID). It reveals significant emotional, physical, and financial strains, emphasizing the need for inclusive education policies and flexible work arrangements. Caregivers experience a range of emotions, underscoring the need for community-based support and counseling. The findings stress the urgent need for enhanced societal support and resources to assist families in navigating the complexities of caring for children with ID. Implementing the suggested strategies can alleviate caregiver challenges, enhancing their well-being and improving the quality of life for both caregivers and their intellectually disabled children.

References

Buwade, J. (2016). Effect of coping skills training on stress and quality of life of mothers having children with intellectual disability. Devi Ahilya Vishwavidyalaya.

Gokhale, C.U. (2019). Needs assessment of primary caregivers of children with disability. Savitribai Phule Pune University.

Khan, M.F. (2015). A Study of Perceived Stress Quality of Life and Coping Strategies of Parents of Children with Special Needs. Jamia Milia Islamia University.

National Alliance for Caregiving and American Association for Retired Persons. (2004). Caregiving in the U.S. Retrieved from https://www.caregiving.org/

Rushda, T.K. (2022). Stress coping strategies and social support of the parents of children with intellectual disability in Kozhikode district of Kerala. Annamalai University.

Saha, T.S. (2016). Psychophysiological consequences of stress among parent caregivers of chronically disabled children in relation to social support and personality. Banaras Hindu University.

Talley, R.C., & Crews, J.E. (2007). Framing the public health of caregiving: Introducing a "public health caregiver" model. *American Journal of Public Health,* 97(2), 224-228.

Valand, Pareshkumar B. (2017). Psychological well-being life satisfaction and stress among parents of physically handicapped intellectually disabled and normal children. Savitribai Phule Pune University.

Mental Health of Senior Secondary School Students In Relation To Some Personal Variables

*Bhupendra Narayan Basunia, **Dr. Jakir Hussain Laskar

Abstract

Mental Health delineates either emotional or cognitive well-being of an individual. When it is absent it becomes a mental disorder. From the disciplinary viewpoint of positive psychology, mental health isall about the ability of an individual to enjoy life to the fullest and maintain a balance between the life efforts and life activities. Mental ill health causes the feeling of shame, guilt, rejection, isolation and tension etc. and makes the man perceive the world and life as dangerous. Common mental health problems arise from life events as well as the pressure of study-and this is true for students as it is for anyone else. The objectives of the study are to find out significant difference if any in the mental health of students in relation to personal variables like-gender, locale, Socio-Economic Status and type of family. The descriptive method of survey was adopted. The sample of this study consisted of higher secondary students of Murshidabad district. Mental Health Inventory of Talesara and Bano (2011) was used for data collection. The findings of the study were that there was significant difference in mental health of students in relation to gender, locale, Socio-Economic Status and type of family variations.

Introduction

Mental Health in its practical implication embraces personality, character and behavior all in one mental health in its interactive analysis views an individual from his style of life, perception of self and adjustment in his life space. Mental health symbolizes one's state of mind. It reflects his integration of personality while living in rough as well as fair weather in his day-to-day life. According to Jghod (1959) "a mentally healthy individual is he who actively masters his environment, demonstrates a considerable unity or consistency of personality and is able to perceive self and the world realistically. Such a person is also able to function effectively without making undue demands upon other." Roger's (1957), Bernand (1961), Torrence (1965) have viewed mental health as a behavioral characteristic of the personality having homogeneous structure of desirable attitudes, healthy values, Righteous self-concept and scientific perception of the world as a whole. The characteristic features of mental health include environmental mastery, perception of reality integration, autonomy growth and attitude towards self, Jahoda (1958). The aim of education is to bring about an all-round development of personality of the child is possible only when the child is mentally and physically healthy. Therefore,the aim of mental health is development of healthy mind in a healthy body. A good mental health is a necessary condition for education and development of a sound personality. From educational standpoint the problem of promoting mental health in a developing country like India occupies a high priority on the agenda for human development. The slogan of 'Health for all' by 2000 A.D is critically related to planning and implementing educational programme.

Mental Health delineates either emotional or cognitive well-being of an individual. When it is absent it becomes a mental disorder. From the disciplinary viewpoint of positive psychology, mental health isall about the ability of an individual to enjoy life to the fullest and maintain a balance between the life efforts and life activities. Good mental health helps in successful adaptation in the surroundings. The major concern these days is the mental health among adolescents who are just leaving secondary classes and entering into higher secondary classes. It is an imperative concept. The major factor affecting their mental health is the socio-economic status. There is a high level of inferiority amongst them regarding this factor. It is believed that low socio-economic status is a risk factor for mental illness.

It is well known that the adolescence is an imperative stage where major changes of one's life take place. Either it will lead towards success, happiness and

* Research Scholar, Department of Education, Aliah University, Kolkata
** Associate Prof. Department of Education, Aliah University, Kolkata

stronger mental well-being or vice versa. Situations vary from one to another and so the reasons. The modern era is well featured by the quickness in all life spheres like never before. On one side, technology and economic growth is at rise and on the other hand individual mental health is at stake. There are so many mental illnesses, dissatisfactions, and confusions around. So many young ages, school going and college going students are at the risk of serious mental imbalance. Adolescence is an important time of life which is present between childhood and young hood. The actual maturity of the young individuals may not always correspond to their chronological age. Adolescents have new, fresh and budding thoughts, viewpoints, ideas and beliefs. They want everything to be easy and also want to get every wish satisfied.

Mental health is not just the absence of the mental disorders and the mental illness, but it is also defined as the capability to tackle the life challenges with ease and positive approach. In order to live both physical and mental health has to be strong and perfect. Adolescents generally experiment with behaviors, appearances and attitudes. In order to look the best and have the best among friends and their circle, they can experience mental health problems like anxiety, stress, learning disability, depression, family issues, harassment, and so on. If the mental health is not well maintained it can result in suicide and self-injurious acts.

Review of Related Literature

Lal, Sharma and Kumar (2013) conducted a study on Mental Health and Socio-Economic Status among Youth. They found that there are significant differences between the SES groups in two dimensions of mental health that are GOA and EM. Furthermore, the two socio economic groups did not differ on PSE, PR, IP, and AUT dimensions. The t-values of these 4 dimensions are insignificant.

Singh (2015) studied on "Mental health and Academic achievement of college students" and found that male group have better mental health than female group and high achiever group was mentally healthy than low achiever group. The study further revealed that mental health is positively and significantly co-related with academic achievement.

Bhat, Joshi and Wani (2016) examined "The effect of socio-economic status on academicperformance of secondary school students.". The result of the study revealed that there is a significant difference in the academic achievement of high socio-economic status of students in comparison to low socioeconomic status of students. Further examined those significant differences were found between the students with (high and low) and (high and middle) socio-economic status. On the other hand, insignificant difference was found between the students with middle and low socio-economic status in respect to academic achievement.

Islam and Khan (2017) conducted a study on"Impact of socio-economic status on Academic achievement among the senior secondary school teachers" and found that there is a positive correlation exist between socio-economic status and academic achievement of senior secondary school teachers, it is also highlight that significant difference is present among different SES group in their academic achievement. It further revealed that there is no significant difference between male and female students in their academic achievement.

Hyun (2018) examined the Impact of Low Socioeconomic Status on the Mental Health and Self-Efficacy of College Students and the researcher reported that lower rates of mental disorders in minority races, minority individuals who suffer from mental illness are more likely to have severe, chronic, and disabling experiences, and are less likely to have their illnesses treated.

Zada *et al.* (2021) investigated "Effect of Mental health problems on academic performance among university students in Pakistan" and found that some students in the universities are capable of dealing with the increase in stress or difficulties and can maintain their academic performance. But certain students cannot handle the increase in stress, which can directly affect their academic performance and runoff from the educational institution without receiving degree. This study recognized that mental health problems negatively affect the university students' academic performance. They further found that mental health problems influence students' professional and personal life negatively. From the results of gender effect on academic performance, it is evident that the female students are better than their male counterparts. At the same time, male students are prone to mental health problems than female students.

Rationale of the study

One of the major factors affecting the mental health is the socio-economic status. Low socio-economic status mostly limits the wishes and wills of a youth. This can result in inferiority complex, life confusion, embarrassment, smaller friend circle, low confidence level and ultimately imbalance in the mental health. Thus, a good mental health is very important for a good life. World Healt hOrganization defines mental health as- "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". It is a crucial life changing stage where the chances are high that the adolescents may get diagnosed with a mental illness.

Socio Economic Status (SES) plays a major role in the life of an adolescent. They tryto make one's impact over others through high economic status, more money and high standard of living. If anything, out of these 3 things is lacking, most of them feel low in the surrounding crowd. High/low socio-economic status can neither make or break an individual, especially a young individual. There have so many researches in this field which indicate that SES is the most imperative factor influencing the quality of life.

Research questions

- Is there exist any significant difference in mental health of students in relation to gender variation?
- Is there exist any significant difference in mental health of students in relation to locale variation?
- Is there exist any significant difference in mental health of students in relation to socio-economic status variation?
- Is there exist any significant difference in mental health of students in relation to type of family variation?

In an attempt to give answer to these questions, the researcher has undertaken the study and stated the problem as follows:

Statement of the problem

Keeping in view of the above, the problem is stated as: "Mental Health of Senior Secondary School Students in relation to some personal variables".

Objectives of study

The study was conducted with the following objectives:

- To find out significant difference if any in the mental health of students in relation to personal variables like-gender, locale, socio-economic status and type of family variations.

Hypothesis

The following hypotheses were formulated keeping in view the above objectives:

HO_1: There does not exist significant difference in mental health of students in relation to gender variation.

HO_2: There does not exist significant difference in mental health of students in relation to locale variation.

HO_3: There does not exist significant difference in mental health of higher secondary school students in relation to socio-economic status variation.

HO_4: There does not exist significant difference in mental health of higher secondary school students in relation to type of family variation.

Scope and Delimitation

Scope of the study covers assessment of mental health of students in relation to gender, locale, socio-economic status and type of family variations. The study was delimited to higher secondary school students controlled by WBCHSE in Murshidabad district only. The study was delimited to 50 boys and 50 girls studying in class XI selected by random sampling.

Operational definitions of the study

Mental Health: Mental Health refers to the perceptions, feelings and behavior that determine 77 person's overall level of personal level of personal effectiveness, success, happiness and personal thinks, feels and acts when faced with life's situation (Shalala 1996). Here the mental health status of adolescents is decided as per the standardized tool developed by Talesara and Bano (2011) which consists of 54 items with three dimensions (School related, home related and Peers related).

Personal variables: It includes gender, locale, socio-economic status and type of family variations.

Gender: It refers to boys' and girls' students.

Locale: It refers to students from rural and urban areas.

Socio Economic Status: Parents of different occupational status have different styles of child rearing, different ways of disciplining their children and different ways of reacting to their children. Hence socio-economic status here refers to the levels of education, parental occupation, and annual household income of parents.

Type of family: It refers to students from nuclear family and joint family.

Senior Secondary school students are here the students reading in class XI of Senior secondary schools of Murshidabad District.

Methodology

Design: The design of the study was a descriptive study design. But the method is correlational study of ex-post facto in nature.

Population: The class XI students of higher secondary schools of Murshidabad, West Bengal.

Sampling Technique: Simple random sampling technique was taken for the selection of the students.

Sample: 100 students reading in four senior secondary schools in Murshidabad area of which two were from rural area and two from urban area selected from simple random sampling method.

Tools used

Mental Health Scale of Talesara and Bano (2011): For measuring Mental Health, the scale developed and standardized by Talesara and Bano (2011) which consists of 54 items with three dimensions (School related, home related and Peers related) were used. The reliability of the scale was 0.72. Concurrent validity was 0.69. Z-score Norms for each dimension i.e., school related causes, home related causes and peer group related causes was calculated and ranged from -2.01 to +2.01.

Socio-Economic Status Scale (Basunia 2022): This scale was developed and standardized by the investigator in the three dimensions through check list (i)Education of parents (ii) occupation of parents and (iii) Annual Household income of parents. The reliability of the scale was 0.75 and validity was 0.65.

Analysis and Interpretation of Data

Distribution of Mental Health scores of students

The descriptive statistics procedures were then followed for analyzing the scores. The variable was expressed in interval scale wise, the distance between two points of the scale was equal at all parts along the scale and the normality of distribution was checked with the help of description statistics along with normal probability curve. Homogeneity of variance implied that the sample had nearly equal variance, 't' test was calculated to find out significant difference between means of two contrasts in the present study for verification of hypotheses.

From the frequency table measures like mean, median, mode are standard deviation were calculated for interpretation. The results are presented in the table below:

Table 1: Calculation of mean, median, mode and standard deviation for the total sample on Mental Health

Mean	Median	Mode	SD
154.30	159.30	169.30	16.67

From the above given table, it was inferred that the sample mean, median, mode are found to be 154.30, 159.30, 169.30 respectively. If the sum and difference between median and semi-interquartile range becomes the same with the third and first quartile respectively, them it gives evidences towards normality in the distribution scores of Mental Health. It was inferred that the distribution is normal distribution.Here the normal distributions of scores were studied by plotting the scores but the result indicated that mean, median, mode of the distribution do not coincide. With regard to its Skewness and kurtosis further verification were made. The Skewness of the curve was found to be 0.17 against 0 and kurtosis was 0.236 against 0.263. Thus, the investigator concluded that the scores obtained by students on their mental health deviates slightly from normality. This indicates that the distribution of scores from normality standpoint was positively skewed but the magnitude of difference was very small. Considering the result investigation was mentioned to conclude that the result obtained due to the investigation was almost normal. On the whole the distribution was positively skewed and tending to leptokurtic.

Descriptive measures on Mental Health Scores

The calculated mean and standard deviation of total sample and sub-samples according to the variables were grouped together and presented in the table below:

Table 2: Sub-sample Analysis

Sample/Sub-Sample	N	Mean	SD	SED	Calculated 't'	Remark
Gender/ Boys VS Girls	50 50	157.90 151.30	16.20 16.78	3.29	2.00	Significant
Locale/ Rural VS Urban	50 50	158.50 150.10	16.61 15.65	3.23	2.60	Significant
SES High SES VS Low SES	50 50	159.10 151.30	15.97 15.93	3.18	2.45	Significant
Type of Family/ Nuclear Family VS Joint Family	50 50	150.70 158.90	16.36 16.02	3.24	2.53	Significant

Tabulated value of't' at 0.05 = 1.96, 0.01 = 2.58

Findings of the Study

Based on the results of the study made, the following findings have been interpreted. Each point has been referred to the hypothesis that was formulated which has been expressed in null form for easy interpretation of results.

- There was significant difference in mental health of boys and girls' students.
- There was significant difference in mental health of students in relation to locale variation.
- There was significant difference in mental health of students in relation to socio-economic status variation.
- There was significant difference in mental health of students in relation to Type of family variation.

Recommendations

Since the experience of stress happens to be natural to all situations asking for some standard in performance, it will continue to affect adolescents, young adults and teachers in schools and colleges. The system thus has to make some provision, in addition to taking steps to include a module in early training to initiate every person into stress management options, which may be individually geared to help them discover what matches their temperament and preferences, involve minimum costs both physical and psychological and are socially acceptable.The findings suggest us that there is a need for periodical stress management programs for reducing the levels of stress among the students which in turn will improve their functional skills and lead to effective learning.

- **Making the institution environment more attractive**

It has become important for all of us to try and help prepare our mental health better by modifying the environment to a greater extent so that the external danger is eliminated. The institution environment should be a place of joy and happiness for the learners for effective learning. Institution environment should be developed as a center of meaningful engagement and creativity.

- ***Consulting Doctor***

Consultation with doctor remains an integral part in order to diagnose the mental health of students. Consequently, by counseling and through treatment, individual's ill mental health can be improved.

- ***Self-Help***

Learning how to maintain a good mental health will help a student to stay calm and focused. Talking with trusted friends can also be very helpful. By utilizing the leisure time in fruitful events such as games, sports, gardening, music, attending social functions, field trips etc, can break the monotony of routine life and leads to sound mental health.

- ***Literary Therapy***

By gathering variety of information from the books, articles and other research materials one can acquire in-depth ideas and knowledge about his or her problems, as a result this knowledge provides essential tools for controlling and resolving one's issues and problems. Many books can be checked out from a local library and many of the information can be viewed through internet.

- ***Counseling***

Counseling (professional) and co-counseling (between peers) may be used. Psycho education programs may provide people with the information to understand and manage their problems. Creative therapies are sometimes used, including music therapy, art therapy or drama therapy. Lifestyle adjustments and supportive measures are often used, including peer support, self-help groups for mental health and supported housing or supported employment (including social firms). Some advocate dietary supplements.

- ***Diet and Mental Health***

Scientists, psychiatrists, and other health care professionals know that the brain is made up large part of essential fatty acids, water and other nutrients. It is an accepted fact that food affects how people feel, think and behave. Most experts accept that dietary interventions could have an impact on a number of the mental health challenges society faces today. So, why is it that governments and public health authorities in developed economies invest so little in developing this knowledge? The evidence is growing and becoming more compelling that diet can play a significant role in the care and treatment of people with mental health problems, including depression, ADHD (attention deficit hyperactivity disorder) to name but a few. If experts are talking about an integrated approach which recognizes the interplay of biological, psychological, social and environmental factors-with diet in the middle of it as being key- and challenging the growing burden of mental health problems in developed nations, surely individuals can speed things up and do something about their diet themselves and improve their mental health.

- ***Reducing Worry and Emotionality***

Very often it is observed that the students worry about their academic performance and progress leading to stress and depression. It may be due to workload left for last minute to be completed. Students should avoid it and update the work timely so that sound mental health will not get disturbed.

References

Bhat M, Joshi J, Wani I (2016). "Effect of Socio-Economic Status on Academic Performance of Secondary School Students". *International Journal of Indian Psychology,* Volume 3, Issue 4, No. 56, ISSN 2348-5396(e) | ISSN: 2349-3429 (p), DIP: 18.01.004/20160304, ISBN: 978-1-365-2399.

Burns, R.B. (1979). The Self Concept, Theory, Measurement, Development and Behaviour. London: Longman.

Hyun, Haerreem (2018). "The Impact of Low Socio-economic Status on the Mental Health and Self-Efficacy of College Students," Proceedings of GREAT Day: Vol. 2017, Article 5.

Islam, Rafikul and Khan ZebunNisa (2017). "Impact of Socio-economic status on academic achievement among the senior secondary school students". Educational Ques: *An Int. Journal of Education and Applied Social Science,* Vol.8 No.2, pp.665-670, August 2017 DOI: 10.5958/2230-7311.2017.0017.9

Johoda, M (1958) Current concept of positive Mental Health Basic Books.

Lal Roshan, Sharma Shivani & Kumar Rajesh (2013). A Study of Mental Health and Socio-Economic Status among Youth. 10.13140/RG.2.2.18721.97128.

Ramaa, S. D.A Ashok, and H.M Balchandra (1997). Study of Physical Health, Learning and Behaviour problems among Primary school children in Mandya District, Unpublished study, Regional Institute of Education, Mysore

Rogers, D (1957). Mental Hygiene in elementary education. New work: Houghton Mifflin.

Torrance, E.P (1968). Examples and Rationales of test task for assessing creative abilities, *The Journal of Creative Behaviour,* Vol.2, No.3

Singh, Shashikala (2015). Mental Health and Academic achievement of college students. *The International Journal of Indian Psychology.* Volume-2, Issue 4, DIP B00348V2I42015

Zada Shagufta,Wang Yuefen, Zada Muhammad and Gul Fatima (2021). Effect of mental health problems on academic performance among university students in Pakistan. *International Journal of mental health promotion.* IJMHP, 2021 vol. 23, no. 3 DOI: 10.32604/IJMHP.2021.015903

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Customer Engagement in Online Shopping through Social Media: The Demographic Effect

***Ramya John, **Dr. P. Santhi**

Abstract

Engagement of consumers is one of the major issues in the fiercely competitive corporate sector. Academics and business professionals are concerned about increasing the customer engagement through various medias. Consumer behaviour and brand ties have been significantly impacted by the rise of social networks. Due to its unique characteristics and structure, social media provides a superior advantage for creating consumer brand bonds and quick customer interaction. Even though academics and industry professionals emphasise customer engagement, it is still crucial to understand how engagement impacts consumer behaviour. The current study makes an effort to examine, specifically with reference to demographic parameters, the impact of customer engagement in social media on customer online purchasing behaviour. Due to social media conventional marketing and communication have changed. People of all ages, genders, social positions, and occupations have become increasingly interested in the internet and social media. As antecedents of user involvement in social media, perceived interaction, perceived information quality, perceived personalization, and perceived enjoyment are investigated. The demographic profile of the respondents affects these variables differently. In the region of Palakkad, a sample of 70 respondents received the study's questionnaire. According to the results, the antecedents of social media customer involvement differ depending on the respondents' age, gender, and level of education, and this has a significant impact on their intentions to make online purchases.

Introduction

The rise of social media has empowered consumers and changed the dynamics of traditional marketing due to platforms that can reach enormous audiences and the opportunity to actively engage with them through online two-way conversation (Alfreðsdóttir & Steinþórsson). Pansari & Kumar (2017) "Social media offers brands an opportunity to be more visible and to interact with their consumers. Numerous chances exist on social media to connect with clients". Organizations must employ social media in their marketing plan to boost customer interaction in order to build and keep a competitive edge that can be sustained, take advantage of opportunities, and manage risk. Online participation of customers includes subscribing, buying, sharing, commenting, reading blogs etc. Ryan, (2014) "Visiting a company's website is the simplest kind of online consumer contact. As a result, businesses must concentrate on increasing traffic to their web sites and, more crucially, on keeping visitors on the site longer". Ellison *et al.,* (2007) "Because it enables a new way of connecting with customers through quicker and more spontaneous exchanges between brands and consumers as well as among consumers themselves, consumer engagement through social media attracts a lot of interest from academics and industry professionals". Trusov *et al.,* (2009) "Social media can be utilised to establish, maintain, and grow new and existing relationships". Zailskaite-Jakste and Kuvykaite, (2012) "Social media interaction allows brands to stay in touch with customers and include them in creating content and growing brand equity. These encounters improve brand awareness, strengthen favourable brand connections, and foster brand loyalty among consumers."

Review of Literature

Men are more likely to buy online than women, and those who want to shop online are more likely to be young people, according to customer demographics (Kunz, 1997). Age, residence location, gender, marital status, education level, and household income are all significant indicators of online purchases (Sultan & Henrichs, 2000). Through two-way communication made possible by social

* Research Scholar, Department of Commerce, Avinashilingam Institute for Home Science and Higher Education For Women, Coimbatore

** Professor & HOD, Research Guide, Department of Commerce, Avinashilingam Institute for Home Science and Higher Education For Women, Coimbatore

media, businesses may better understand their customers' needs and wants and how to best cater to them (Parveen, Jaafar, & Ainin, 2016). The quickly evolving digital landscape and the major impact of social media have had a huge impact on marketing, customer behaviour, and e-business practises (Shin, Pang, & Kim, 2015). Information can be exchanged quickly, cheaply, and effectively thanks to social media, and there may be more direct and indirect access to client information through these platforms as well. (Schniederjans, Cao and Schniederjans, 2013). Although businesses build platforms for consumer involvement, people ultimately decide whether to use them (Hussain, 2017). Customer engagement extends beyond interactions with the business; it is heightened when consumers talk among themselves about a particular brand (McEachern, 2017). Businesses give customers a way to get in touch with them directly through social media so they can quickly and effectively answer any queries customers have and establish a more personal connection with them (Rafiq, 2017). Strategies for engaging customers should place more of an emphasis on building a good reputation, providing reliable information, interesting content, effective communication, branding, and word-of-mouth referrals (Liew Song and Chee Yoong Lian Bee, 2019). Social media engagement for luxury brands is significantly influenced by both brand self-expression and consumer participation, which forecasts outcomes like brand image and loyalty (Marta Oliveira & Teresa Fernandez, 2020). Each aspect of social commerce marketing stimulus significantly affects brand engagement online on, which in turn has a favourable impact on brand trust and online buy intention (Merili Palmet Sandra Ziadkhani Ghasemi, 2019). The study broughtout perceived usefulness, perceived danger, and perceived self-efficacy as the key factors influencing continuing use of online products (Singer Sekhar, 2019). The study proved the relationship between consumer loyalty and (re)purchase intent and consumer impressions of features on a company's social media page (Reitz Amy Renee, 2012)

Statement of The Problem

Due to social media, conventional marketing and communication have changed. People of all ages, genders, socioeconomic classes, and occupations are interested in the internet and social media. In recent years relationships between businesses and their customers have changed as a result of social media technologies that allow people to freely express their thoughts with a wide audience and provide direct feedback to those that create, manufacture, and distribute goods and services. Kaplan & Haenlein (2010) "Marketing professionals face both an opportunity and a threat as a result of new consumer generations that have grown up using social media in conjunction with new technologies". (Young & Aitken, (2007); Zaltman, (2003) "Consequently, developing a close relationship with consumers is becoming increasingly important for businesses in terms of profitability and growth as well as client retention and happiness." Social media offers countless ways to connect and interact with clients. As a result, in the new environment, it is crucial for online retailers to comprehend what motivates and engages customers in social media.

Objectives of The Study

The objectives are:

- To recognise the effect of demographic factors on the online purchase behaviour of customers.
- To comprehend the influence of social media in the online purchase behaviour of customers.
- To explore the effect of demographic factors on the customer engagement in online shopping through social media platform.

Research Methodology

The locale of the study is Palakkad in the state of Kerala. The study focused on the online shopper's who 'likes' the social media company pages. The purposive sampling metho dwas used to select sample of 70 respondents. Primary data was collected using well structured questionnaire. The secondary data was obtained from the previous studies, journal articles, reports, and official websites. Mean, Standard deviation, Independent t-test, Chi-square test and ANOVA are used in the study to analyze the data. The result of analysis is presented in the various sections. Cronbach's Alpha Reliability Coefficient was used in this study to assess the validity of the measurement scales. The following are the measured variables and the corresponding alpha values:

Table 1: Reliability Statistics

Variables	No. of Items	Alpha value
Perceived Interactivity	4	.799
Perceived Information Quality	3	.897
Personalised Advertisement	4	.836
Perceived Enjoyment	4	.876

All of the Cronbach alpha values are higher than the recommended value of 0.7, as shown in table 1 (Hair, Black, Babin, & Anderson, 2015). Thus, it is demonstrated that measuring scales are dependable and have an internal consistency.

Data Analysis and Discussion

I. Demographic Profile and Online purchase behaviour of respondents

Age, gender, educational qualification, and income of the respondents provide a base for studying the online purchase behaviour of customers.

H0: There is no significant association between demographic variables and online purchase behaviour

Table 2: Demographic profile and online purchase behaviour

Variables	Category	Percentage	Chi-Square Value	Asymp.Sig (2 sided)
Age (in years)	Under 25	36	44.706	.000
	25-40	54		Significant
	41-60	10		
	Above 60	0		
Gender	Male	54	27.278	.000
	Female	46		Significant
Educational Qualification	Professional degree	7	29.750	.000
	PG	56		Significant
	UG	37		
Income (Per month)	Below 10000	34	42.806	.000
	10001-30000	56		Significant
	30001-50000	10		
	Above 50000	0		

Source: Result obtained using SPSS *Significant 5% level

Table 2 reveals that 54% of the respondents are post-graduates and between the age class 25-40 years. Majority of the respondents engaged in online shopping were male (54%), indicating that their awareness and frequency of online purchase are comparatively higher than female respondents. The respondents who were spending more money on online shopping were having monthly income between Rs.10,001-30,000. From the analysis, null hypothesis is rejected establishing the existence of statistically significant association between the demographic variables and online purchase behaviour of the respondents.

II. Influence of Social media on Online purchase behaviour

Motive behind liking retailer pages in social media

Respondents' motive behind liking retailer pages in social networking sites is influenced by many factors. The responses were ranked based on the mean values computed.

Table 3: Ranking of motives behind liking retailer pages in social media

Motives	Mean	Rank
To get updated information about products	2.04	2
To get product reviews online	1.98	1
To make better decision about products and services	2.89	3
To be able to voice opinions, experiences, or complaints regarding goods and services	3.59	4
To offer advice to businesses so they can produce better products	4.51	5

Computed from Primary data

The ranks based on mean values regarding motives for liking retailer pages in social networking sites shows that to get product reviews online ranks highest (1.98) followed by to get updated information about the products (2.04) and making better decisions about the products (2.89).

Influence of Social media in Online shopping

Social media is having a great influence in the online purchase decisions of customers as most of the people are engaged in various social networking sites. Responses were evaluated on the basis of mean scores computed.

Table 4: Influence of Social media in Online shopping

Particulars	SA	A	N	DA	SD	Mean score
I trust reviews and comments about product choices on social media	41	20	4	3	2	4.36
Positive reviews and comments about products on social media can influence my purchase decision	44	21	2	2	1	4.51
Negative reviews and comments about products on social media can influence my purchase decision	39	15	4	8	4	4.1
Social media plays a major role in my purchase decision	51	10	4	5	0	4.52

Computed from Primary data

Analysis of the data revealed that all respondents had a favourable opinion of the questionnaire's statements, as all of them scored higher than the scale's median of 2.5. The majority of respondents strongly concur with the statement that social media influences buying behaviour. The respondents concurred that the favourable product reviews and comments posted on social media affect their decision to buy.

III. Customer engagement in Online shopping and Demographic Factors

Influence of Demographic factors on the customer engagement in online shopping through social media is evaluated with Perceived Interactivity (PA), Perceived Information Quality (IQ), Personalised Advertisement (PA) and Perceived Enjoyment (PE).

Age And Engagement in Social Media

The respondents' age is a key factor in determining how engaged they are with social media.Most of the people are users of social media and are getting engaged in it.They use to interact with the retailer pages in social media, search for information,look for reviews,and use this as a medium of entertainment. The following hypotheses are tested using ANOVA in order to obtain a precise evaluation of the engagement.

H0 : There is no significant difference between age and customer engagement through social media.

Table 5: Age and Customer engagement in Social Media

Variables	Age Group			F Value	P Value
	Up to 25	26 to 40	41-60		
Perceived Interactivity	1.640(.609)	2.057(.758)	4.166(.000)	39.057	.000 Significant
Perceived Information Quality	2.026(.213)	1.728(.619)	4.000(.000)	66.984	.000 Significant
Personalised Advertisement	2.000(.228)	1.881(.677)	2.000(.000)	.448	.641 Insignificant
Perceived Enjoyment	1.940(.369)	1.776(.672)	4.250(.000)	61.875	.000 Significant

Source: Result obtained using SPSS *Significant 5% level

The age-wise variance of the mean scores for the engagement are all statistically significant at the 5% level of significance. Therefore, we disregard the null hypothesis. Age and social media involvement significantly different from one another, with the exception Personalised Advertisement. Younger respondents (those under 25) regard social media as being more interactive, whereas respondents (those between 25 and 40) are more concerned with perceived information quality and enjoyment.

Gender and Customer Engagement in Social media

The gender of the responders has a significant impact on how consumers engage with brands on social media. The level of social media activity varies by respondents' gender. The following hypotheses are tested using an independent sample t test to provide a clear evaluation of the engagement.

H0: There is no significant difference between Gender and customer engagement through social media

Table 6: Gender and Customer Engagement in Social media

Variables	Gender				t Value	P Value
	Male		Female			
	Mean	SD	Mean	SD		
Perceived Interactivity	1.793	1.141	2.505	.512	-3.248	.002 Significant
Perceived Information Quality	2.000	1.065	2.135	.337	-.690	.493 Insignificant
Personalised Advertisement	1.723	.366	2.187	.561	-4.153	.000 Significant
Perceived Enjoyment	2.046	1.154	2.125	.491	-.360	.720 Insignificant

Source: Result obtained using SPSS *Significant 5% level

The table clearly shows that the mean scores differences for variables Perceived interactivity and Personalised advertisement are significant (p=.002 and p=.000) indicating that the social media engagement through interactivity and Personalised advertisement differ according to gender. The mean scores differences for variables Perceived information quality and Perceived enjoyment are not statistically significant (p=.493 and .720) indicating that the social media engagement through Perceived Information Quality and Perceived Enjoyment do not vary according to gender.

Educational Qualification and Customer Engagement in Social media

Educational qualification is an important factor that determines the engagement of customers in social media. The following hypotheses are tested using ANOVA in order to obtain a precise evaluation of the engagement

Ho: There is no significant difference between educational qualification and customer engagement through social media.

Table 7: Educational Qualification and Customer Engagement in Social media

Variables	Educational Qualification			F Value	P Value
	Professional Degree	Post Graduation	Under Graduation		
Perceived Interactivity	2.533(.182)	2.072(.790)	2.109(1.274)	8.380	.000 Significant
Perceived Information Quality	1.866(.182)	1.786(.646)	2.512(.924)	7.558	.001Significant
Personalised Advertisement	1.550(.273)	1.955(.673)	1.980(.067)	8.560	.000Significant
Perceived Enjoyment	2.400(.136)	1.743(.660)	2.528(1.098)	7.275	.001Significant

Source: Result obtained using SPSS *Significant 5% level

Table 7 clearly shows that the mean scores for Interactivity,Information quality,Personalised advertisement and enjoyment are statistically significant when grouped by educational qualification. Therefore, we disregard the null hypothesis.Social media engagement varies according on respondents' educational backgrounds.

Implications of The Study

The study revealed that the demographic variables inserts a great influence on the online purchase behaviour of respondents. The majority of respondents follow retailers on social media to read the most recent product reviews, and they frequently use social media, which affects their decision to buy products online. The social media engagement of the respondents differ according to the demographic factors such as age, gender and educational qualification. Age and social media involvement differ significantly with regard to perceived interactivity, information quality and perceived enjoyment. Perceived interactivity and personalised advertisement in social media differ according to the gender. Online retailers should concentrate on the gender differences in engaging them more in social media by providing more quality information and contents for enjoyment. The social media engagement depends on the educational background of the respondents. Online retailers should try to provide more attractive, interactive and quality information through their social media pages that stimulates the customer engagement which results in increased online purchase. Businesses must frequently update their postings in order to keep their current followers as well as draw in new ones. Customers respond by liking, commenting, and sharing as a result. Due to the fact that this type of involvement offers valuable and cost-free feedback, businesses need to pay attention to this.

Conclusion

Due to social media's interactive features, businesses have used it extensively to engage customers in various ways. Consumer involvement has emerged as a crucial concept that practitioners and academics in numerous industries are addressing. In order to foster and promote ties between customers and service providers that go beyond the purchase of items, as well as their participation when consuming media products, engagement is essential. Customer participation in social media significantly influences customers' inclinations to make online purchases. Customer online buying inclinations are greatly influenced by demographic characteristics. If online stores could focus more on increased interactivity, information quality, individualised advertising, and abundant entertainment they can attract more younger customers. Online businesses should use social media to improve connections with customers, keep them informed of events, run sales promotions, and involve customers of all ages, genders, and educational backgrounds through surveys. In light of the rapidly evolving social media landscape of today and the new tech-savvy consumer generations having access to social media while they grow, businesses must create effective social media strategies. To establish a durable competitive edge, marketers must create powerful social media toolkits that enable proactive client engagement through relevant content and engaging dialogues about goods and services. The study's findings can assist marketers in managing their social media platforms and achieving their engagement objectives.

References

Alfreðsdóttir, V. V., & Steinþórsson, V. Þ. G. *Social media use and impact on customer engagement: Insights from Prosthetic Users* (Doctoral dissertation).

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of computer-mediated communication,* 12(4), 1143-1168.

Hussein, R., & Hassan, S. (2017). Customer engagement on social media: how to enhance continuation of use. *Online Information Review,* 41(7), 1006-1028.

Jayasingh, S. (2019). Consumer brand engagement in social networking sites and its effect on brand loyalty. *Cogent Business & Management,* 6(1), 1698793.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons,* 53(1), 59-68.

Kunz, M.B. (1997). Online customers: Identifying store, product and consumer attributes which influence shopping on the Internet. The University of Tennessee.

Oliveira, M., & Fernandes, T. (2020). Luxury brands and social media: drivers and outcomes of consumer engagement on Instagram. *Journal of Strategic Marketing,* 1-19.

Pansari, A., & Kumar, V. (2017). Customer engagement: the construct, antecedents, and consequences. *Journal of the Academy of Marketing Science,* 45(3), 294-311.

Parveen, F., Jaafar, N. I., & Ainin, S. (2016). Social media's impact on organizational performance and entrepreneurial orientation in organizations. Management Decision.

Reitz, A. R. (2012). Online consumer engagement:

Understanding the antecedents and outcomes (Doctoral dissertation, Colorado State University).

Ryan, T., Chester, A., Reece, J., & Xenos, S. (2014). The uses and abuses of Facebook: A review of Facebook addiction. *Journal of behavioral addictions,* 3(3), 133-148.

Schniederjans, D., Cao, E. S., & Schniederjans, M. (2013). Enhancing financial performance with social media: An impression management perspective. Decision Support Systems, 55(4), 911-918.

Shiau, W. L., Sarstedt, M., & Hair, J. F. (2019). Internet research using partial least squares structural equation modeling (PLS-SEM). Internet Research.

Shin, W., Pang, A., & Kim, H. J. (2015). Building relationships through integrated online media: Global organizations' use of brand web sites, Facebook, and Twitter. *Journal of Business and Technical Communication,* 29(2), 184-220.

Sultan, F., & Henrichs, R. B. (2000). Consumer preferences for Internet services over time: initial explorations. *Journal of consumer marketing,* 17(5), 386-402.

Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of word-of-mouth versus traditional marketing: findings from an internet social networking site. *Journal of marketing,* 73(5), 90-102.

Yoong, L. C., & Lian, S. B. (2019). Customer engagement in social media and purchase intentions in the hotel industry. *International Journal of academic research in business and social sciences,* 9(1), 54-68.

Zailskaite-Jakste, L., & Kuvykaite, R. (2012). Implementation of communication in social media by promoting studies at higher education institutions. *Engineering Economics,* 23(2), 174-188.

Zaltman, G. (2003). How customers think: Essential insights into the mind of the market. Harvard Business Press.

Ziadkhani Ghasemi, S., & Palmet, M. (2019). Driving Online Brand Engagement, Trust, and Purchase Intention on Instagram: The Effect of Social Commerce Marketing Stimuli.

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Universal Design for Learning Based Intervention Strategies to Improve Reading Comprehension Skills of Students with Mild Intellectual Disabilities

*Yashvinder Kapil, **Prof. J. Sujathamalini

Abstract

Students with mild intellectual disabilities typically face challenges in reading comprehension. The present study aims to improve reading comprehension ability of the students with mild intellectual disability. Reading Comprehension Assessment Scale developed by the researcher was administered to thirty students with mild intellectual disabilities in Grades K-2 of 8 to 11 years of age group. The result evinced that the students with mild intellectual disabilities had improved their reading comprehension when taught through Universal design for Learning based Intervention Strategies. The result implies the need for implementing Universal Design for Learning based Intervention Strategies to improve reading comprehension among students with mild intellectual disability. The study brought out the need for training teachers to know how to implement Universal Design for Learning based Intervention Strategies in their teaching learning process. The National Educational Bodies should organize training programmes and manuals for teachers to design Universal design for Learning based instructional strategies to handle diverse learners.

Introduction

For one to fully participate in modern culture, one must be able to read and understand text. The human right to participate fully as citizens in a society that is accepting and open should also apply to people with intellectual disabilities (Moni & Jobling, 2000). Reading comprehension is a vital skill that empowers individuals to understand, interpret, and extract meaning from written texts. While the development of reading comprehension skills is important for all students, it becomes even more crucial for those with mild intellectual disabilities. However, many individuals with intellectual disabilities face barriers in accessing written information due to their cognitive limitations. They face challenges in reading the text and comprehend what it is written. Students with mild intellectual disabilities often face challenges in processing information, retaining knowledge, and understanding complex texts. However, with appropriate strategies, accessible materials and support, these students can significantly enhance their reading comprehension abilities. This highlights the need for accessible materials that cater to diverse learning needs.

Reading Comprehension Skills

Pre-reading

Pre-reading refers to the activities and strategies undertaken before engaging in the actual reading of a text. It involves preparing students to effectively comprehend and engage with the content of the reading material. Pre-reading activities are designed to activate prior knowledge, build interest, set purpose, and provide necessary background information.

Letter Identification

Letter identification refers to the ability to recognize and distinguish individual letters of the alphabet. It is a foundational skill in literacy development and plays a crucial role in reading and writing. Letter identification involves visually recognizing and naming letters accurately and quickly

Word Recognition

Word recognition is the ability to identify and understand words quickly and accurately. It is a crucial component of reading proficiency and involves the rapid processing of visual information to access the meaning

* Ph.D. (Special Education) Scholar, Department of Special Education and Rehabilitation Science, Alagappa University, Tamil Nadu, India

** Dean, Faculty of Education, Professor & Head, Department of Special Education and Rehabilitation Science, Alagappa University, Tamil Nadu, India

of printed words. Word recognition encompasses both decoding (pronouncing words) and sight word recognition (instantly recognizing familiar words).

Phonetic Awareness

Phonetic awareness refers to the ability to recognize and manipulate the individual sounds, or phonemes, in spoken words.Phonetic awareness encompasses a broader understanding of the relationship between letters and sounds. It is a critical skill in developing strong reading and spelling abilities.

Vocabulary Building

Reading comprehension and vocabulary building are closely intertwined skills that support each other in the development of strong reading abilities.

Phonemic Awareness

Phonemic awareness specially focuses on the ability to identify, isolate, manipulate, and work with phonemes, which are the smallest units of sound in a language that can distinguish one word from another, Phonemic awareness identifies the initial, medial, or final sounds. Phonemic awareness goes beyond simply recognizing letters and focuses on the oral segmenting, blending, and manipulation of sounds.

Need for The Study

Studies were carried out in the area of reading comprehension skills of students with Intellectual Disabilities. Van Dijk *et al.* (2018) has conducted a study on "Improving Reading Comprehension of Students with Intellectual Disabilities: A Meta-Analysis". This meta-analysis explores various interventions aimed at improving reading comprehension skills in students with intellectual disabilities. The study analyzes different strategies, such as explicit instruction, graphic organizers, and peer-assisted learning, and provides insights into their effectiveness. Kalyva (2017) has examine the study "Promoting Reading Comprehension in Students with Mild Intellectual Disabilities: A Literature Review". This literature review examines the research on enhancing reading comprehension in students with mild intellectual disabilities. It discusses effective instructional practices, including individualized instruction, vocabulary development, and the use of visual aids, and highlights the importance of scaffolding and differentiation in supporting these students. Hudson & Lane (2013) has conducted a study on Reading Comprehension Interventions for Students with Intellectual Disabilities: A Review of the Literature". This study provides an overview of reading comprehension interventions for students with intellectual disabilities. It reviews various strategies, such as explicit instruction, text structure instruction, and self-regulation strategies, and discusses their effectiveness in improving reading comprehension outcomes for these students. Zhang & Yang (2019) conducted a study on "Enhancing Reading Comprehension Skills in Students with Mild Intellectual Disability: A Meta-Analysis". This meta-analysis examines the effectiveness of different interventions in enhancing reading comprehension skills in students with mild intellectual disability. The study identifies key instructional approaches, such as cooperative learning, graphic organizers, and vocabulary instruction, and provides insights into their impact on reading comprehension outcomes.

Working memory and early literacy skills in children with mild ID are severely delayed (Van der Molen, Van Luit, Jongmans, & Van der Molen, 2007), which impedes the development of word decoding and reading comprehension (Channell, Loveall, & Conners, 2013; Jones *et al.,* 2006). In addition, Levy (2011) discovered that general cognitive capacity affects reading level in addition to language-related variables in adolescents with moderate to borderline ID of various aetiologies.

Although reading development is delayed in children with mild ID, the underlying determinants appear, to some extent, to be similar to those in children who are typically developing. Rapid naming and early literacy abilities are important predictors of word decoding in mild ID (Dessemontet & de Chambrier, 2015; Barker, Sevcik, Morris, & Romski, 2013; Soltani & Roslan, 2013). Phonological short-term memory has been found to be predictive in some research (Conners, Atwell, Rosenquist, & Sligh, 2001), but not in others (Soltani & Roslan, 2013) when phonological awareness was taken into account. However, in contrast to children who are typically developing, children with moderate ID appear to have word decoding levels that are more strongly associated to cognitive abilities like nonverbal reasoning and temporal processing (Van Tilborg, Segers, Van Balkom, & Verhoeven, 2014). There are relatively few studies on the factors that predict reading comprehension in people with ID. When controlling for IQ, age, expressive vocabulary, native language, and school placement, a recent study on 129 children with mild or moderate ID of unknown aetiology found that early literacy skills (phonological awareness and letter knowledge) at age 6-8 were predictive for reading comprehension one and two years later. This analysis does not consider word decoding or listening comprehension. Numerous additional research has produced findings that more directly support the straightforward perspective of reading. Word decoding was the main predictor for reading comprehension in a group of 49 children with mixed-etiology moderate ID who exhibited basic word decoding abilities after adjusting for nonverbal reasoning. However, there was no correlation between vocabulary and listening comprehension (Van Wingerden, Segers, Van Balkom, & Verhoeven, 2014). The development of reading comprehension was primarily influenced by listening comprehension in a longitudinal study of 10 Down syndrome teenagers with more mastered word recognition skills, although the link with word decoding was not significant (Roch *et al.,* 2011).

Similar to this, reading comprehension and vocabulary, which is thought to be a good indicator of language ability, were found to have strong relationships while the correlation between word decoding and reading comprehension was only marginally significant in a cross-sectional study of 13 participants with Down syndrome (Nash & Heath, 2011). In fact, it has been demonstrated that reading texts with ambiguous meanings that involve inference is difficult for people with ID to comprehend (Nash & Heath, 2011; Tavares, Fajardo, vila, & Salmerón, 2015). Vocabulary only seems to link through language understanding (Verhoeven & Vermeer, 2006a) and does not appear to be a direct predictor of reading comprehension in children with mild ID (Dessemontet & de Chambrier, 2015; Van Wingerden *et al.,* 2014).

There is little data, mostly from intervention trials, on additional predictors of reading comprehension in people with mild ID. According to these research, comprehensive reading education that included strategy training had a positive impact on literacy outcomes, including reading comprehension (Allor, Mathes, Roberts, & Cheatham, 2014, for example). In addition to vocabulary and word decoding, reading comprehension was predicted by attention, self-monitoring, and working memory in a recent longitudinal study of 69 adolescents with velo-cardio-facial syndrome and borderline ID (Antshel, Hier, Fremont, Faraone, & Kates, 2014). (Carretti, Belacchi, & Cornoldi, 2010; Numminen, Service, & Ruoppila, 2002) Other investigations on people with mild or moderate ID have shown specific issues with reasoning and working memory that may be connected to difficulties with reading comprehension. For children with mild ID, it is not yet clear to what extent there is a direct relationship between cognitive variables and reading comprehension. These studies offer valuable insights and research-based strategies to enhance reading comprehension skills in students with mild intellectual disabilities.

Objectives of The Study

1. To assess the reading comprehension levels of students with mild intellectual disabilities before implementing Universal Design for Learning based Intervention Strategies.
2. To assess the reading comprehension levels of students with mild intellectual disabilities after implementing Universal Design for Learning based Intervention Strategies.

Hypotheses of The Study

1. There exists significant difference in the levels of reading comprehension skills of students with mild intellectual disability before implementing the Universal Design for Learning based Intervention Strategies
2. There exists significant difference in the levels of reading comprehension skills of students with mild intellectual disability after implementing the Universal Design for Learning based Intervention Strategies

Methodology

Experimental Method was adopted in the study. Thirty students with mild intellectual disability were selected for the study.

Sample and Locate of This Study

The sample of this study was of 30 students at school level aged between 8 and 11 years old with mild intellectual disability. The sample has been taken from govt. Inclusive schools of Chandigarh.

Tools Used in The Study

Reading Comprehension Assessment Scale (RCAS)

Reading Comprehension Assessment Scale(RCAS) is a tool to assess the reading comprehension skill of children with intellectual disability. Reading comprehension is range of competencies that includes the pre reading skills like letter identification, word recognition, phonetic awareness, vocabulary building and phonemic awareness. Children with intellectual disabilities need to develop functional reading skill which are necessary for their independent living. Reading comprehension tool is an attempt to assess the present functioning of reading comprehension. A wide range of tools are available for assessment of reading skills but this tool is exclusively designed to assess the basic reading competencies and base line assessment also. The tool has 6 domains with 100 subitems in all domains. The reliability and validity of the tool was found to be high (0.96 & 0.97) hence the developed tool is reliable and valid. The students with mild intellectual disabilities were assessed with this assessment scale and then the Universal Design for Learning based Intervention Strategies were designed by the researcher. The developed strategies were implemented to enhance the reading comprehension skill among students with mild intellectual disability.

Findings of the Study

The reading comprehension skills of students with mild intellectual disability was assessed using the Reading Comprehension Assessment Scale. The table 1 shows the level of reading comprehension skills of students with mild intellectual disability. The main objective of the study is to find out the level of reading comprehension skills of students with mild intellectual disability before and after implementing the Universal design for Learning based Intervention Strategies for improving reading comprehension skills of students with intellectual disability.

Objective 1. To assess the reading comprehension levels of students with mild intellectual disabilities before implementing Universal Design for Learning based Intervention Strategies.

Table:1 Level and Percentage of reading comprehension levels of students with mild intellectual disabilities before implementing Universal Design for Learning based Intervention Strategies

H		M		L	
No	%	No	%	No	%
7	23	16	54	7	23

Table 1.1 the reading comprehension ability of students with mild intellectual disability before implementing the Universal Design for Learning based Intervention Strategies. More than 54% of students with intellectual disability demonstrate moderate level of reading comprehension skills before implementing the Universal Design for Learning based Intervention Strategies followed by low level 23% and 23% high level of ability in reading comprehension. Thus, the stated hypothesis, there exists significant difference in the levels of reading comprehension skills of students with mild intellectual disability before implementing the Universal Design for Learning based Intervention Strategies' is accepted. To sum up, the reading comprehension ability of students with mild intellectual disability was found to be moderate followed by low and then high before implementing Universal Design for Learning based Intervention Strategies.

Table:2 Level and Percentage of reading comprehension levels of students with mild intellectual disabilities after implementing Universal Design for Learning based Intervention Strategies

H		M		L	
No	%	No	%	No	%
11	37	18	60	1	3

Table 2 presents number of students with mild intellectual disability improvement in their reading comprehension skills after implementing the Universal design of learning-based strategies. More than 60% of students with intellectual disability demonstrated moderate level of reading comprehension skills after implementing the Universal Design for Learning based Intervention Strategies followed by low level 3% and 37% high level of ability in reading comprehension. Whereas, there is no students with mild intellectual disability under low category after implementing the Universal Design for Learning based Intervention Strategies. Thus, the stated hypothesis, there exists significant difference in the levels of reading comprehension skills of students with mild intellectual disability after implementing the Universal Design for Learning based Intervention Strategies' is accepted. To sum up, the reading comprehension ability of students with mild intellectual disability was found to be moderate followed by high after implementing Universal Design for Learning based Intervention Strategies and no student with mild intellectual disability fall under low category.

Conclusion

Enhancing the reading comprehension skills of students with mild intellectual disabilities is crucial for their academic and personal growth. By employing various UDL based interventional strategies like Auditory Learning Style, Visual Sensory Strategy, AV Learning Style, Multisensory approaches Strategy, Play Way Learning, Visual kinesthetic, Fish bowl technique, Picture sound association, Picture Card Activity, Auditory Discrimination Learning, Picturized learning style, Lotto

Game strategy, Sensory Bin word activity, Record Reading, Visual Learning approaches Style, Silent Word chart teaching, Picture and word match game, Visual learning Activity, Word to word match game, Phonomic manipulation strategy, Auditory sensory learning style, Sorting methods, Kinesthetic method, Facial Expression, Storytelling method, Picture and Word recall game, Modelling, Audio motor. Multi-sensory approach & Rhyming poem teachers can provide multiple means of representation, multiple mean of engagement and multiple means of expression. When these three principles of Universal Design for Learning areused, we can improve the reading comprehension ability of students with intellectual disabilities. This study serves as a limelight to both pre service and in service teachers to design their innovative teaching strategies to provide universal design for learning experiences to the students of diverse needs.

References

Allor, J.H., Mathes, P.G., Roberts, J.K., Cheatham, J.P., & Otaiba, S.A. (2014). Is scientifically based reading instruction effective for students with below-average IQs? *Exceptional children,* 80(3), 287-306.

Antshel, K., Hier, B., Fremont, W., Faraone, S.V., & Kates, W. (2014). Predicting reading comprehension academic achievement in late adolescents with velo-cardio-facial (22q11. 2 deletion) syndrome (VCFS): a longitudinal study. *Journal of Intellectual Disability Research,* 58(10), 926-939.

Barker, R.M., Sevcik, R.A., Morris, R.D. & Romski, M. (2013). A model of phonological processing, language, and reading for students with mild intellectual disability. *American Journal on Intellectual and Developmental Disabilities,* 118(5), 365-380.

Carretti, B., Belacchi, C., & Cornoldi, C. (2010). Difficulties in working memory updating in individuals with intellectual disability. *Journal of Intellectual Disability Research,* 54(4), 337-345.

Channell, M. M., Loveall, S. J., & Conners, F. A. (2013). Strengths and weaknesses in reading skills of youth with intellectual disabilities. *Research in developmental disabilities,* 34(2), 776-787.

Channell, M. M., Loveall, S. J., & Conners, F. A. (2013). Strengths and weaknesses in reading skills of youth with intellectual disabilities. *Research in developmental disabilities,* 34(2), 776-787.

Dessemontet, R. S., & de Chambrier, A. F. (2015). The role of phonological awareness and letter-sound knowledge in the reading development of children with intellectual disabilities. *Research in developmental disabilities,* 41, 1-12.

Dessemontet, R. S., & de Chambrier, A. F. (2015). The role of phonological awareness and letter-sound knowledge in the reading development of children with intellectual disabilities. *Research in Developmental Disabilities,* 41, 1-12.

El Zein, F., Solis, M., Vaughn, S., & McCulley, L. (2014). Reading comprehension interventions for students with autism spectrum disorders: A synthesis of research. *Journal of Autism and Developmental Disorders,* 44, 1303-1322.

Kang, Y.S., & Chang, Y.J. (2019). Using a motion-controlled game to teach four elementary school children with intellectual disabilities to improve hand hygiene. *Journal of Applied Research in Intellectual Disabilities,* 32(4), 942-951.

Levy, Y. (2011). IQ predicts word decoding skills in populations with intellectual disabilities. *Research in Developmental Disabilities,* 32(6), 2267-2277.

Nash, H., & Heath, J. (2011). The role of vocabulary, working memory and inference making ability in reading comprehension in Down syndrome. *Research in developmental disabilities,* 32(5), 1782-1791.

Numminen, H., Service, E., & Ruoppila, I. (2002). Working memory, intelligence and knowledge base in adult persons with intellectual disability. *Research in developmental disabilities,* 23(2), 105-118.

Numminen, H., Service, E., & Ruoppila, I. (2002). Working memory, intelligence and knowledge base in adult persons with intellectual disability. *Research in developmental disabilities,* 23(2), 105-118.

Roch, M., & Jarrold, C. (2012). A follow-up study on word and non-word reading skills in Down syndrome. *Journal of Communication Disorders,* 45(2), 121-128.

Ryherd, K., Jasinska, K., Van Dyke, J. A., Hung, Y. H., Baron, E., Mencl, W. E., & Landi, N. (2018). Cortical regions supporting reading comprehension skill for single words and discourse. *Brain and Language,* 186, 32-43.

Soltani, A., & Roslan, S. (2013). Contributions of phonological awareness, phonological short-term memory, and rapid automated naming, toward decoding ability in students with mild intellectual disability. *Research in developmental disabilities,* 34(3), 1090-1099.

Soltani, A., & Roslan, S. (2013). Contributions of phonological awareness, phonological short-term memory, and rapid automated naming, toward decoding ability in students with mild intellectual disability. *Research in developmental disabilities,* 34(3), 1090-1099.

Tavares, G., Fajardo, I., Avila, V., Salmerón, L., & Ferrer, A. (2015). Who do you refer to? How young students with mild intellectual disability confront anaphoric ambiguities in texts and sentences. *Research in Developmental Disabilities,* 38, 108-124.

van Tilborg, A., Segers, E., van Balkom, H., & Verhoeven, L. (2014). Predictors of early literacy skills in children with intellectual disabilities: A clinical perspective. *Research in Developmental Disabilities,* 35(7), 1674-1685.

Van Wingerden, E., Segers, E., Van Balkom, H., & Verhoeven, L. (2014). Cognitive and linguistic predictors of reading comprehension in children with intellectual disabilities. *Research in Developmental Disabilities,* 35, 3139-3147

Verhoeven, L., & Vermeer, A. (2006). Literacy achievement of children with intellectual disabilities and differing linguistic backgrounds. *Journal of Intellectual Disability Research,* 50, 725-738.

Vloedgraven, J. M., & Verhoeven, L. (2007). Screening of phonological awareness in the early elementary grades: An IRT approach. *Annals of Dyslexia,* 57, 33-50.

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Paradoxical Shift in Science Education due to Gamification: Teachers' Perspective

*Dr. Mamta Pal, **Arvind Kumar Pal

Abstract

Games have been an amusement for man since their inception. As time evolved, games also evolved and took the form of video games and other computer games. These games were designed for entertainment purposes and had the property of engagement along with entertainment. In such games, participants remain completely immersed. When these same gaming elements and game design techniques are adopted to learning, it leads to an increase in learning engagement. So, to make science learning more interesting and engaging for the students' gamification was brought to science learning as science remains an uninteresting subject for many of the students. But science learning is of prime importance for any country for its progress and cannot be devoid of its benefits. So there is a great need to encourage students to learn science. So gamification in science learning is a better way to achieve this objective. On this backdrop, a game was designed for class XI students based on thermodynamics on the Kahoot app. A survey was conducted on 75 teachers selected using snowball sampling to understand their perspectives about this gamified activity. Mixed method research design was adopted in which qualitative data was collected from various repositories to define gamification. Meanwhile quantitative data collected through survey and was analysed through descriptive statistics. The results show that the teachers considered the game to be engaging, motivating, helpful in problem-solving, encourages mastery learning, and enhances creativity in learning science.

Introduction

National Education Policy (2020) advocates adopting such pedagogies that meet the demands of the 21st century. It envisages that the pedagogy should be less content-driven and should be based on the philosophy of constructivism. It is also driven by a pedagogy that is more holistic, more joyful useful, and fulfilling for the learner. Such pedagogy is needed for 21st century science teaching and learning. It is because due to faulty and outdated pedagogies, teaching science has become a cumbersome problem for teachers. These pedagogies have made science learning boring and tiring and have thus worsened the situation. This has to lead to a shortfall in performancewhere the national average performance of the students in science is just 34% that lies far below the state average performance of 51% (NAS, 2017). Several other factors that caused these conditions were lack of motivation to learn, students prefer playing games on the laptop, lack of visualization in learning science, educators tend to be passive or less active, and feeling of boredom (Lutfi, 2013). So one of the factors that lowered the learning was converted into an opportunity. Students playing games on the laptop is now seen as a pedagogy when certain elements of the games are used in teaching science. This led to the emergence of a pedagogy, gamification.

So, learning is now furthered through gamified classrooms. Henceforth, games are playing a very important role in enhancing learning engagement in education (Smiderle, Rigo, Marques, *et al.,* 2020). These games have many elements that make them powerful learning tools for children. They are commonly structured for players to solve a problem and also to learn life skills that help them live a good life. Several games help inculcate various skills like communication, cooperation, and even competition within the classroom. Some of these games have a rich narrative that spawns creativity and imagination in their players. Some others also help in assessing learners' learning upon achieving specific levels of the game. So, it can be ascertained that games are a full package of teaching, learning, and assessment in education.

Gamification is defined as a set of activities and processes to increase the learning of students by using

* Assistant Professor, School of Education, Devi Ahilya Vishwavidyalaya, Indore (MP)
** Assistant Professor, Department of Mass Communication, Rajiv Gandhi University, Itanagar

the game elements in the classroom. Gamification is increasingly used by the teachers to motivate students for learning difficult problems step by step and get rewards in the form of either points (Attali and Arieli-Attali, 2015) or badges (Boticki, Baksa, Seow and Looi, 2015). It provides an opportunity for the learners to learn the best when they are also having fun and achieving goals, targets, and getting rewards. It ensures maximum participation of the learners in the learning process and increases engagement in the classroom. Duggal, Gupta, and Singh (2021) showed results that gamification increased learning engagement of students who got the opportunity to learn with gamified framework than a control group who lack gamified framework. The study conducted by Çakiroglu, Basibuyuk, Guler, Atabay and Memis (2017) revealed a positive motivational impact on the engagement of a combination of gamification elements and also showed an indirect effect on the academic achievement due to their positive effects on engagement in the classroom. Alsawaier (2017) established the need for extensive research in the use of gamification in the classroom for increasing engagement in learning. Although gamification is very useful in making learners self-motivated, it can go wrong when used incorrectly. To avoid this situation emphasis should be given to intrinsic motivation other than extrinsic one. Intrinsic motivation of learning enhance learners' interest to learn something new on their own not forcefully for rewards only. As a teacher one should try to plan game-based activities which motivate intrinsically for maximum learning and its retention.

So to learn science interestingly and engagingly, gamification of thermodynamics was done for the study. No such studies were found that were based on the thermodynamics of class XI. Additionally, here gamification was done for assessing the students learning and what are the areas of concern. Apart from this, in the study it is teachers' perspective is given preference as the teachers are involved in teaching-learning level from the grassroots level according to the Hilda Taba Model. Moreover, no such studies have been conducted in Lucknow.

Objectives

1. To explore various definitions of gamification.
2. To design a game for science teaching.
3. To understand teachers' perspectives about gamyfying science education.

Materials and Method

The study entails mixed-method research. Various databases and repositories have been used for exploring the secondary qualitative data. Google Scholar, researchGate, Academia, and Google search engines were used for searching the data. Various keywords and phrases fed to search the data were "Gamification", "gamification in education", "Gamification in science", "Gamification in science education", and "gamifying science classrooms". On the other hand, a survey was used to collect qualitative data. Descriptive statistics were used for analyzing quantitative data.

The paper is divided into three section:

The first section describes gamification that includes its definition, and its advantages.

The second section deals with the ways to gamify the science classroom and a survey to understand teachers' perspectives about gamyfying science education. A game was designed for class eleventh students based on thermodynamics.

Meanwhile the third section deals with understanding teachers' perspectives about gamyfying science education.

To achieve the objectives of the third section based on the designed game, a survey was conducted to know teachers' views about gamification. The survey questions designed using Google form were sent to 100 science teachers out of which only 70 were returned with the responses. The teachers were selected using snowball sampling from Lucknow. The purpose of using snowball sampling is because of the lockdown, schools are either closed or being operated in online mode. Descriptive statistics were used for interpreting the results

Result and Discussion

The results of the study are divided into various sections according to the objectives.

To explore various definitions of gamification

Now is the time to apply scientific knowledge that is impossible without developing scientific thinking among the students. But the prevailing methods of teaching science make science an uninteresting subject to learn. Therefore students lose their motivation. So there arises a need to integrate such teaching methods that make it more interesting and engaging. This can be achieved by bringing game elements into science education. That is to integrate the basic elements of video games like goals, rules, a feedback system, and voluntary participation in addition to fun, enjoyment, and strategies for controlling the game environment (National Research Council, 2011). These key features of games influence motivation, cognition, and meta-cognition. The games should not be thought of as the next educational panacea rather they should be thought of as useful for science education. Additionally, The negative connotations like "escapist" and "time wasters" associated with these video games need to be reconsidered (McGonigal, 2011).

Gamification is defined differently by different people. Suits (1978) defined games as "Playing a game is the voluntary attempt to overcome unnecessary obstacles". But, gamification refers to using game elements in other environments to enhance user experiences (Kapp, 2012). A similar definition exists in addition to this. It is "using game elements and game design techniques in non-game contexts" given by Werbach and Hunter (2012). Yet another definition that is more comprehensive and robust states that "gamification is using game-based mechanics, aesthetics, and gamethinking to engage people, motivate action, promote learning, and solve problems" was given by (Kapp, 2012).

All these definitions opine that gamification incorporates gaming elements like mechanics, aesthetics, and game-thinking to the contexts that are largely non-game based that further the process of learning and problem-solving by keeping them engaged, and motivated. Gamification has been put to use in various disciplines. Researches show that the use of Chemical Adventure computer-based games on chemical learning has been very effective in improving learning outcomes and classical learning completeness, increasing interest in learning chemistry,and additionally, students found these games as positively impacting and fun as a learning media (Lutfi, Hidayah, and Hidayah, 2019).

Advantages of gamification

The video games as cultural tools support three key elements–content knowledge, process skills, and understanding of the nature of the science apart from providing various scaffolds like motivational, cognitive, and metacognitive (Morries, Croker, Zimmerman, Gill, and Romig, 2013). Latif, and Hidayah (2021). Students perceive gamification to positively impact learning, achievement, and engagement in the course material and frequent gamers are comparatively more motivated in the course than non-gamers (Davis, Sridharan, Koepke, Singh, and Boiko, 2018). Studies have also revealed that gamification is equally effective for boys and girls (Davis, Sridharan, Koepke, Singh, and Boiko, 2018).

Moreover, these are preferred media for science learning by the students. Studies show that 87.5% of students preferred computer-based games as science learning media to achieve the targets. Meanwhile, teachers considered them to be very good techniques for students to play and learn hence preventing them from being participants in non-serious games (Lutfi and Hidayah, 2021). Additionally, gamification has the potential to attract, motivate, engage and retain users (Kuo and Chang, 2016).

To design a game for science teaching

There are many existing that gamify education. Some of them are Kahoot, Archy Learning, Elucidat, Duolingo, ClassDojo, and Classcraft. These games can also be created through H5P. For the study, a game was designed on the Kahoot app based on the thermodynamics of class eleventh. It was meant to assess the learning of the students.

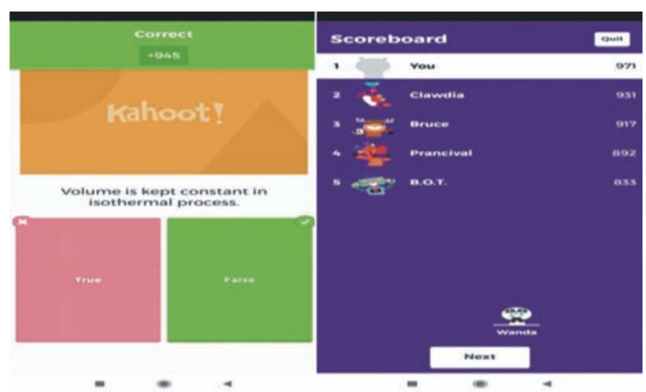

Fig. 1A game designed based on the thermo-dynamics of class eleventhon the Kahoot app.

To understand teachers' perspectives about gamyfying science education

Based on the designed game, a survey was conducted to know teachers' views about gamification. The results of the survey are tabulated in Table 1 below. Later on, for interpretation purposes, the two extreme groups were clubbed into agreeing and disagreeing. Descriptive statistics were used for interpreting the results.

Table 1: Teachers' perspective about gamification in scienceeducation(expressed in percentage)

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Gamification made thermodynamics more engaging for the students.	44.4	33.9	5.6	10.1	6.0
Gamification could not inform students' about their lacunae in thermodynamics.	3.1	8.0	11.6	38.9	38.4
Gamification motivated the students to explore more about thermodynamic processes and other related topics.	22.2	55.3	6.5	10.7	5.3
Gamification does not make the students think of creative ways of learning.	3.0	6.1	11.9	28.1	50.9
Gamification provided novel situations for problem-solving to the students.	40.7	37.1	6.2	11.8	4.2
Gamification helped the students master the topic of thermodynamics.	37.5	45.0	8.5	6.3	2.7

78.3% of teachers found the game to be very engaging similar to (Davis, Sridharan, Koepke, Singh, and Boiko, 2018; Smiderle, Rigo, Marques, *et al.,* 2020). Additionally, 77.3% of the teachers considered learning through the games not only informing the learners of the areas of concern but 82.5% of them also believed them to enable mastery learning in thermodynamics by providing them with various scaffolds and encouraging for process learning (Morries, Croker, Zimmerman, Gill, and Romig, 2013). It is the most important aspect as it is expected of the students learning science as it is to be applied to overcome the problem of the world. It is of utmost importance for the underachievers who can learn and master the learning at their own pace. It is because when the students learn about the areas they lack, they can go back and learn the concept till it is mastered and again either check the progress or compete with others. 77.5% of the teachers also asserted that the gamification motivated them for learning thermodynamics more in line with the studies conducted by Çakiroglu, Basibuyuk, Guler, Atabay, and Memis (2017). It is because as the students cross one level, they move to the next level. So this keeps them intrinsically motivated. Additionally, when the students compete with other participants in the game and win they are extrinsically motivated. It is because of the inherent game features (Davis, Sridharan, Koepke, Singh, and Boiko, 2018). Meanwhile, 79% of the teachers viewed gamification to increase creativity among the learners. In line with these results, 77.8% of them also assumed gamification to provide novel situations for problem-solving favored by Kapp (2012). So gamification has the capability of transforming the complete learning environment.

Conclusion

The new education policy advocates for innovative pedagogies in science learning and also directs the teachers to use them in the classrooms to make science more engaging and interesting rather than boring. Gamification is an emerging pedagogy that is yet to prove its effectiveness. The philosophy behind this pedagogy is that since the games cater to the interest of the students play the games with full enthusiasm. So if these gaming elements and design techniques could be embedded into the science topics they can make science learning more engaging and interesting. One such game was designed using the Kahoot app based on the class XI thermodynamics chapter. Then a survey was conducted to find teachers' perspectives about the game. It was found that teachers considered gamification to be engaging, motivating, helpful problem-solving, encourages creativity, and enables mastery learning.

On one side we may see that gamification will increase engagement in science but we cannot undermine the ill effects of videos games that many students have fallen prey to. They become so indulged in such video games that they take extreme steps like suicides. They also get into the habit of stealing. So, it may also lead to losing the soul of gamifying the concepts and may end up bringing in more competition. Secondly, it may only become a mode of earning some points and badges for the students. Students may also get addicted to the games like other video games and that would be disastrous. The students may also lose their interest in physical activities that may badly affect their health if not taken care of. So care should be taken not to turn the gamification into a demon but make the best use of it.

Implications

The study will motivate the students to learn science in a more engaging and fun way. Additionally, it will enable teachers to apply it to other topics and areas thus providing an opportunity to the teachers to create innovative situations and work on the students' emotions. It can also be used to work on the value system of the learners and to teach them skills of the 21st century. It will motivate the game designers to develop more sophisticated games for science learning expanding its use to cater to all the learning domains. The study will motivate the researchers to conduct further studies concerning science education and gamification.

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References

Alsawaier, R.S. (2018). The effect of gamification on motivation and engagement, *International Journal of Information and Learning Technology,* 35(1), 56-79. https://doi.org/10.1108/IJILT-02-2017-0009

Attali, Y. & Arieli-Attali, M. (2015). Gamification in assessment: Do points affect test performance? *Computers & Education,* 83, 57-63. https://doi.org/10.1016/j.compedu.2014.12.012

Boticki, I., Baksa, J., Seow, P. & Looi, C.-K.(2015). Usage of a mobile social learning platform with virtual badges in a primary school, *Computers & Education,* 86, 120-136. https://doi.org/10.1016/j.compedu.2015.02.015

Çakiroglu, Ü., Basibüyük, B., Güler, M., Atabay, M. & Memis, B.Y. (2017). Gamifying an ICT course: Influences on engagement and academic performance, *Computers in Human Behavior,* 69, 98-107. https://doi.org/10.1016/j.chb.2016.12.018

Cheng, M.-T., Lin, Y.-W., She, H.C.& Kuo, P.C. (2017). Is immersion of any value? Whether, and to what extent, game immersion experience during serious gaming affects science learning, *British Journal of Educational Technology,* 48(2), 246-263. https://doi.org/10.1111/bjet.12386

Davis, K., Sridharan, H., Koepke, L., Singh, S. & Boiko, R. (2018). Learning and engagement in a gamified course: investigating the student characteristics, *Journal of Computer Assisted Learning,* 34(5), 492-503. https://doi.org/10.1111/jcal.12254

Duggal, K., Gupta, L.R. & Singh, P. (2021). Gamification and machine learning inspired approach for classroom engagement and learning, *Mathematical Problems in Engineering,* 2021, 1-18. https://doi.org/10.1155/2021/9922775

Kapp, K.M. (2012). The Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education, San Francisco: John Wiley & Sons.

Kuo, M.-S.& Chuang, T.-Y. (2016). How gamification motivates visits and engagement for online academic dissemination - An empirical study. *Computers in Human Behavior,* 55, 16-27. https://doi.org/10.1016/j.chb.2015.08.025

Lutfi, A. & Hidayah, R. (2019). Gamification for science learning media: challenges of teacher and expectations of students, *International Journal of Interactive Mobile Technologies,* 15(1), 142-153. https://doi.org/10.3991/ijim.v15i01.15175

Lutfi, A. (2013). Motivate students to learn science by implementing bilingual comic learning media, *Journal of Education and Learning,*20(2),152-159.

Lutfi, A. & Hidayah, R. (2021). Gamification for science learning media challenges of teacher and expectations of students, *International Journal of Interactive Mobile Technologies,* 15(1), 142-154. https://doi.org/10.3991/ijim.v15i01.15175

McGonigal, J. (2011). Reality is Broken: Why Games Make Us Better and How They Can Change the World. New York, NY: Penguin

Morris, B.J., Croker, S., Zimmerman, C., Gill, D. & Romig, C. (2013). Gaming science: the "gamification" of scientific thinking, *Frontiers in Psychology,* 4(607), 1-16. https://doi.org/10.3389/fpsyg.2013.00607

National Achievement Survey- class X(2017-18). http://www.ncert.nic.in/programmes/NAS/NAS.html

Smiderle, R., Rigo, S.J., Marques, L.B. *et al.* (2020). The impact of gamification on students' learning, engagement and behavior based on their personality traits, *Smart Learning Environment,* 7(3), 1-11. https://doi.org/10.1186/s40561-019-0098-x

Suits, B. (1978). The Grasshopper: Games, Life, and Utopia. Toronto: University of Toronto Press.

Werbach, K. & Hunter, D. (2012). For the Win: How game thinking can revolutionize your business, Wharton Digital Press.

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Empowering Educators: Exploring Life Skills in B.Ed. trainees

*Karabi Kalita, **Dr. Ritimoni Bordoloi

Abstract

Life skills are the skills which develop capacity, ability and caliber to enhance the adaptability to cope up with ever changing situations by solving various problems facing in day to day life. Those essential skills can be acquired through the educational process. As the teachers are the pivot of teaching learning process, they must have life skills so that they can impart it to their students. The Present study laidfocus on empowering the life skills of teacher trainees pursuing B.Ed. programme and to check the difference of life skills in terms of gender and qualifications. Normative survey method was used for this study. A sample of 80 B.Ed. in-service teacher trainees were taken from three different districts of Assam. Stratified random sampling technique was considered in the study. A standardized tool of life skill assessment was used to collect data.Descriptive statistics are used to analyse the data, while t-test has been used to checkthe significance. The study revealed that the in-service trainees pursuing B.Ed. had below average life-skills and no significant difference was found in respect of gender but a significant difference was found in respect of qualification.

Introduction

Teachers are the key personal in the whole educational process who plays pivotal role in diversified ways. For the performance of multi-dimensional duties and responsibilities sincerely, effectively and rigorously it is necessary to develop personal and professional qualities and various skills. Among various qualities life skills are the skills which promote personal qualities, social efficiency and positive perspective towards life. The life skills defined by WHO (World Health Organization, 1999) is, "Abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life." Life skills education prepares a person in such a way that he/she may tackle the problems of life and lead ahealthy and happy life. It helps to develop positive attitude towards every aspect of life and enhances adjustment capacity by realizing the real life situation. In the words of UNESCO (1998) "Life skills education is designed to facilitate the practice and reinforcement of psychosocial skills in a culturally and developmentally appropriate way; it contributes to the promotion of personal and social development, in the prevention of health and social problems, and the protection of human rights." Individual development as well as social development is directly or indirectly influenced by life skills education. It helps in enhancing the creative development, critical thinking, self-esteem, self-confidence,emotional control, social qualities among individuals and to cope up with the dynamic situation of life and lead an ideal, quality, standard and peaceful life.From post Renaissance's time Life Skills Education was focused and it was reflected in the writings of the writers like J. Austin, Shakespeare etc.gradually much focus was given on Life Skills Education from 1986. In 1989 Convension on the right of the child, Jomtien Declaration(1990), Education for All, Dakar World Education Council (2000) reported "an education to learning to know, to do, to live together and to be", World Program of Human Rights Education (2004),The World Development Report (2007) etc. enhances the Life Skill education in whole world and gradually it was focused and popularized in whole of the world. In India NIMHANS (National Institute of Mental Health and Neuro Science), NCERT (National Council of Educational Research and Training), HRD (Human Resources Development) ministry, NCF (National Curriculum Framework) are engaged to accelerating the concept of Life Skills education. As per the recommendations given by NCF, (National curriculum Framework) in 2003-4 CBSE (Central Board of Secondary Education) introduced the life Skills Education in standard 6th, and 7th in 2004-05 and in standard 8th, 9th and 10th consequently.

* Ph.D. Research Scholar, Department of Education, Krishna Kanta Handique State Open University, Assam, India

** Assistant Professor, Department of Education, Krishna Kanta Handique State Open University, Assam, India

Teacher and Life Skills

Teacher has to play his/her role as a motivator, facilitator, social reformer, transmitter, nation builder etc. and due to these reason it is not easy to become a perfect teacher. For qualitative development of education teacher should poses personal and professional quality. Along with subject oriented knowledge teacher must possess the knowledge of life skills to develop themselves as well as to transmit that life skills to their students.

Life Skills education is equally important has been realized and the reflections can be seen in the document of NCERT called NCF-2000, 2005 (National Curriculum framework) and NCFTE-2009 (National Curriculum Framework for Teacher Education). Unfortunately, it is hardly found its applicability in our Indian context. The condition is deplorable in Assam as the awareness of life skills is very low and not much importance has given on education based on Life Skills.Various types of Life Skills are found in various studies conducted and recommended in different times. In this connection WHO (World Health Organization,1997) suggested 10 core life skills, which arelisted below:

"1. Problem Solving; 2. Critical Thinking; 3. Effective Communication Skills; 4. Decision Making; 5. Creative Thinking; 6. Interpersonal Relationship Skills; 7. Self-Awareness Building Skills; 8. Empathy; 9. Coping with Stress; 10. Coping with Emotion."

The foresaid life skills are essential and important skills to be adopted by all the individuals to cope up with the life situations and find the feasible way to solve the various problems. These life skills should be acquired by the people formally or informally by different medium. In school the teachers are the best person to train the children rigorously about the life skills and for that teacher should possess sound life skills and here investigator had tried to focus on four very essential life skills of the in-service teacher trainees pursuing the B.Ed. course. The focal area of life skills are-

Communication Skill, Collaboration Skill, Creativity, Critical thinking skill.

Review of Related Literature

Prajapati, R. *et al.* (2017) studied on significance of Life Skills and found that enhancement of life skills is important and significant and it is to be incorporated in school syllabus and practiced regularly in schools under the supervision of trained personals.

Vijayalakshmi, M. (2019) conducted a study on assessment of Life Skills Development for Sustainable Development of B.Ed. teacher trainees. The findings of the study revealed that the level of life skills was very high among the B.Ed. teacher trainees, no significant difference different was found of life skills among B.Ed. trainees in respect of gender and locality.

Sridevi, M. and Amuthavalli G.T. (2020) conducted a study on a study on life skills of B.Ed. students. The objectives of the study tried to find out the life skills of B.Ed. students in terms of gender, residential background. The study adopted descriptive survey method. The study revealed a significance difference was there in life skills of B.Ed. students in terms of gender, residential background, entry level qualification and methodology opted.

Need and justification of the study:

Teacher has to play diversified role throughout their professional life. They have to play their role as- motivator, guide, counsellor, friend, philosopher, social reformer, transformer of knowledge etc. The Teacher should be physically fit, mentally sound, emotionally stable and socially adaptable. The teachers are expected to be equipped with qualities and skills. Professional skills and life skills are essential criteria for conducting professional duties and responsibilities of the teachers. The secondary schoolteachers who deals with the adolescent period, which is regarded as the crucial period of life. With the knowledge of life skills present among the teachers they may better deal with the adolescent and help them to lead a quality and decent life by facing and overcoming the problems. In the present study among the various life skills, focus has been given on 4C's viz. Communication skill, Collaboration skill, Critical thinking skill and Creative thinking skill. These four elements are very important for professional efficiency and academic discipline of the teacher and more importantly it must be disseminate and develop among the students for academic achievement as well as for real life consideration.

Objectives

1. To find out the level of life skills among in-service teacher trainees pursuing B.Ed.
2. To study the Life-skills among the in-service teacher trainees pursuing B.Ed. in respect of gender.
3. To study the Life-skills among in-service teacher trainees pursuing B.Ed. in respect of qualification.

Hypotheses

Ho1: There exist no significant difference between male and female in respect of life skills among the in-service teacher trainees pursuing B.Ed.

Ho2: There exist no significant difference between graduate and post-graduate teachers in respect of Life-skills among the in-service teacher trainees pursuing B.Ed.

Methodology

Method: In this study normative survey method has been adopted by the investigator.

Sample and sampling: For the present study a sample of 80 in-service B.Ed. teacher trainees were from the Colleges of Teacher Education (CTE's) of Assam. The sample were selected through the cluster technique of sampling from (2019-2021 batch).

Tools for data collection: Teacher' Life Skills Assessment Scale by Dr. Shipra Srivastava and Dr. Kiran Lata Dangwal.

Statistics used for analysing the data: The statistical tools Mean, Median, Mode, S.D, and t-test were applied and for graphical representation Frequency polygon and Simple bar diagram were used.

Analysis and interpretation of the collected data: After processing the data the results found by the investigator are given below:

Table 1: Table showing the Mean, Median, Mode and S.D of life skills among in-service teachers

N	Mean	Median	Mode	SD
80	155.875	152	144.25	15.01

From the table we see that the scores are Mean-155.87, Median-152, Mode-144.25 and S.D-15.01. The scores are below average according to the manual of the questionnaire tool.

Table 2: Table showing the Mean and S.D. of Life skillsof in-service B.Ed. teacher trainees

Attributes of Life Skills	N	Mean	SD
Communication Skill	80	29.6	4.26
Collaboration Skill	80	26.3	4.06
Creativity Skill	80	38.12	3.015
Critical Thinking Skill	80	43.42	6.02

The table shows that Mean of communication skill is 29.6 and S.D is 4.26. In collaboration skill Mean is 26.3 and S.D is 4.06. In respect of Creative Skill Mean is 38.12 and S.D is 3.015 and in Critical Thinking Skill Mean is 43.42 and S.D is 6.02.

Table 3: Table showing the Mean, S.D and t-value of life skills among in-service B.Ed. teacher trainees in respect of Gender (Male and Female)

Gender	N	Mean	S.D	t-value
Male	44	154.25	16.25	1.0469
Female	36	157.861	14.16	

Here, Mean scores and S.D. of Male are 145.25 and 16.25 respectively, where in respect of female the mean score found 157.861 and S.D is14.16. The t-value is 1.0469 which is not significant at the .05 level. Hence, the null hypothesis, i.e. "There is no significant difference in Life Skills awareness of in-service teacher trainees", is accepted.

Fig. 1: The bar diagram representing Mean values of male and female in-service B.Ed.Teacher Trainees

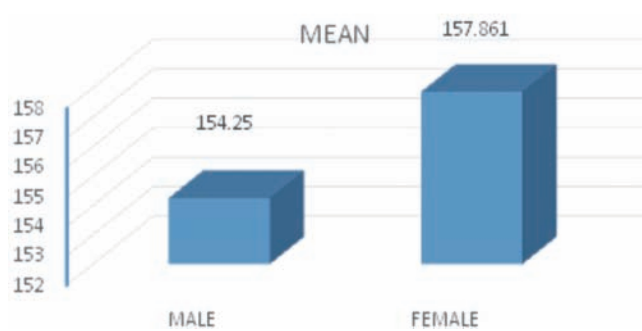


Table 4: The table representing the Mean, S.D. and t-value of different attributes of life skills in respect of Male and Female in-service B.Ed. secondary school teacher trainees

Attributes of Life Skills	Male			Female			t-value
	N	Mean	S.D	N	Mean	SD	
Communication Skill	44	30.2	4.2	36	28.666	4.6	1.557
Collaboration Skill	44	24.4	4.4	36	28.62	3.8	4.67
Creativity Skill	44	37.6	2.92	36	38.75	3.2	1.68
Critical Thinking Skill	44	45.2	5.62	36	42.24	7.5	2.017

The above table shows that in case of communication skills and creativity skills there is no significant difference between male and female in-service secondary school teacher trainees but in case of collaboration and critical thinking there is a significant difference between male and female in-service secondary school teacher trainees at .05 level of significance.

Fig. 2: The bar diagram showing the Mean of different attributes regarding life skills between Male and Female of in-service B.Ed. teacher trainees

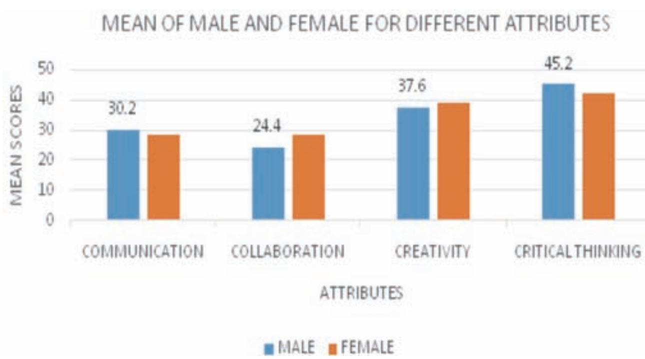


Table: 5. Table representing the Mean score, S.D and t-value of in-service B.Ed. teacher trainees in respect of qualification

Qualification	N	Mean	S.D	t-value
Graduate Post-Graduate	52 28	150.81 158.6	14.6 15.24	2.2418

From the above table revealed a difference of mean scores of graduate and post graduate in-service B.Ed. teacher trainees. Here, the t-value was found as 2.2418 which is significant at .05 level of significance, which proves the null hypothesis that there exists no significant difference between graduate and post-graduate in-service B.Ed.teacher trainees in respect of life skills is rejected.

Fig. 3: The single bar diagram showing the life-skills among graduate and Post-graduate in-service B.Ed. teacher trainees

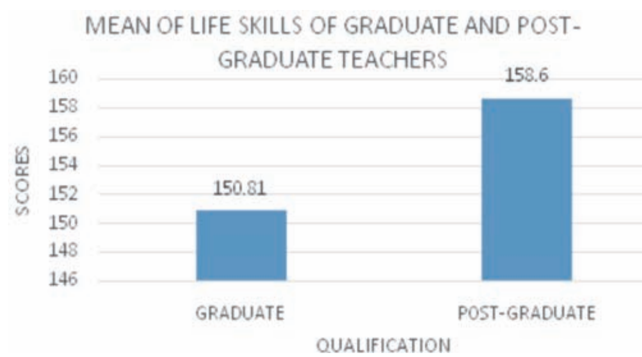
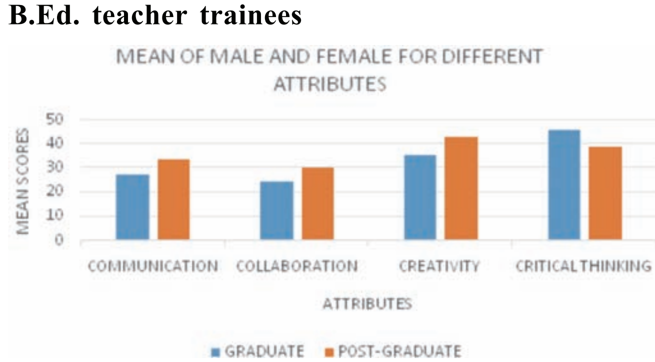


Table 6: Table representing the different attributes of life skills presenting Mean, S.D and t-value regarding qualification Graduate and Post-graduate in-service teacher trainees

Attributes of Life Skills	Graduate			Post-graduate			t-value
	N	Mean	S.D	N	Mean	SD	
Communication	52	27.25	5.2	28	33.96	4.14	5.9
Collaboration	52	24.32	4.68	28	29.97	3.71	5.5174
Creativity	52	35.4	3.06	28	43.17	2.85	11.09
Critical Thinking	52	45.7	7.4	28	39.185	4.34	1.79

The above table shows that in case of communication skills, collaboration skills and creativity skills a significant difference is found between graduate and postgraduate in-service B.Ed. teacher trainees but in case of critical thinking no significant difference is found between graduate and postgraduate in-service B.Ed. teacher trainees, which is significant at .05 level.

Fig. 4: The multiple bar diagram showing the difference of mean of graduate and post-graduate in different attributes of Life-skills of in-service B.Ed. teacher trainees



Major Findings of the Study

● The Life-skills among in-service teacher trainees pursuing B.Ed. were below average.

● There is no significance difference between male and female in-service B.Ed. teacher trainees regarding life-skills as a whole, but attribute wise it can be found that in respect of collaboration skill and critical thinking skill there have a significant difference between male and female in service B.Ed. teacher trainees. Female in-service teacher trainees were found more aware about collaboration skill and critical thinking skill.

● A significant difference has been found between Graduate and Post-graduate in-service B.Ed. teacher trainees regarding the life skills.

Educational Implications

Communication skill is one of the most important skill to be developed by the teacher to make their teaching attractive, fruitful and effective and to develop this particular skill among the students.

Collaborative skills are useful for any profession to achieve the common goal. In teaching profession collaboration skill must possess by the teacher to make teaching learning process a successful one by enhancing their trust, flexibility, open-mindedness etc.

Creativity is that capacity which helps one to do the common thing in different way and make it special. Teaching is an art and the creative skill among the teacher make the teaching learning process attractive and derive the motivation among children.

Critical thinking skill helps the teacher to adopt non-conventional and innovative way of teaching to make the teaching learning process more effective, valuable and joyful. The critical thinking skill of the teacher contribute in designing active and attractive techniques in teaching-learning, motivating the learner, evaluation process.

Discussion and Conclusion

Life skills are integral part of human life for quality living. It is possible to create awareness and enhancement of the same among the pupil through education, but for that, enrichment of teachers' own life skills is the focused area and current trends in the field of education. To make a creative and constructive personal and professional life teachers must have knowledge of life skills specially the four C's of 21st century life skills. The teacher training institutions should have the provision to train up the life skills qualities among teachers by inculcating life skills education in curricular and co-curricular activities. But much importance is not given in this regard in teacher training program especially in B.Ed. course. B.Ed. course is basically designed to provide training to the teacher of secondary level who has to deal with adolescent people. Adolescent period need much more training in life skills to tackle the problems of the crucial period of life and adjusted themselves with dynamic situation and also prepare for future life. Directly or indirectly teachers' awareness about life skills influence the learner and their learning.

References

Fidan, N. and Aydogdu, B. (2018). "Life Skills from the Perspectives of Classroom and Science Teachers." *International Journal of Progressive Education,* Vol.14 (1). page 32-55. Recited at https://files.eric.ed.gov/fulltext/EJ1169814.pdf 2018

Koul, L. (2011). Methodology of Educational Research. New Delhi: Vikash Publishing House Pvt. Ltd., Print

Kumar, R. (ed.). (2014). Research Methodology. New Delhi: SAGE Publication India Ltd, Print.

Life Skill Education and CCE (class ix & x), Central Board of Education, Preet Vihar. Retrieved from http://www.cbse. Nic.in/cce/life_skills_cce.pdf.

National Council For Teacher Education, (2009). National Curriculum Framework for Teacher Education towards Preparing Professional and Humane Teacher. New Delhi, India: Author.

NCERT (1988). National Curriculum for Elementry and Secondary Education: A framework: New Delhi.

Ottawa Charter for Health Promotion, 1986 - Europe by WHO. Available in http://www.euro.who.int/_ data/assets/pdf file/0004/129532/Ottawa_Charter.pdf.

Prajapati, R., Sharma, D. & Sharma, B. (2017). Significance of Life Skills Education. *Contemporary Issues in Education Research,* Vol.10(1) 1-6. Recited at https://files.eric.ed.gov/fulltext/EJ1126842.pdf

Sridevi, M., & Amuthavalli, T.G. (2019). "Life Skills Among B.Ed. Student Teachers". Edited by Ashok Yakkaldevi Review of Research, Vol. 8, Issue-8, ISSN-2249-894X. Retrieved from oldr.lbp.world

UNICEF. Life skills. Retrieved from http://www.unicef.org/lifeskills/UNICEF

Vijayalakshmi, M. (2019). "Assessment of Life Skills Development for Sustainable Development of B.Ed. Teacher Trainees." *International Journal of Research,* Vol.-VIII, issue II, pp. 161-170, ISSN No: 2236-6124.

WHO. Life skills Development for Children and Adolescents in Schools. Program on mental health, Geneva.1997

http:// www.cbse.nic.in/cce/life skills cce.pdf

World Education Forum (2000). The Dakar Framework for Action, Education For All: Meeting our Collective Commitments. Dakar, Senegal, UNESCO.

http://www.en.wikipedia.org/wiki/lifeskills-based-education
http://www.unicef.org/lifeskills/index_whichskills.html
http://www.unesco.org

Study of Relatedness of Optimism and Life Satisfaction among Adolescents with Respect to Gender, Locale and Type of School

*Dr. Gurdeep Kaur, **Sharwan Kumar

Abstract

Optimism is a term, which involves feelings, expectations, planning, logic and actions. In this sense, optimism is both an emotion and a feature, which can also be developed by learning processes so that individual can lead a satisfied life. So investigator studied optimism and life satisfaction especially among adolescents with respect to their gender, locale and type of school.It has been found in the study that there exists no significant correlation between optimism and life satisfaction of adolescents. There exists no significant correlation between optimism and life satisfaction of adolescents with respect to gender (boys and girls), locale (rural and urban) and type of school (government and private). There exists no significant difference between relatedness of optimism and life satisfaction of adolescents with respect to gender (boys and girls), locale (rural and urban) and type of school (government and private).

Introduction

Humans react differently when they come across with different situations in their daily lives. There lie individual differences and perception types underneath this difference. These ways of perception turn into behavioristic rituals. One of these is that an individual adopts an optimistic attitude against these events and situations. Therefore, they can develop some strategies for perception, interpretation, problem-solving and decision-making processes in their interpersonal relations. Optimism is a term, which involves feelings, expectations, planning, logic and actions. In this sense, optimism is both an emotion and a feature, which can also be developed by learning processes so that individual can lead a satisfied life. Optimism is examined under two interrelated concepts; optimist tendency and optimist situation. Optimist tendency usually refers to the situation in which the individuals are expecting that good things will also happen besides the bad ones in the future, and the optimist situation refers to the situation in which individuals choose to be good even under special and limited circumstances. Optimism is a process in which individuals hope for the best and expect positive results instead of negative ones in their daily lives. Optimism involves a power to resist all difficulties in order to maintain the life in an effective way in spite of all of its obstacles. This power may have a strong connection with life satisfaction. Knowing that the things will not go all right may lead individuals to be under stress and pessimism, which represents the negative end of life vision and is a negative attitude, which prevents individuals to make a step forward in life and unsatisfaction in life. In such cases where an individual cannot get over with or has difficulty in overcoming these situations, it also affects their life perception. Life perception can be claimed that it is an important term in an individual's life satisfaction. So it is important to study optimism and life satisfaction especially among adolescents with respect to their gender, locale and type of school.

OPTIMISM

Optimism is all about looking at the bright side, seeing a challenge and knowing everything is going to turn out exactly as it should. Optimism can be conceptualized as a tendency to expect the best possible outcome or dwell on the most hopeful aspects of a situation. Everyday wisdom suggests that the fundamental difference between an optimist and a pessimist is captured in the answer to the question, "Is the glass half empty or is it half full?" Looking at the exactly same reality, a pessimists focuses more on negative view i.e. what is not available whereas optimists sees what is available. Psychologist considers optimism and pessimism as variable which

* Assistant Professor, DAV College of Education, Abohar
** M.Ed. Student (2021-2023), DAV College of Education, Abohar

differ from person to person focusing on individual's positive and negative expectations from the future. Generally individual differ in their level of optimism and pessimism and such variations are partially significant to variety of life events. Certainly, individual's belief can affect the particulars of a situation.

Optimistic individuals, do not focus on the negative side in their thoughts, usually do not engage in friction and do not become involved in conflicts, and lead a psychologically peaceful life and satisfied life. The word optimism is originally derived from the Latin word 'optimum' meaning "best". The oxford dictionary defines optimism as having "hopefulness and confidence about the future or successful outcome of something; a tendency to take a favorable or hopeful view." Optimism is very important factor which play significant role in enhancing wellness in daily life. Optimism is a global generalized tendency to believe that one will generally experience good versus bad outcomes in life. Optimism is often defined as a disposition to expect the best and view events and situations in a positive light. In the context of life satisfaction, optimism refers to a sense of a positive future, to a tendency to find positive meaning in experiences, and a belief in one's ability to impact positively on one's environment andsituation.

Weinstein (1989) defines optimism terms as a belief in which an individual believes he or she comes across negative situations less than others and comes across positive situations more than others.

Goleman (2000) defines optimism as a strong emotion and an expectation towards the assumption that everything will be all right against all its difficulties and obstacles.

Optimism has many facets which have been investigated through psychological research; however critics suggest that many of the lines of enquiry have been 'surprisingly uniform, so much so that an optimism bandwagon has been created, within psychology as well as the general public'. But on the whole, Optimism may be beneficial in several ways. Firstly, optimism naturally promotes a more positive mood, which helps to ward off depression and anxiety. Secondly, optimism also encourages greater persistence in the face of obstacles, which in turn is likely to result in greater success. According to this view, optimists are people who expect future outcomes to be positive. Conversely, pessimists are those who display more negative expectations for the future. All these views are very important if we want to lead a happy and well contented life which can give us a satisfied life.

Life Satisfaction

Satisfaction, which can be defined as the degree to which an individual's expectations, intentions, desires, and needs are met, is an important concept that gives direction to life. Life satisfaction is the difference between the individual's expectations and the degree to which these expectations are met. When the expectations of the individual are compared with the realities in their lives, these expectations either are met or violated. Meeting the expectation constitutes life satisfaction, while the violation of the expectation leads to the development of dissatisfaction towards life. Life satisfaction emphasizes a psychological situation related to whole life rather than specific situations such as time, place, and opportunity. In other words, even if a person has saturation in a certain place, he may experience dissatisfaction from different situations. Life satisfaction is influenced by the individual's experiences, daily life, and future expectations. Besides, the changes that an individual wants to make in his/her life are influenced by the experience of attempts to differentiate his/ her life and the thoughts and behaviors of other people about his/her life. Life satisfaction is an ability of an individual to develop a subjective point of view about his or her life quality under his or her own criterion. Life satisfaction is also defined as a process in which an individual tries to reach his or her own goals. Life satisfaction is an important variable. It is an interesting topic of research in the area of psychology. Life satisfaction is a state of mind. It is an evaluative appraisal of something." Life satisfaction is an important component of life and may be assessed in terms of mood, satisfying relation with others and with achieved goals, self concepts and self-perceived ability to cope with daily life. It involves experiences which have the ability to motivate people to pursue and reach their goals. It is the cognitive assessment of one's life as a whole. We can say that satisfaction in life is very important for optimism. Both may be inter-related.

According to Diener (1994) life satisfaction involves a satisfaction from the present life, a desire to change to their life, satisfaction from the past life, satisfaction from the future and the ideas of relatives about that person's life.

Bailey and Snyder (2007) found that optimist persons have greater satisfaction in their lives. Alarcon and Khazon (2013) found that optimism is associated with life satisfaction, happiness, and general psychological well-being.

Statement of The Problem

Study of relatedness of optimism and life satisfaction among adolescents with respect to gender, locale and type of school.

Objectives of The Study

The study was conducted to achieve the following objectives:

1) To study the significant correlation between optimism and life satisfaction among adolescents.
2) To study the significant correlation between optimism and life satisfaction among adolescents boys and girls.
3) To study the significant correlation between optimism and life satisfaction among rural and urban adolescents.
4) To study the significant correlation between optimism and life satisfaction among adolescents from government and private schools.
5) To study the significant difference between the relatedness of optimism and life satisfaction of adolescents boys and girls.
6) To study the significant difference between the relatedness of optimism and life satisfaction of urban and rural adolescents.
7) To study the significant difference between the relatedness of optimism and life satisfaction of adolescents from government and private schools.

Hypotheses of The Study

1) There exists significant correlation between optimism and life satisfaction among adolescents.
2) There exists significant correlation between optimism and life satisfaction among adolescents boys and girls.
3) There exists significant correlation between optimism and life satisfaction among rural and urban adolescents.
4) There exists significant correlation between optimism and life satisfaction among adolescents from government and private schools.
5) There exists no significant difference between the relatedness of optimism and life satisfaction of adolescents boys and girls.
6) There exists no significant difference between the relatedness of optimism and life satisfaction of urban and rural adolescents.
7) There exists no significant difference between the relatedness of optimism and life satisfaction of adolescents from government and private schools.

Significance of The Problem

Research on quality of life has been approached from two variables life satisfaction and optimism. Both perspectives explored in our study by relating them with three independent variables gender, locale and type of school, in which researcher investigated the relatedness between between optimism and life satisfaction. Studies have shown that optimistic students have higher GPAs and better test scores compared to those with pessimistic outlooks. This is because optimistic students tend to view their mistakes as temporary, and positive events as permanent. Life satisfaction is a current issue today. Various variables affecting optimism and life satisfaction during adolescence: a crucial stage in the life of the individual are explored. This study focused on analysing the relationship between, optimism and life satisfaction in adolescent students, with respect to gender, locale and type of school. On the basis of study, it is found that Education and group counselling should be provided to make life perceptions more optimistic, because a positive correlation was not found between life satisfaction and optimistic perspective. One of the most important goal of human being is to keep optimism and life stisfaction at high level. Therefore, it is important to note that the relationship between the optimism and life satisfaction among adolescents with respect to gender, locale and type of school is not related so study suggest that individual efforts should be there to increase level of optimism and life satisfaction.

Design of The Study

The study was conducted through descriptive method of research. The descriptive research method has been widely used by the researchers in educational area. It helps in explaining educational phenomena in terms of conditions or relationship among the variables. The method requires a sample and certain researchtools for conduct of study.

Sample of The Study

The universe of the study was consisted of the students studying 10+2 from different senior secondary schools of Fazilka district of Punjab. As the focus of the study was on the school students studying 10+2 classes, are presentative sample of 200 adolescents was taken from different senior secondary schools of Fazilka district. Random sampling technique was employed for selection of sample. Table 1 shows the distribution of sample:

Table 1: Showing Distribution of Sample

Sr. No.	Name of school	Number of students
1	Swami Keshwanand Senior Secondary School, Abohar	35
2	Divine Light Senior Secondary School, Abohar	35
3	LRS DAV Senior Secondary School, Abohar	35
4	Government Senior Secondary School for boys, Abohar	48
5	Government Senior Secondary School for girls, Abohar	47
6	Total	200

Tools Used

The following tools were used for data collection:

1. Optimism scale by Parashar (1998)
2. Multidimensional Students' Life Satisfaction Scale by Huebner (2001).

Statistical Techniques Used

1) Descriptive statistical techniques have been calculated for the various groups.
2) K-S test was used to check the normality of data.
3) Karl Pearson's product moment co-efficient of correlation have been computed.
4) Fisher's Z-transformation has been employed to find out significance of difference between correlations.

Coefficient of correlation between optimism and life satisfaction among adolescents

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	200	-0.120	Not Significant
2.	Life Satisfaction	200		

Coefficient of correlation between optimism and life satisfaction among adolescent boys

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	-0.118	Not Significant
2.	Life Satisfaction	100		

Coefficient of correlation between optimism and life satisfaction among adolescent girls

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	0.061	Not Significant
2.	Life Satisfaction	100		

Coefficient of correlation between optimism and life satisfaction among rural adolescents

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	-0.221	Not Significant
2.	Life Satisfaction	100		

Coefficient of correlation between optimism and life satisfaction among urban adolescents.

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	0.121	Not Significant
2.	Life Satisfaction	100		

Correlation between optimism and life satisfaction adolescents from government schools

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	-0.130	Not Significant
2.	Life Satisfaction	100		

Correlation between optimism and life satisfaction adolescents from private schools

Sr. No.	Variables	N	r	Level of significance(α=.01)
1.	Optimism	100	0.062	Not Significant
2.	Life Satisfaction	100		

Comparison of correlation between optimism and life satisfaction of adolescents across gender, locale and type of school

Variables	Group	N	Pearson's r	Fisher's Z	σ Z1-Z2	CR
Optimism and Life Satisfaction	Boys	100	-0.118	0.118	0.141	0.404
	Girls	100	0.061	0.061		
	Rural	100	-0.221	0.221	0.141	0.709
	Urban	100	0.121	0.121		
	Govt.	100	-0.130	0.130	0.141	0.482
	Private	100	0.062	0.062		

Summary of Results

1. There exists no significant correlation between optimism and life satisfaction of adolescents.
2. There exists no significant correlation between optimism and life satisfaction of adolescents with respect to gender (boys and girls), locale (rural and urban) and type of school (government and private).
3. There exists no significant difference between relatedness of optimism and life satisfaction of adolescents with respect to gender (boys and girls), locale (rural and urban) and type of school (government and private).

Delimitations

1) Study was delimited to a sample of 200 adolescents only.
2) Study was delimited to Fazilka district only.
3) Study was delimited to only two dependent variables.

Educational Implications

Any piece of research is incomplete without educational implications. This research has also made so many educational implications. When a person is optimist, this does not guarantee him/her to perceive the life in positive sense. As optimism and life satisfaction are not significantly correlated to each other so teacher should put efforts to promote optimism and guide about life satisfaction in both academic and family environments, facilitating student's optimal personal and academic development. Educational implications of this study lies in the fact that individual's degree of optimism and pessimism may not always play a substantial role in his/her low or high satisfaction in life. A highly satisfied person may have pessimistic attitude.

Suggestions for Further Studies

1. The study may be replicated on a large sample.
2. Comparative study of optimism and life satisfaction may be conducted with respect to socio- economic status, school environment, emotional maturity, family environment, mental health, social maturity etc.
3. Some othet statistical techniques like t-test, F-test and regression equations may be used.

References

Alarcon, G. M., & Khazon, S. (2013). Great expectations: A meta-analytic examination of optimism and hope. *Personality and Individual Differences,* 54(7), 821-827.

Bailey, T. & Snyder, C. (2007). Hope and optimism as related to life satisfaction. *The Journal of Positive Psychology.* 2. 168-175. DOI:10.1080/17439760701409546.

Chauhan, S.S (1997). Advanced Educational Psychology. Jangpura, New Delhi : Vikas Publishing House Pvt. Ltd.

Freud, S. (1917). Mourning and Melancholia. In collected works (pp.243-258). London, Hogarth press.

Freud, S. (1957). Mourning and Melancholia. In J. Strachey (Eds and trans.) Standard edition of the Complete Psychological works of Sigmund Freud. (Vol.14). London: Hogarth Press. (Originally Published, 1917)

Garrett, H. (1959). Statics in Psychology and Education.

Published by Vakils, Offer and Simons Ltd. Bombay.

Hasan, N., & Power, T.G. (2002). Optimism and pessimism in children: A study of parenting correlates. *International Journal of Behavioral Development,* 26(2), 185-191.

Kaul, L. (1997). Methodology of Education and Research. Vikas Publishing House Pvt. New Delhi.

Leung, B. & Moneta, G. (2005). Think positively and feel positively: optimism and life satisfaction in late life. *Aging and Human Development,* 61(4), 335-365.

Nazmi, M. (2021). Mediating role of life satisfaction between optimism and happiness levels of physical education teacher candidates. *International Journal of Social Psychology,* 52(2), 110-126. http://dx.doi.org/10.1177/002076400606209

Rashid, S., Arif, M.I., and Hussian, M. (2012). An Investigation into relationship among stress, optimism and life satisfaction of adolescents. *International Journal of Social Science and Education,* 3(1).

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Exact Size of The Anova F Test under Violation of Homogeneity Assumption

*Dr. Shubhra Katara

Abstract

ANOVA procedures are developed with a set of three assumptions. Among these the second key assumption is that of homogeneity of error variances. Exact size of the F-statistic is obtained under violation of this assumption i.e. under homogeneity of variances. The expression or the exact size of the F-statistic has been obtained by means of transformation of variables. This consists of some coefficients and Incomplete Beta variable. The exact probabilities of critical region for ANOVA-F test with unequal variances is obtained for different ratios of unequal variances. The result indicate that heterogeneity of error variances affects the size of the test seriously. Effect is more for unbalanced situation than for balanced situations. Similarly, to two sample cases the effect of heterogeneity of variances is combined with that of unequal group size. This test underestimates the size of the test when larger variances come from smaller group and also for equal sample sizes. Whenever the larger group has higher variances the size of the test is overestimated.

Introduction

The wide acclaim that design of experiments is getting today is because of Sir R.A. Fisher who developed a technique called Analysis of Variance to carryout the statistical analysis of the data, which is collected after the experiment is over in a design. So important its use is today that we can well said that of all the concepts and tools used in statistical theory none is unilaterally more important and pervasive than the analysis of variance or ANOVA.

In order to use analysis of variance for performing these tests of significances, we assume all experimental errors should be normally distributed, should have a common variance and should be statistically independent.

For applying ANOVA second assumption in hand is that of homogeneity of error variances. Heterogeneity of error variances arises in several ways. For example, a particular group or a part of the experiment may be suffered by some damage. This damage is likely to affect the yield of that part and then variability for that particular treatment group will definitely be different from that of other groups due to variation in degree of damage which in turn causes heterogeneity of variance. On the other hand, the whole experiment for which the design is to be applied may be conducted by several experimenters handling different blocks of the design. Their relative efficiencies, method of conducting experimental procedures may cause source inherent variability in the data. So, despite taking a lot of precautions, the variability is not completely ruled off from any experimental design. Secondly, the nature of any treatment may be such that it gives more variable responses than others and produces heterogeneity in variances. There are situations where the factors responsible for variability in certain characters vary in different treatment groups and even if they are same, they could affect the variability differently.

Heterogeneity may also be produced if any of other ANOVA assumption is violated. For example, let us discuss normality. For a normal distribution, its mean and variance are independent. But for any other distribution there may exist a correlation between variance of observation and its mean. So for groups with higher means the variance will be more and for groups with lower means the variance will be less, if correlation is positive and viceversa if there is a negative correlation. So, difference in means will result in inequality of variances.

Like most of other assumptions regarding mathematical models in statistical theory, ANOVA assumptions are also vulnerable and we can come across situations where these assumptions are not fully met.

So there is a possibility of misuse of wrong use of ANOVA procedures. A statistical testing procedure has traditionally been called robust if both is type I error and its power are not affected drastically by departures from

* Dept. of Statistics, Bareilly College, Bareilly U.P. 243005

basic assumptions. It is therefore desirable to study the exact measure in which classical procedures are affected by departures from basic assumption.

Kanji (1975) studied the effect of unequal error variances on the power in general linear model. He found that the power value is seriously affected when normally and independently distributed error variables have unequal error variances and whenever error variances are unequal, the power value is greater than that for equal error variances. Kanji (1976) studied two way classification and showed that the power of the between column test is greatly affected by the unequal column variances.

For one way classification model :

$$x_{ij} = m + a_i + e_{ij} \qquad i = 1, 2, \ldots\ldots k \quad j = 1, 2, \ldots\ldots n_i$$

Where, m = general mean effect

a_i = effect due to ith treatment

e_{ij} = error term associated with (i, j)th observation.

The general hypothesis of no difference in group means i.e.

Ho: $\mu_1=\mu_2=..=\mu_k$, ($\mu_i=m+a_i$) is tested by the statistic.

$$F = \frac{\sum_{i=1}^{k}\left[n_i\left(\overline{x_1}-\overline{x_2}\right)^2\right]/(k-1)}{\sum_{i=1}^{k}(n_1-1)s_1^2/(N-k)} \qquad \ldots\ldots\ldots\ldots(1)$$

When null hypothesis is true, and assumptions underlying ANOVA are fully met this statistic F is distributed as Snedecor's F with (k–1, N–k) degrees of freedom.

Since the violation of first assumption namely, assumption of normality has very little effect on level and power of the test in fixed effects model. So, we are assuming here the normality of observations.

Deviation and Results

Now, we will derive the exact null distribution of F statistic under violation of equal variances.

Distribution of F under heterogeneity of variances

The F statistic in eq. 1 can be expressed as

$$F = \frac{N-k}{k-1}\frac{X}{Y}, \qquad \ldots\ldots\ldots\ldots(2)$$

Where, $X = \sum_i n_i\left(\overline{x_i}-\overline{x_i}\right)^2$

And $Y = \sum_i (n_i-1)s_i^2$

$$N = \sum_i^k n_i$$

Let us also define a vector

$$Z = \left[\frac{\sqrt{\left[n_i\left(\overline{x_1}-m\right)\right]}}{\sigma_1}, \frac{\sqrt{\left[n_2\left(\overline{x_2}-m\right)\right]}}{\sigma_2} \ldots\ldots\ldots \frac{\sqrt{\left[n_k\left(\overline{x_k}-m\right)\right]}}{\sigma_k}\right]$$

And $\delta' = \left[\frac{\sqrt{n_1}}{N}, \frac{\sqrt{n_2}}{N}, \ldots\ldots\ldots\ldots, \frac{\sqrt{nk}}{N}\right]_{1xk}$

Also let $A = D^2 - D\delta\delta' D$,

Where $D^2 = Diag[\sigma_1^2, \sigma_2^2 \ldots\ldots \sigma_k^2]$

Then, between sum of squares i.e. numerator of F can be expressed as B.S.S. = Z' AZ

$$= \sum_{j=1}^{P}\lambda_j u_j, P = k-1 \qquad \ldots\ldots\ldots\ldots(3)$$

Where λ_j is j^{th} characteristic root of the matrix A.

Then, according to Ruben (1962), the distribution of $\sum_{j=1}^{k}\lambda_1 u_1$, is given by $\sum_{i=0}^{\infty} C_i G_{P=2i}\left(x/\beta_1\right)$

Where $G_{P+2i}(x/\beta_1)$ is distributed as β_1 times a Chi Square variate with (p+2i) degree of freedom. The coefficients (C_j) are defined as

$$\left.\begin{aligned} & C_0^2\sum_{j=0}^{P}\left(\beta_1/\lambda_j\right), \\ & C_r = \frac{1}{r}\sum_{i=0}^{r-1} d_{r-1}C_i,\ r \geq 1, \\ & ds = (1/2)\sum_{j=0}^{P}\left(1-\beta_1/\lambda_j\right)^5 \end{aligned}\right] \qquad \ldots\ldots\ldots\ldots(4)$$

and β_1 is an arbitary positive constant such that $C_i \geq 0_i$ and $\sum_{i=0}^{\infty} C_i = 1$

Ruben (1962) suggested that $\beta_1 = 2\lambda_1\lambda_P(\lambda_1+\lambda_P)^{-1}$ may be close to the optimal choice of β_1.

Hence between groups sum of squares has the density function.

$$f(x) = \sum_{i=0}^{\infty} C_i\left(1/\beta_1\right)\frac{1}{2^{(p+2i)/2}\Gamma(p+2i)/2}\left(x/\beta_1\right)^{(p+2i/2)-1} e^{-1/2x/\beta_1} \quad ..(5)$$

One can write the error sum of squares as :

$$E.S.S. = \sum_{i=1}^{\infty}(n_1-1)s_1^2$$

The variances s_i^2 are distributed as

$$\frac{(n_1-1)s_1^2}{\sigma_1^2} \sim \neq^2 n_i - 1, \qquad i = 1,2,\ldots\ldots\ldots\ldots k$$

which implies $(n_i-1)s_I^2 \sim \sigma_i^2 \neq n_i-1$

Hence, we write error sum of squares as

$$\sum_{i=1}^{P}(n_i-1)s_1^2=\sum_{i=1}^{P}\sigma_i^2 v_i$$

Where, V_i are independent Chi-Square variates with (n_i–1) degree of freedom.

Let q_i = (n_i–1) and d $\sum_{i=1}^{k} q_i = q$. Then, according to Ruben (1962), error sum of squares is distributed as

$$P[ESS \le y]=\sum_{j=0}^{\infty} D_j G_{q+2i}(y/-\beta_2),$$

Where G_{q+2j} $(y/-\beta_2)$ is distribution of β_2 times a Chi-square

variate and coefficients (D_j)s are defined as:

$$\left.\begin{aligned} & D_0^2\sum_{i=1}^{k}(\beta_2/\sigma_1^2)^{qi} \\ \text{and}\quad & D_r=(1/r)\sum_{j=0}^{r-1}h_{r-1}D_j,\ r\ge 1, \\ & h_s=(1/2)\sum_{i=0}^{k}q_1(1-\beta_2/\sigma_1^2)^8 \end{aligned}\right] \quad ....(6)$$

Let Q_1 = min σ_i^2 and $Q_2 = \sigma_i^2$. Then, an optimal choice of β_2 is min (Q_H, Q_{WH}), where (i) Q_H is the unweighed Harmonic Mean = $2/(Q_1^{-1}+Q_2^{-1})$ and (ii) Q_{WH} is weighed

Harmonic Mean = $\dfrac{q^{(1)}+q^{(2)}}{\dfrac{q^{(1)}}{Q_1}+\dfrac{q^{(2)}}{Q_2}}$ and $q^{(1)}$ and $q^{(2)}$ are respective degrees of freedom.

Hence, we write the density function of E.S.S. as

$$f(y)=\sum_{j=0}^{\infty} D_j \frac{(1/\beta_2)(y/\beta_2)^{(q+2j/2)-1}}{2^{(q+2j/2)}\Gamma[(q+2j)/2]}\exp^{-y/2\beta_2} \quad .....(7)$$

Since X and Y are two independent variables, their joint density function is obtained from eqn. (5) and (7) as

f(xy) = f(x)f(y)

$$=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}\frac{C_iD_j}{\beta_1\beta_2}x\frac{(x/\beta_1)^{(p+2j/2)-1}(y/\beta_2)^{(q+2j/2)-1}e^{1/2[(x/\beta_1)-(y/\beta_2)]}}{2^{(p+q+2i+2j)/2}\Gamma(p+2i)/2\ \Gamma(q+2j)/2} \quad ....(8)$$

Now, let us make a transformation

X = u

and dx/y = v, where d = (N - k) / (k- 1)

Jacobian of transformation is

$$|J|=\begin{vmatrix} 1 & 0 \\ d/v & -du/v^2 \end{vmatrix}=\frac{du}{v^2}$$

So, $f(u,v)$ = | J | $x\, f(xy)$

$$=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}\frac{C_iD_j}{\beta_1\beta_2}x\frac{(du/\beta_2 v)^{qj-1}(u/\beta_1)^{pi-1}e^{-1/2[(u/\beta_1+du/\beta_2 v)]}}{2^{pi+qj}\Gamma P_i\ \ \Gamma q_j}x\frac{du}{v_2}$$

$$=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}A_{ij}(1/v)^{qj+1}u^{pi+qj-1}e^{-1/2\alpha u} \quad ....(9)$$

Where,

$$A_{ij}=\frac{C_iD_j}{2^{pi+qj}\Gamma p_i\ \Gamma q_j}x(1/\beta_1)^{pi}(d/\beta_2)^{qj},$$

$$\alpha=\frac{1}{\beta_1}+\frac{d}{\beta_2 v},$$

$P_i = (p+2_i)/2$ And $q_j = (q+2_j)/2$

Integrating eqn. (9) with respect to u

$$f(v)=\int_0^{\infty}\sum_i\sum_j A_{ij}(1/v)^{qj+1}(u)^{p_i+q_j-1}e^{-1/2\alpha u}du$$

$$=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}A_{ij}(1/v)^{qj+1}x\frac{\Gamma(p_i+q_j)}{(1/2\alpha)^{pi+qj}} \quad ....(10)$$

Since $\displaystyle\int_0^{\infty}e^{-\beta\alpha}(x)^{\alpha-1}dx=\frac{\Gamma\alpha}{\beta\alpha}$

Putting the values of A_{ij} and α in eqn. (10), we get

$$f(v)=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}C_iD_j\frac{\beta_2}{d\beta_1}x\frac{(\beta_2/d\beta_1)^{pi-1}}{\Gamma P_i\ \ \Gamma q_j}x(1+\beta_2/d\beta_1)^{-(pi+qj)}$$

or we can write

$$P[F\le v]=\sum_{i=0}^{\infty}\sum_{j=0}^{\infty}C_iD_jF_{p+2i,q+2j}(\beta_2/d\beta_1 v) \quad ....(11)$$

Where, $F_{p+2i,q+2j}$ is the distribution of Snedecor's F variate with (p+2i, q=2j) degrees of freedom.

Equation (ii) can also be expressed in terms of incomplete beta function as

$$P[MSB/MSE\le f_\alpha]=\sum_i\sum_j C_iD_jI_W\left[\left(\frac{P}{2}+i\right)\right]+\left[\left(\frac{q}{2}+i\right)\right]$$

Where, $w=\dfrac{(\beta_2/d\beta_1)f_\alpha}{1+(\beta_2/d\beta_1)f_\alpha}$

and I_w [p/2) + i, (q/2) + j] represents the tabulated value of Incomplete Beta function.

Size of the test can be obtained by computing $P(MSB/MSE \ge f_\alpha)$ on the lines given below :

$P(MSB/\ MSE \geq f_\alpha)$

$= 1 - P(MSB/\ MSE \leq f_\alpha)$

$$= 1 - \sum_i \sum_j C_i D_j I_W \left[\left(\frac{P}{2}\right) + i, \left(\frac{q}{2}\right) + j \right]$$

$$= \sum_i \sum_j C_i D_j \left[1 - I_W \left\{ \left(\frac{P}{2}\right) + i, \left(\frac{q}{2}\right) + j \right\} \right]$$

$$= 1 - \sum_i \sum_j C_i D_j I_{1-W} \left[\left(\frac{q}{2}\right) + j, \left(\frac{P}{2}\right) + i \right] \quad ....(12)$$

Exact size of ANOVA F under heterogeneous variances for some apriori values :

Now in order to accurately measure this variation in size of the test we take some apriori set of values and calculate exact size of the test for these values. We take 3 groups and 4 sets of sample size namely (5,5,5), (6,5,4), (7,4,4) and (4,4,7). We also take three sets of unequal variances (1,2,3), (1,3,4) and (2,3,5). So in all we have 12 combinations of unequal variances and group sizes. The exact size of the ANOVA F-test for unequal variance is obtained by using equation 12. The results obtained are present in Table A and Table B.

Conclusions

The results indicate that heterogeneity of error variances affects the size of the test seriously. Effect is more for unbalanced situations than for balanced situations. Similarly, to two sample cases the effect of heterogeneity of variances is combined with that of unequal group size. This test underestimates the size of the test when larger variances come from smaller group has higher variances the size of the test is overestimated.

These conclusions come from the fact that the size of the test is more than nominal size for groups with sizes (5, 5, 5), (6, 5, 4) and (7, 4, 4) while less than nominal size for group with sizes (4, 4, 7) for all unequal variances.

Table A: Exact probability of type I error of ANOVA F for unequal variances
α= 0.05

n_1, n_2, n_3	Variances $\sigma_1^2, \sigma_2^2, \sigma_3^2$		
	1, 2, 3	1, 3, 4	2, 3, 5
5, 5, 5	0.0557053	0.0554950	0.0543019
6, 5, 4	0.0626136	0.0591209	0.0547850
7, 4, 4	0.0703357	0.0784747	0.0628597
4, 7, 7	0.0382404	0.0377540	0.0379108

Table B: Exact probability of type I error of ANOVA F for unequal variances
α= 0.01

n_1, n_2, n_3	Variances $\sigma_1^2, \sigma_2^2, \sigma_3^2$		
	1, 2, 3	1, 3, 4	2, 3, 5
5, 5, 5	0.0123748	0.0105923	0.0118866
6, 5, 4	0.0147384	0.0126127	0.0139730
7, 4, 4	0.0213373	0.0233400	0.0101722
4, 7, 7	0.0073008	0.0091627	0.0071495

In this case, size of the test is very seriously affected by unequal variances for all situations of unbalancedness as well as balanced situation. Since the effects of both heterogeneity and unbalancedness are confounded, it is hard to say how the test size is affected by inequality of variances. But even than a general conclusion alike two sample case may be drawn that whenever the larger variability group is larger in size, the size of the test is over estimated by traditional ANOVA F. For balanced and other unbalanced situations the size of the test is under estimated. Thus, there are two conclusions :

1) For balanced as well as unbalanced situations where smaller group size is attached to larger variable group, the test size is under estimated.
2) When larger group size is combined with larger variability the ANOVA-F over estimated the size of the test i.e. acceptance of null hypothesis is more frequent.

References

Kanji, G.K. (1975): Robustness of power in Analysis of varience. *Stat. Compu. Simul.,* (4), 19-30.

Kanji, G.K. (1976): g Sensitivity of power in Analysis of variance to the departure from in built assumptions. *Statistician* (25), 43-48.

Ruben, H. (1962): Probability content of regions under spherical normal distributions IV. The distribution of homogeneous and non homogenous quadratic functions of normal variables. *Ann. Math. Statist.,* (33), 542-570.

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उच्च माध्यमिक स्तर पर अध्ययनरत विद्यार्थियों की मिश्रित शिक्षण के प्रति अभिवृत्ति का अध्ययन

*नितेश कुमार आनन्द, **डॉ. राजेश कुमार सिंह

सारांश

प्रत्येक राष्ट्र अपने विकास के लिए सदैव प्रत्यनशील रहते हैं तथा किसी राष्ट्र का विकास वहां की शिक्षा व्यवस्था एवं गुणवत्ता पर निर्भर करती है। शिक्षा पर सभी सरकारें विभिन्न आयोगों द्वारा दिए गए सुझावों के आधार पर नीतियां बनाती हैं। शिक्षण अधिगम प्रक्रिया को अधिक विद्यार्थी केंद्रित बनाने तथा प्रभावशाली बनाने हेतु सदैव प्रयास किए जाते रहे हैं। पिछले कुछ वर्षों से, विशेष तौर पर कोविड के बाद ऑनलाइन और ऑफलाइन शिक्षण का प्रयोग मिश्रित रूप से शिक्षण संस्थानों में देखने को मिल रहा है। शिक्षण के इस मिश्रित रूप को मिश्रित शिक्षण/मिश्रित अधिगम कहा जाता है। शिक्षा नीति 2020 भी सीखने के लिए मिश्रित मॉडलों को बढ़ावा देने की सिफारिश करती है। प्रस्तुत शोध पत्र में शोधकर्ता द्वारा उच्च माध्यमिक स्तर पर मिश्रित शिक्षण के प्रति विद्यार्थियों की अभिवृत्ति का अध्ययन किया गया है। इस शोध अध्ययन का मुख्य उद्देश्य उच्च माध्यमिक स्तर के विद्यार्थियों का मिश्रित शिक्षण के प्रति अभिवृत्ति का अध्ययन करना है। इस शोध अध्ययन में प्रतिदर्श का चयन करने हेतु संभाव्यता प्रतिदर्शन विधि के अंतर्गत स्तरकृत प्रतिदर्शन विधि का प्रयोग किया गया है। इस अध्ययन में पाया गया कि मिश्रित शिक्षण के प्रति विद्यार्थियों की सकारात्मक अभिवृत्ति है। अधिकांश विद्यार्थी पारंपरिक शिक्षण की तुलना में मिश्रित शिक्षण विधि से अध्ययन करना चाहते हैं। मिश्रित शिक्षण को पारंपरिक शिक्षण की तुलना में अधिक रुचिकर तथा प्रभावशाली मानते हैं। इस अध्ययन का निहितार्थ यह है कि यह शोध सुझाव देता है कि भविष्य में उच्च माध्यमिक स्तर पर अर्थशास्त्र विषय के शिक्षण हेतु पारंपरिक शिक्षण विधि के बजाय मिश्रित शिक्षण विधि का प्रयोग किया जाना चाहिए।

प्रस्तावना

शिक्षा प्रत्येक बालक के सर्वांगीण विकास के लिए अत्यन्त आवश्यक है। इसके बिना मनुष्य एक पशु के समान होता है। प्राचीन काल से ही बालकों की शिक्षा पर महत्व दिया जाता रहा है। प्राचीन काल में शिक्षण अधिगम प्रक्रिया में शिक्षक ही शिक्षण प्रक्रिया का केंद्र बिंदु होता था तथा पारंपरिक शिक्षण विधि प्रचलन में थी। इस विधि में शिक्षक अपने कक्षा में बालकों को विषय वस्तु को समझाने के लिए मुख्य रूप से व्याख्यान का प्रयोग करता है। शिक्षार्थी संपूर्ण शिक्षण प्रक्रिया में निष्क्रिय श्रोता बना रहता है। विद्यार्थियों को कक्षा में स्वतंत्रता कम मिलती है। इस प्रकार के शिक्षण के तरीकों को पारंपरिक शिक्षण कहा जाता है। इस शिक्षण विधि में शिक्षक विद्यार्थियों को आमने-सामने कक्षा में उद्देश्यों को ध्यान रखकर विषय वस्तु को विद्यार्थियों को समझाने का प्रयास करता है। वर्तमान वैज्ञानिक और तकनीकी युग में पारंपरिक शिक्षण विधियां विद्यार्थियों में रुचि पैदा करने के लिए अपर्याप्त है। यह विधियां विद्यार्थियों के बौद्धिक मनोवैज्ञानिक और भावनात्मक जरूरतों को पूरा करने में असमर्थ रहती हैं।

बदलते हुए वैश्विक परिवेश में, बढ़ती हुई वैश्विक चुनौतियों का सामना करने के लिए पूरे शिक्षण अधिगम प्रक्रिया को अनुकूल बनाने के लिए पारंपरिक तथा शिक्षण के नवीन तरीकों को एक साथ मिश्रित करना होगा। इसलिए विगत कुछ वर्षों से पारंपरिक शिक्षण रणनीति विधि बीते दिनों की सीखने की प्रक्रिया हो चुकी है। अब समय आ गया है कि शिक्षा के क्षेत्र में नवीन शिक्षण रणनीति विधि को स्वीकार किया जाए। कोविड के प्रकोप के बाद शिक्षण अधिगम प्रक्रिया में सूचना और संचार प्रौद्योगिकी (आईसीटी) का प्रयोग अधिक होने लगा है। शिक्षा की प्रक्रिया में आईसीटी के प्रयोग द्वारा शिक्षण प्रक्रिया अधिक प्रभावशाली हो गई है। शिक्षण प्रक्रिया में पारंपरिक शिक्षण में ऑनलाइन मीडिया तथा डिजिटल प्लेटफॉर्म का उपयोग शिक्षक द्वारा किया जाने लगा है। शिक्षण की इस नवीन विधि को मिश्रित शिक्षण विधि कहा जाता है। मिश्रित शिक्षण रणनीति (विधि) शिक्षण की एक नवीन विधि है जिसमें आमने-सामने के शिक्षण के साथ-साथ ऑनलाइन माध्यम एवं डिजिटल प्लेटफार्म से विद्यार्थियों को सिखाने का प्रयास किया जाता है।

* Research Scholar, Department of Education, D.D.U. Gorakhpur University, Gorakhpur, (U.P.) India
** Assistant Professor, Department of Education, D.D.U. Gorakhpur University, Gorakhpur, (U.P.) India (Corresponding Author)

मिश्रित शिक्षण विधि एक नवीन शिक्षण विधि है जिसमें अध्यापक द्वारा विषय वस्तु को समझाने के लिए केवल एक शिक्षण विधि का प्रयोग नहीं किया जाता है बल्कि वह विभिन्न शिक्षण विधिओं—जैसे प्रत्यक्ष निर्देश, व्याख्यान देना, वाद विवाद, सहयोगात्मक कार्य, परियोजना कार्य विधि आदि का प्रयोग सुव्यवस्थित ढंग से किया जाता है। मिश्रित शिक्षण एक अभिनव संकल्पना है जो कि ऑनलाइन शिक्षण तथा पारंपरिक कक्षा शिक्षण के सार्थक गतिविधियों का एक सुव्यवस्थित संयोजन है। मिश्रित शिक्षण विधि को विभिन्न विद्वानों ने परिभाषित किया है। फर्स्ट हैंड बुक ऑफ ब्लेंडेड लर्निंग वर्ष 2006 में प्रकाशित पुस्तक में बाक तथा ग्राहम ने ब्लेंडेड लर्निंग को सही ढंग से परिभाषित किया है ग्राहम (2006) ने मिश्रित शिक्षण को परिभाषित करते हुए कहा कि- मिश्रित शिक्षण प्रणाली आमने-सामने निर्देश को कंप्यूटर मध्यस्थ के निर्देश के साथ जोड़ती है।

ब्रायन ग्रीन ने कहा कि- "Blended learning is the perfect marriage of traditional teaching methods and modern technology"

मिश्रित शिक्षण पारंपरिक शिक्षण विधियों और आधुनिक तकनीक का सही मेल है।

आजकल ब्लेंडेड लर्निंग एक आदर्श शिक्षण पद्धति बन गई है विभिन्न विषयों के शिक्षण के लिए इसका प्रयोग किया जाने लगा है। शिक्षा नीति 2020 में सीखने के लिए मिश्रित मॉडलों के प्रयोग पर बल दिया गया है। इसी को ध्यान में रखते हुए शोधकर्ता द्वारा एक प्रयोगात्मक शोध कार्य किया गया है जिसके अंतर्गत अर्थशास्त्र विषय को मिश्रित शिक्षण विधि से विद्यार्थियों को पढ़ाया गया तथा उनकी मिश्रित शिक्षण के प्रति अभिवृत्ति को मापा गया है।

संबंधित साहित्य का अध्ययन

शोधकर्ता द्वारा शोध समस्या से संबंधित साहित्यों का अध्ययन किया गया है जिसका विवरण इस प्रकार से है-

1. मदुरै जिले में कार्यरत शिक्षकों के मध्य मिश्रित अधिगम पर जागरूकता विषय पर शोध कार्य डॉ. एम मरुथावनन और श्रीमती टी.रेणुका देवी द्वारा किया गया है। इस शोध का मुख्य उद्देश्य मदुरै जिले में स्कूल शिक्षकों के मध्य मिश्रित शिक्षा पर जागरूकता का अध्ययन करना तथा मिश्रित शिक्षा पर जागरुकता पर एक उपकरण का निर्माण और मानकीकरण करना था। इस शोध अध्ययन में यह निष्कर्ष प्राप्त हुआ कि मदुरै जिले में कार्यरत शिक्षकों के मध्य शिक्षा पर जागरूकता में सार्थक अंतर पाया जाता है।

2. मिश्रित अधिगम के प्रति विद्यार्थियों में अभिवृत्ति विषय पर शोध अध्ययन फातिमा, अलदावन, हुसैन और फाकुरी ने किया। यह शोध अध्ययन जॉर्डन विश्वविद्यालय में किया गया। इस शोध अध्ययन का मुख्य उद्देश्य जॉर्डन विश्वविद्यालय के विद्यार्थियों में मिश्रित अधिगम के प्रति अभिवृत्ति का परीक्षण करना था। इस शोध अध्ययन में कुल 250 विद्यार्थियों को प्रतिदर्श के रूप में सम्मिलित किया गया था। इस शोध में यह परिणाम पाया गया कि मिश्रित अधिगम के प्रति विद्यार्थियों में सकारात्मक अभिव्यक्ति पाई जाती है।

3. कांचीपुरम जिले में बी.एड विद्यार्थियों के मध्य आईसीटी और मिश्रित शिक्षा के प्रति अभिवृत्ति पर अध्ययन विषय पर शोध कार्य किया गया था। इस शोध अध्ययन का उद्देश्य आईसीटी और मिश्रित शिक्षा के प्रति बी.एड विद्यार्थियों के अभिवृत्ति का अध्ययन करना था। इस अध्ययन में प्रतिदर्श के रूप में 200 बी.एड विद्यार्थियों को सरल प्रतिदर्शन विधि द्वारा सम्मिलित किया गया था। इस अध्ययन में पाया गया कि पुरुष और महिला विद्यार्थियों के बीच आईसीटी के प्रति दृष्टिकोण में अंतर है लेकिन मिश्रित शिक्षा के प्रति पुरुष और महिला विद्यार्थियों के मध्य कोई सार्थक अंतर नहीं है।

4. मिश्रित शिक्षण के प्रति छात्र अध्यापकों में अभिवृत्ति का अध्ययन विषय पर शोध कार्य डॉ. रोलैंड बीरबल, डॉक्टर माला रामदास और श्री शिरीष पाल ने किया था। इस अध्ययन का मुख्य उद्देश्य मिश्रित अधिगम के पति अभिवृत्ति का परीक्षण करना था। इस अध्ययन को पूरा करने के लिए सर्वेक्षण विधि का प्रयोग किया गया था। इस अध्ययन में कुल 807 प्रतिभागियों से प्रतिक्रिया प्राप्त की गई थी। इस अध्ययन में यह निष्कर्ष पाया गया कि- विद्यार्थियों के मध्य उम्र, लिंग के आधार पर मिश्रित अधिगम के प्रति अभिवृत्ति में सार्थक अंतर होता है।

5. प्राथमिक स्तर पर मिश्रित शिक्षण के प्रति विद्यार्थियों और शिक्षकों के अभिवृति का अध्ययन विषय पर शोध कार्य डॉक्टर रुम्पा दास ने किया था। यह शोध अध्ययन प्राथमिक स्तर पर मिश्रित शिक्षण के प्रति विद्यार्थियों और शिक्षकों की अभिवृत्ति से संबंधित सूचनाओं को प्रदान करती है। इस अध्ययन का उद्देश्य मिश्रित शिक्षण उपागम में शिक्षकों के भागीदारी की पहचान करना था तथा प्राथमिक स्तर पर मिश्रित अधिगम उपागम के महत्व का मूल्यांकन करना था। इस अध्ययन में निष्कर्ष में यह पाया गया कि मिश्रित अधिगम का अधिक सकारात्मक प्रभाव विद्यार्थियों पर पड़ा है साथी साथ अध्यापक भी इस प्रकार के अधिगम प्रक्रिया से लाभान्वित हुए हैं।

समस्या कथन

'उच्च माध्यमिक स्तर पर अध्ययनरत विद्यार्थियों की मिश्रित शिक्षण के प्रति अभिवृत्ति का अध्ययन।'

तकनीकी शब्दों का पारिभाषिकरण

उच्च माध्यमिक स्तर से तात्पर्य यूपी बोर्ड द्वारा मान्यता प्राप्त विद्यालयों की कक्षा 11 से है।

विद्यार्थियों से तात्पर्य यूपी बोर्ड द्वारा मान्यता प्राप्त विद्यालयों की कक्षा 11 के अर्थशास्त्र पढ़ने वाले छात्रों एवं छात्राओं से हैं।

मिश्रित शिक्षण से अभिप्राय पारंपरिक कक्षा शिक्षण के सार्थक गतिविधियों एवं ऑनलाइन शिक्षण के सुव्यवस्थित संयोजन से है।

अभिवृत्ति शोधार्थी द्वारा निर्मित अभिवृत्ति मापनी पर विद्यार्थियों की प्रतिक्रियायों से है।

परिसीमन

1. प्रस्तुत शोध अध्ययन केवल उत्तर प्रदेश के गोरखपुर जनपद तक सीमित है।

2. यह अध्ययन केवल उच्च माध्यमिक स्तर (कक्षा-11) पर अध्यनरत अर्थशास्त्र के विद्यार्थियों तक सीमित है।

3. इस अध्ययन में केवल यूपी बोर्ड के विद्यार्थियों को सम्मिलित किया गया है।

अध्ययन का उद्देश्य

उच्च माध्यमिक स्तर पर अध्ययनरत अर्थशास्त्र के विद्यार्थियों में मिश्रित शिक्षण के प्रति अभिवृत्ति का अध्ययन करना।

परिकल्पना

$\mathbf{H_1}$ = मिश्रित शिक्षण के प्रति विद्यार्थियों में सकारात्मक अभिवृत्ति है।

शोध अभिकल्प

शोध पद्धति : प्रस्तुत शोध कार्य में प्रयोगात्मक शोध विधि का प्रयोग किया गया था। इस शोध विधि के अंतर्गत दो समूहों- नियंत्रित समूह तथा प्रयोगात्मक समूह निर्मित किए गए थे। नियंत्रित समूह को पारंपरिक शिक्षण विधि द्वारा तथा प्रयोगात्मक समूह को मिश्रित शिक्षण विधि द्वारा शिक्षण कार्य किया गया था।

समग्र : गोरखपुर जनपद के उच्च माध्यमिक स्तर पर अध्ययनरत यूपी बोर्ड की कक्षा 11 के समस्त विद्यार्थियों को शोध समग्र के रूप में सम्मिलित किया गया है।

प्रतिदर्श : शोध उद्देश्यों को ध्यान रखते हुए शोधकर्ता द्वारा कक्षा 11 अर्थशास्त्र के विद्यार्थियों को प्रतिदर्श के रूप में चयनित किया गया था। प्रतिदर्श का आकार 100 था जिसमें 50 छात्रों एवं 50 छात्राओं को सम्मिलित किया गया था। प्रतिदर्श के चयन हेतु स्तरीकृत प्रतिचयन विधि का प्रयोग शोधकर्ता द्वारा किया गया था।

प्रयुक्त शोध उपकरण

1. अर्थशास्त्र विषय से संबंधित मिश्रित पाठ योजना।

2. मिश्रित शिक्षण के प्रति अभिवृत्ति मापनी।

शोधकर्ता द्वारा विद्यार्थियों के मिश्रित शिक्षण के प्रति अभिवृत्ति के मापन हेतु स्वनिर्मित अभिवृत्ति मापनी का प्रयोग किया। इस अभिवृत्ति मापनी में अंतिम रूप से कुल 20 कथन थे। इस मिश्रित शिक्षण अभिवृत्ति मापनी की वैधता ज्ञात करने के लिए विषयगत वैधता का प्रयोग किया गया। इस अभिवृत्ति मापनी की विश्वसनीयता ज्ञात करने के लिए स्पियरमैन ब्राउन गुणांक के सम-विषम विधि तथा फर्स्ट हाफ-सेकंड हाफ विधि का प्रयोग किया गया। सम-विषम विधि से 0.74 तथा फर्स्ट हाफ सेकंड हाफ विधि से 0.76 विश्वसनीयता गुणांक प्राप्त हुए।

प्रयुक्त सांख्यिकी

आंकड़ों के विश्लेषण हेतु प्रतिशत मान तथा अभिवृत्ति गुणांक की गणना की गई है। अभिवृत्ति गुणांक की गणना के लिए निम्नलिखित सूत्र का उपयोग किया जाता है-

$$\text{अभिवृत्ति गुणांक} = \frac{(f^{+}-f^{-})}{(f^{+})+(f^{0})+(f^{-})}$$

जहाँ पर,

f^{+} = (पूर्णतः सहमत + सहमत) की कुल आवृत्ति

f^{0} = अनिश्चित की कुल आवृत्ति

f^{-} = (पूर्णतः असहमत. असहमत) की कुल आवृत्ति

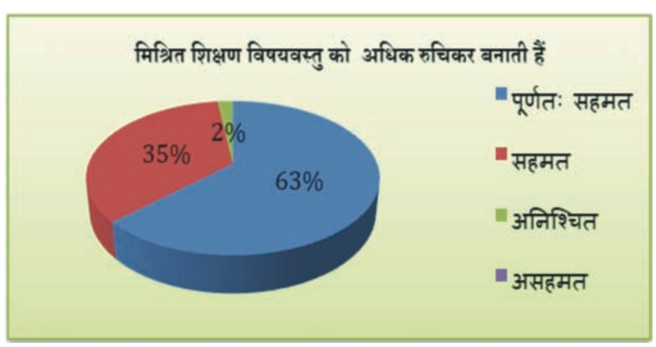
तालिका संख्या-1: मिश्रित शिक्षण के प्रति अभिवृत्ति से सम्बन्धित तालिका

कथन संख्या	कथन	पूर्णतः सहमत	सहमत	अनिश्चित	असहमत	पूर्णतः असहमत
1	मिश्रित शिक्षण विषयवस्तु को अधिक रुचिकर बनाती है।	63	35	2	0	0
2	मिश्रित शिक्षण अध्यापक और विद्यार्थियो के मध्य अंतःक्रिया को मजबूत करता है।	53	41	5	1	0
3	पारंपरिक शिक्षण में अध्यापक के साथ अंतःक्रिया के अधिक अवसर उपलब्ध होते हैं।	19	29	22	26	4

4	मिश्रित शिक्षण आमने-सामने के शिक्षण की तुलना में कम ज्ञान प्रदान करती है।	13	20	17	27	23
5	मिश्रित शिक्षण में विद्यार्थी पारंपरिक शिक्षण की तुलना में अधिक सक्रिय रहते हैं।	32	48	12	4	4
6	मिश्रित शिक्षण के द्वारा विषय वस्तु आसानी से समझ में आती है।	57	33	6	3	1
7	मिश्रित शिक्षण पारंपरिक शिक्षण के तुलना में कम उपयोगी है।	8	26	23	29	14
8	मैं पारंपरिक कक्षाओं के तुलना में मिश्रित कक्षाओं को प्राथमिकता देना पसंद करूंगा।	40	42	4	9	5
9	मिश्रित शिक्षण में पारंपरिक शिक्षण की अपेक्षा विद्यार्थियों को विषयवस्तु को समझने के लिए अधिक मेहनत करनी पड़ती है।	27	20	4	0	11
10	मिश्रित शिक्षण में कक्षा के विद्यार्थियों से अंतःक्रिया के अधिक अवसर उपलब्ध होते हैं।	47	34	15	4	0
11	मैं भविष्य में मिश्रित शिक्षण के द्वारा सीखने के बजाय पारंपरिक शिक्षण से सिखना चाहूंगा।	19	19	20	20	22
12	मिश्रित शिक्षण के द्वारा पारंपरिक शिक्षण के तुलना में विषयवस्तु को जल्दी सीखते हैं।	47	39	8	4	2
13	मैं मिश्रित शिक्षण के तुलना में पारंपरिक शिक्षण को प्राथमिकता दूंगा।	19	23	19	18	21
14	मिश्रित शिक्षण में मेरी एकाग्रता कक्षा में अधिक समय तक बनी रहती है।	45	40	8	5	2
15	पारंपरिक शिक्षण मिश्रित शिक्षण के तुलना मे अधिक आरामदायक हैं।	24	18	25	24	9
16	मिश्रित शिक्षण के तुलना में पारंपरिक शिक्षण अधिक प्रभावशाली हैं।	22	25	18	21	14
17	मिश्रित शिक्षण के प्रक्रिया में ऑनलाइन विडियो, ऑडियो, समुह परिचर्चा और इलेक्ट्रानिक सामग्री ने मुझे सीखने में मदद की।	53	33	7	3	4
18	मिश्रित शिक्षण के तुलना में पारंपरिक शिक्षण से सीखने को अधिक वरीयता दूंगा।	11	32	29	19	9
19	पारंपरिक शिक्षण में विद्यार्थी मिश्रित शिक्षण के तुलना में अधिक सक्रिय रहते हैं।	28	29	13	19	11
20	मिश्रित शिक्षण कक्षाएं पारंपरिक कक्षा शिक्षण के तुलना में शिक्षार्थियों के लिए अधिक प्रेरक होती हैं।	42	34	12	6	6

प्रदत्त विश्लेषण : मिश्रित शिक्षण के प्रति अभिवृत्ति मापनी के प्रथम कथन पर प्राप्त अनुक्रिया से यह व्यक्त होता है कि 63% विद्यार्थी पूर्णतः सहमत, 35% सहमत, 2% अनिश्चित प्रतिक्रिया दिए हैं।

असहमत और पूर्णतः असहमत पर 0% विद्यार्थी प्रतिक्रिया प्रदान किए हैं। इसको वृत आरेख संख्या-1 द्वारा प्रदर्शित किया गया है।



आरेख संख्या-1

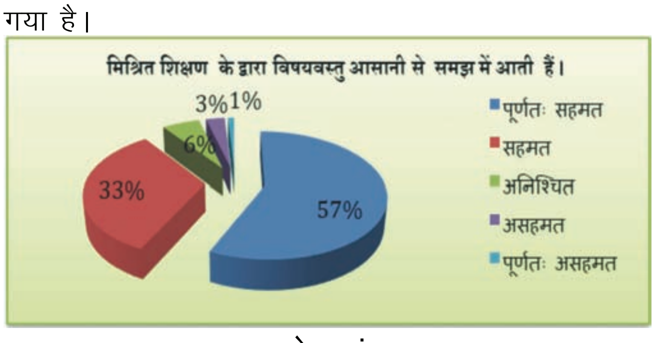
दूसरे कथन - मिश्रित शिक्षण "अध्यापक और विद्यार्थियों के मध्य अंतःक्रिया को मजबूत करता है"- के लिए 53% विद्यार्थियों ने पूर्णतः सहमत, 41% सहमत पर अपनी प्रतिक्रिया दी है तथा 5% विद्यार्थियों ने अनिश्चय विकल्प का चयन किया एवं 1% विद्यार्थी इस कथन से असहमत दिखे।

तृतीय कथन- "पारंपरिक शिक्षण में अध्यापक के साथ अंतःक्रिया के अधिक अवसर उपलब्ध होते हैं" के लिए 19% विद्यार्थियों ने पूर्णतः सहमत, 29% विद्यार्थियों ने सहमत के लिए अपनी प्रतिक्रिया दी है तथा 22% विद्यार्थी इस संदर्भ में कोई स्पष्ट राय नहीं बना पाए और 26% विद्यार्थियों ने असहमत, 4% विद्यार्थियों ने पूर्णतः असहमत विकल्प का चयन किया।

इस अध्ययन से यह प्रकट होता है कि मिश्रित शिक्षण आमने-सामने की शिक्षण की तुलना में काम ज्ञान प्रदान करती है, इस कथन से 13% पूर्णतः सहमत, 20% सहमत प्रतिक्रिया विद्यार्थियों ने दी है तथा असहमत के लिए 27%, पूर्णतया असहमत के लिए 23% विकल्प का चयन विद्यार्थियों ने किया तथा 17% विद्यार्थी इस संदर्भ में कोई स्पष्ट राय नहीं बना पाए।

अभिवृत्ति मापनी के पांचवे कथन- मिश्रित शिक्षण में विद्यार्थी पारंपरिक शिक्षण की तुलना में अधिक सक्रिय रहते हैं, के लिए 32% विद्यार्थियों ने पूर्णतः सहमत, 48% विद्यार्थी ने सहमत विकल्प का चयन किया एवं इस कथन पर 4% विद्यार्थियों ने असहमत, 4% विद्यार्थियों ने पूर्णतः असहमत विकल्प पर अपनी प्रतिक्रिया प्रदान की और 12% विद्यार्थी इस कथन पर अनिश्चित विकल्प पर अपनी प्रतिक्रिया व्यक्त की अर्थात् इस कथन पर प्राप्त प्रतिक्रिया स्पष्ट करती है कि विद्यार्थियों की इस कथन पर सकारात्मक प्रक्रिया है।

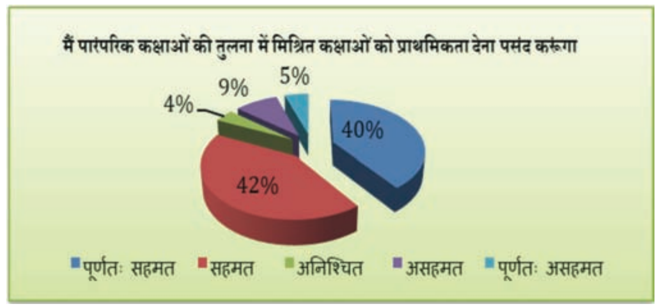
तालिका से यह स्पष्ट होता है कि कथन संख्या-6 "मिश्रित शिक्षण के द्वारा विषय वस्तु आसानी से समझ में आती है"- के लिए 57% विद्यार्थियों ने पूर्णतः सहमत, 33% विद्यार्थियों ने सहमत, 3% विद्यार्थियों ने सहमत तथा केवल 1% विद्यार्थियों ने पूर्णतः असहमत प्रतिक्रिया प्रदान की जबकि इस कथन पर 6% विद्यार्थी कोई राय नहीं बना पाए तथा अनिश्चित विकल्प का चयन किया। इसे वृत आरेख संख्या-2 से भी प्रदर्शित किया गया है।



वृत आरेख संख्या-2

इस शोध अध्ययन से यह भी ज्ञात होता है कि "मिश्रित शिक्षण पारंपरिक शिक्षण की तुलना में कम उपयोगी है" कथन के संदर्भ में पूर्णतः सहमत के लिए 8%, सहमत के लिए 26% प्रतिक्रिया विद्यार्थियों ने प्रदान की जबकि 29% ने असहमत तथा 14% ने पूर्णतः असहमत विकल्प का चयन किया। 23% विद्यार्थी इस संदर्भ में कोई स्पष्ट राय नहीं बना पाए।

इस शोध अध्ययन से यह तथ्य प्रकट होता है कि 40% विद्यार्थी पूर्णतः सहमत हैं कि वह पारंपरिक कक्षाओं की तुलना में मिश्रित कक्षाओं को प्राथमिकता देंगे 42% विद्यार्थी ने इस संबंध में सहमत विकल्प पर अपनी प्रतिक्रिया प्रदान की। केवल (9% असहमत+5% पूर्णतः असहमत) सहित 14% लोगों ने असहमति नहीं रखते हैं। इस तथ्य को वृत आरेख संख्या-3 से भी प्रदर्शित किया गया है।



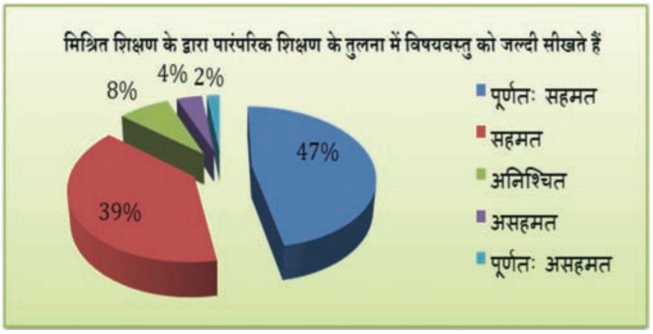
वृत आरेख संख्या-3

तालिका से यह स्पष्ट होता है कि कथन संख्या 9- मिश्रित शिक्षण में पारंपरिक शिक्षण की अपेक्षा विद्यार्थियों को विषय वस्तु को समझने के लिए अधिक मेहनत करनी पड़ती है, के लिए 27% विद्यार्थी पूर्णतः सहमत, 20% विद्यार्थियों ने सहमत, 28% ने असहमत तथा 5% विद्यार्थियों द्वारा पूर्णतः असहमत विकल्प का चयन किया गया जबकि 14% विद्यार्थियों ने इस कथन पर अनिश्चित विकल्प का चयन किया।

इस अध्ययन में प्राप्त आंकड़ों के विश्लेषण से यह भी तथ्य प्रकाश में आया है कि 47% विद्यार्थी मानते हैं कि मिश्रित शिक्षण में कक्षा में विद्यार्थियों से अंतःक्रिया के अधिक अवसर उपलब्ध होते हैं तथा 34% विद्यार्थियों ने भी इस संबंध में सहमत विकल्प पर प्रतिक्रिया दी है। केवल 4% विद्यार्थियों ने इस कथन पर असहमत विकल्प का चयन किया।

तालिका से यह भी तथ्य प्रकट होता है कि- मैं भविष्य में मिश्रित शिक्षण के द्वारा सीखने बजाय पारंपरिक शिक्षण से सीखना चाहूंगा, के लिए 19% विद्यार्थियों ने पूर्णतः सहमत, 19% विद्यार्थियों ने सहमत, 20% विद्यार्थियों ने असहमत तथा 22% में पूर्णतः असहमत विकल्प पर अपनी प्रतिक्रिया प्रदान की है। 20% विद्यार्थी यह निर्णय नहीं कर पाए कि वह भविष्य में वह मिश्रित शिक्षण या पारंपरिक शिक्षा से सीखना चाहेंगे।

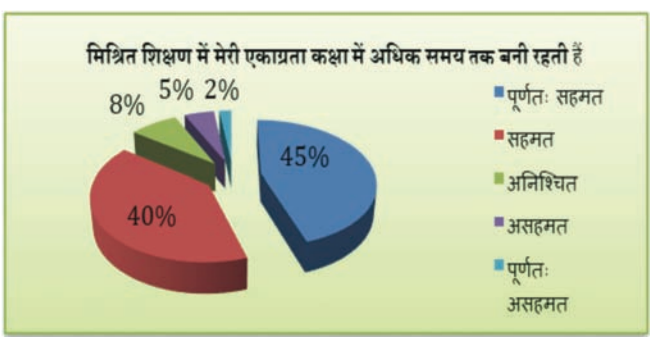
तालिका के कथन संख्या 12 से यह भी स्पष्ट होता है कि 47% विद्यार्थी पूर्णतः सहमत हैं कि वह पारंपरिक शिक्षण की तुलना में मिश्रित शिक्षण से विषय वस्तु को जल्दी सीखते हैं। इस संदर्भ में 39% विद्यार्थियों ने सहमत विकल्प का चयन किया। केवल 4% विद्यार्थी असहमत तथा 2% विद्यार्थियों ने इस कथन पर पूर्णतः असहमत विकल्प पर अपनी प्रतिक्रिया प्रदान की है। इसे वृत आरेख संख्या-4 से भी प्रदर्शित किया गया है।



वृत आरेख संख्या-4

इस शोध अध्ययन से यह तथ्य स्पष्ट होता है कि मैं मिश्रित शिक्षण की तुलना में पारंपरिक शिक्षण को प्राथमिकता दूंगा, के लिए 19% विद्यार्थियों ने पूर्णतः सहमत, 23% विद्यार्थियों ने सहमत, 18% विद्यार्थियों ने सहमत, 21% विद्यार्थियों ने पूर्णतः असहमत विकल्प अपनी प्रक्रिया प्रदान की। 19% विद्यार्थियों ने इस संदर्भ में अनिश्चित विकल्प का चयन किया।

तालिका के कथन 14 पर प्राप्त प्रतिक्रिया से यह प्रकट होता है कि (पूर्णतः सहमत 45%+सहमत के लिए 40%) विद्यार्थियों ने माना कि उनकी एकाग्रता मिश्रित शिक्षण में अधिक समय तक बनी रहती है केवल (5% असहमत+2% पूर्णतः असहमत) के लिए विकल्प पर चयन करने वाले विद्यार्थियों ने इस कथन से सहमति नहीं रखते हैं। वृत आरेख संख्या-5 द्वारा भी इसे आसानी से समझा जा सकता है।



वृत आरेख संख्या-5

अभिवृत्ति मापनी के कथन संख्या 15- पारंपरिक शिक्षण मिश्रित शिक्षण की तुलना में अधिक आरामदायक है, के लिए 24% विद्यार्थियों ने पूर्णतः सहमत, 28% ने सहमत, 24% विद्यार्थियों ने असहमत एवं 9% विद्यार्थियों ने पूर्णतः असहमत विकल्प पर अपनी प्रतिक्रिया प्रदान की जबकि 28% विद्यार्थियों ने अनिश्चित विकल्प को चुना।

इस शोध अध्ययन पर प्राप्त प्रतिक्रिया से यह स्पष्ट होता है कि मिश्रित शिक्षण की तुलना में पारंपरिक शिक्षण अधिक प्रभावशाली है, के लिए 22% पूर्णतः सहमत, 25% सहमत, 21% असहमत, 14% पूर्णतः सहमत असहमत एवं 18% विद्यार्थियों ने अनिश्चित विकल्प पर अपनी प्रतिक्रिया प्रदान की।

तालिका के कथन संख्या 17 से बिल्कुल स्पष्ट होता है कि मिश्रित शिक्षण की प्रक्रिया में ऑनलाइन वीडियो, ऑडियो, समूह चर्चा और इलेक्ट्रॉनिक सामग्री ने अधिकांश विद्यार्थियों को सिखाने में मदद की है।

यह शोध अध्ययन यह भी प्रकट करता है कि मिश्रित शिक्षण की तुलना में पारंपरिक शिक्षण से सीखने को अधिक वरीयता दूंगा, के लिए 11% विद्यार्थियों ने पूर्णतः सहमत, 32% सहमत, अनिश्चित के लिए 29% विद्यार्थियों ने अपनी प्रतिक्रिया प्रदान की जबकि 19% ने असहमत एवं 11% पूर्णतः असहमत विकल्प पर विद्यार्थियों ने अपनी प्रतिक्रिया प्रदान की।

इस शोध अध्ययन से यह भी तथ्य स्पष्ट होता है कि 57% विद्यार्थी मानते हैं कि पारंपरिक शिक्षण में विद्यार्थी मिश्रित शिक्षण की तुलना में अधिक सक्रिय रहते हैं।

यह शोध अध्ययन बिल्कुल स्पष्ट करता है कि 76% विद्यार्थियों का मानना है कि मिश्रित शिक्षण कक्षाएं, पारंपरिक कक्षा शिक्षण की तुलना में विद्यार्थियों के लिए अधिक प्रेरक होती हैं। इस संदर्भ में 12% विद्यार्थियों ने असहमत प्रतिक्रिया प्रदान की तथा 12% विद्यार्थी अपनी कोई स्पष्ट राय नहीं बना पाए तथा अनिश्चित विकल्प का चयन किया।

मापनी के 20 कथन में से ऐसे 10 प्रमुख कथनों को चुना गया जो मिश्रित शिक्षण की विशेषताओं को प्रमुखता से प्रतिबिम्बित करते हैं और उन कथनों पर अभिवृत्ति गुणांक की गणना की गयी जिसे तालिका संख्या-2 में प्रदर्शित किया गया है।

तालिका संख्या-2: अभिवृत्ति गुणांक

क्र. सं.	कथन	f^+ (पूर्णतः सहमत +सहमत) सकारात्मक	f^- (पूर्णतः असहमत +असहमत) नकारात्मक	कुल आवृति	अभिवृत्ति गुणांक
1	मिश्रित शिक्षण विषयवस्तु को अधिक रुचिकर बनाती हैं।	98	0	100	0.98
2	मिश्रित शिक्षण के द्वारा विषयवस्तु आसानी से समझ में आती है।	90	4	100	0.86
3	मैं पारंपरिक कक्षाओं के तुलना में मिश्रित कक्षाओं को प्राथमिकता देना पसंद करूंगा।	82	14	100	0.68
4	मिश्रित शिक्षण के द्वारा पारंपरिक शिक्षण के तुलना में विषयवस्तु को जल्दी सीखते हैं।	86	6	100	0.80
5	मिश्रित शिक्षण में एकाग्रता कक्षा में अधिक समय तक बनी रहती है।	85	7	100	0.78
6	पारंपरिक शिक्षण में अध्यापक के साथ अंतःक्रिया के अधिक अवसर उपलब्ध होते है।	48	30	100	0.18
7	मैं भविष्य में मिश्रित शिक्षण के द्वारा सीखने के बजाय पारंपरिक शिक्षण से सीखना चाहूँगा।	38	42	100	-0.4
8	पारंपरिक शिक्षण मिश्रित शिक्षण की तुलना में अधिक आरामदायक है।	42	33	100	0.09
9	मिश्रित शिक्षण की तुलना में पारंपरिक शिक्षण अधिक प्रभावशाली है।	47	35	100	0.12
10	पारंपरिक शिक्षण में विद्यार्थी मिश्रित शिक्षण के तुलना में अधिक सक्रिय रहते हैं।	57	30	100	0.27

अभिवृत्ति गुणांक

तालिका संख्या-2 के आकड़ों के विश्लेषण से स्पष्ट है कि-

1- 98% विद्यार्थी मानते हैं कि मिश्रित शिक्षण विषय वस्तु को अधिक रुचिकर बनाती है।

2- 86% विद्यार्थियों का मानना है कि मिश्रित शिक्षण के द्वारा विषय वस्तु आसानी से समझ में आती है।

3- 68% विद्यार्थियों का मानना है कि पारंपरिक कक्षाओं की तुलना में मिश्रित कक्षाओं की प्राथमिकता देना पसंद करेंगे।

4- 86% विद्यार्थी मानते हैं कि वह मिश्रित शिक्षण के द्वारा पारंपरिक शिक्षण की तुलना में विषय वस्तु को जल्दी से सीखते हैं।

5- 78% विद्यार्थी इस बात से सहमति रखते हैं कि मिश्रित शिक्षण में उनकी एकाग्रता कक्षा में अधिक समय तक बनी रहती है।

6- केवल 18% विद्यार्थी मानते हैं कि पारंपरिक शिक्षण में अध्यापक के साथ अंतर क्रिया के अधिक अवसर उपलब्ध होते हैं।

7- केवल 4% विद्यार्थियों का मानना है कि वह भविष्य में मिश्रित शिक्षण के बजाय पारंपरिक शिक्षण से सीखना चाहेंगे।

8- केवल 9% लोग ही मानते हैं कि मिश्रित शिक्षण के तुलना में पारंपरिक शिक्षण अधिक प्रभावशाली है।

9- सिर्फ 12% विद्यार्थी मानते हैं कि मिश्रित शिक्षण की तुलना में पारंपरिक शिक्षक अधिक प्रभावशाली है।

10- 27% विद्यार्थी मानते हैं कि पारंपरिक शिक्षण में विद्यार्थी मिश्रित शिक्षण की तुलना में अधिक सक्रिय रहते हैं।

निष्कर्ष

समग्र विश्लेषण से यह ज्ञात होता है कि मिश्रित शिक्षण के प्रति विद्यार्थियों में सकारात्मक अभिवृत्ति पायी गयी। मिश्रित शिक्षण उन्हें अधिक अभिप्रेरित करती है। अधिकांश विद्यार्थी पारंपरिक शिक्षण के तुलना में मिश्रित शिक्षण को अधिक रुचिकर

तथा प्रभावशाली मानते हैं। अतः निष्कर्ष रूप में यह कहा जा सकता है कि परम्परागत शिक्षण की तुलना में मिश्रित शिक्षण के प्रति विद्यार्थियों में सकारात्मक दृष्टिकोण देखने को मिलता है।

अध्ययन का निहितार्थ

पारंपरिक शिक्षण विधि की तुलना में मिश्रित शिक्षण विधि को अधिकांश विद्यार्थी रुचिकर मानते हैं तथा विद्यार्थियों का मानना है कि वह भविष्य में पारंपरिक शिक्षण विधि से अध्ययन करने के बजाय मिश्रित शिक्षण विधि से अध्ययन करना चाहते हैं। इससे यह बात स्पष्ट होती है कि अध्यापक को शिक्षण प्रक्रिया को अधिक रुचिकर तथा प्रभावशाली बनाने के लिए मिश्रित शिक्षण विधि का प्रयोग करना चाहिए।

संदर्भ-सूची

Joseph, Roma smart (2020), Blended learning An introduction: notionpress.com

Graham, C.R (2006), Blending learning systems. The handbook of blended learning, 3-2-1.

Retrieved from https://www.ugc.gov.in/pdfnews/6100340_Concept-Note-Blended-Mode-of-Teaching-and-Learning.pdf

Retrieved from https://en.wikipedia.org/wiki/Blended_learning

आर.के.एस.आरोड़ा (2021). 'डिजिटल कक्षा द्वारा प्रदत शिक्षा के प्रति माध्यमिक स्तर के शिक्षकों की अभिवृति का विश्लेषणात्मक अध्ययन; *Chetna: International Journal of Education,* Vol 2, Year 6, April-June 2021, Retrieved from: http://echetna.com/wp-content/uploads/2021/07/10,-A-h_gulab devi.pdf.

Sharma, Dr. Anita, Kaur, Ranveet (2023). Effect of blending learning strategies on Achievement of elementary school student, 9(9), (ISSN: 2349-6002)

भारत सरकार (2020). राष्ट्रीय शिक्षा नीति 2020. मानव संसाधन विकास मंत्रालय, नई दिल्ली।

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Agriculture Sector: A Fundamental Base of Achieving $5 Trillion Economy Goal

*Prof. Somesh Kumar Shukla, **Abhishek Dwivedi, ***Rahul Mishra

Abstract

An agriculture sector in India, known as primary sector, is essential for economic growth. Since independence, it has emerged as the fastest-growing sector in the world economy. This sector contributes approx. 15-20% of overall GDP of India. This sector plays a vital role in job creation, approx. 53% employment generated by this sector during year 2023-24. Its substantial contribution in both foreign direct investment (FDI) inflows and total exports makes it the engine of economic growth. To maintain and accelerate the growth & contributions of this sector & to develop it as a true engine of economic growth, there is logic & rationale of complementary investments in physical infrastructure as well as in human capital. The present study makes an analysis of agriculture sector in Indian economy, its contribution in overall GDP of India and provides a roadmap to achieve $5 trillion economy vision through agriculture and its allied activities.

Introduction

On 15th August, 2019 i.e., on country's 73rd Independence Day, the Hon'ble Prime Minister of India outlined his ambition to position the Indian economy as the third largest in the world by 2024-2025, with a target of Five Trillion Dollars. In order to achieve this, the gross value added (GVA) must rise by 84% at current prices from 2.71 trillion dollars in 2019-20, or 13.2% annually. Govt. proposed plan to make an India a $5 trillion economy by achieving $1 trillion from agriculture, $1 trillion from manufacturing and $3 trillion from service sector. For achieving $5 trillion economy milestone, the growth of key sectors is important for economic growth and agriculture is the key sector to achieve this target.

Approximately 18% of the GDP is generated by the agricultural sector, which employs about 50% of the work force. Heavy reliance of workforce on agriculture makes it an essential to promote equitable economic growth. Looking back in the past, we can see the country's agriculture industry has helped it move from a food deficit to a self-sufficient economy, with an increased export of agricultural commodities. With net foreign revenues of over one trillion i.e., 1 lakh crore rupees annually, agricultural commerce has emerged as a significant source of income. The commercialization of Indian agriculture is on the rise these days, and this can improve the linkages between the farm and non-farm sectors both directly and indirectly. Such links would result in revenue and job possibilities both within and outside of agriculture, so boosting overall economic growth.

The Ministry of Agriculture and Farmers welfare has been allocated Rs 1,25,036 crore in 2023-24, which is 2.8% of the total Union Budget, 77% (that is 94376 cr.) of the Ministry's estimated expenditure is allocated towards three schemes named as Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Interest Subsidy and Fasal Bima.[1]

The development of agro-based industries would promote structural transformation and speedy commercialization. Agriculture, as a source of raw material, makes a significant contribution to the expansion of agro-based industrial goods. This implies a significant potential for value-added and agricultural product processing, which might lead to several prospects for investment (both local and international) and growth. Moreover, the agro-input industry may become a desirable investment opportunity for the business sector due to the growing usage of bought inputs such as seed, fertilisers, pesticides, farm machinery, and farm services. Unleashing the potential of agriculture, therefore, assumes priority in realizing the target of five trillion-dollar economy.

1 www.indianbudget.gov.in

* Professor, Department of Commerce, University of Lucknow
** Research Scholar, Department of Commerce, University of Lucknow
*** Research Scholar, Department of Commerce, University of Lucknow

Objective

- To explore importance and issues of agricultural and its allied activities,
- To suggest ways and means to promote agricultural and its allied activities
- To ascertained role of agricultural and its allied activities for achieving of $5 Trillion Economy goal.

Research Methodology

The present study seeks to explore importance and issues, to suggest ways and means to promote agricultural and its allied activities for ascertaining its role for achieving of $5 Trillion Economy goal. the study is exploratory and analytical research based on secondary data. Data is collected through websites,journal, newspaper etc.

Importance of Agriculture

Almost 60% of the population of India indulged in agriculture.[2] A prominent position in the economy is occupied by the agricultural sector. Being an agro-economy, India's economy is heavily reliant on the agriculture sector. Agriculture provides job prospects for both agricultural and non-agricultural workers. Despite just supporting the Indian Economy, the agricultural sector also supports the industrial sector and international trade.

India's agricultural heritage extends back to the Neolithic era. Agriculture is the foundation of India's livelihood, civilization, culture and heritage. Agriculture, together with its allied sectors, is certainly the major source of income in India, particularly in the vast rural areas. It also makes a substantial contribution to the gross domestic product (GDP). Currently in 2022-23, agriculture share of GVA (Gross Value Added) in total economy is 18.3%.[3]

India's economy is based primarily on agriculture. As per world Bank and national statistics data, in 2022-23, 51.946% of the country's land classified as arable and the agriculture sector comprising of half of the labor market. But agricultural productivity is far behind its actual potential. Despite several drawbacks, agriculture remains the most important industry for the Indian economy. Agriculture, however, is India's most diverse economic sector and plays an important part in the country's entire socioeconomic fabric.

It's basically the foundation of our economic system. For a significant section of the population, agriculture not only produces food and raw materials but also helpful in generating new job prospects. Some of the facts that clearly highlights the importance of agriculture in India are:

2 www.statista.com/topics/4868/agricultural-sector-in-india #topicOverview

3 https://www.pib.gov.in/PressReleasePage.aspx?PRID=1909213

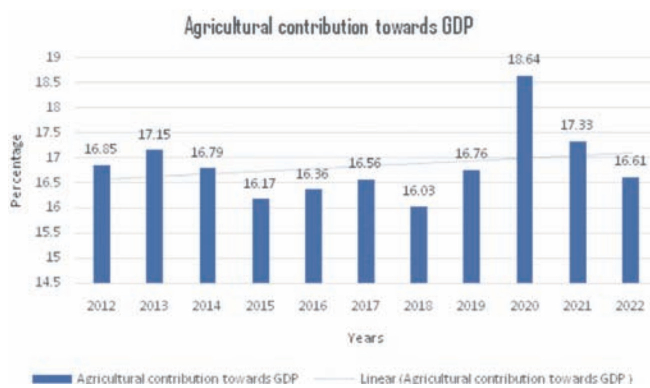
- ***Source of Livelihood:***

Agriculture is the primary source of income for the majority of Indian workers. More than 50% of the workforce is directly employed in agriculture, as per World Bank data 2023. Within developed nations, this ratio is minuscule, including the United Kingdom having 5%, the United States having 4%, Australia having 16%, France having 14%, Japan having 21%, and the Soviet Union having 32%. Agriculture accounts for a large share of employment due to a lack of non-agricultural sectors to support the rising population.

- ***Contribution to Gross National Product:***

Agriculture is nation's primary source of income. In 1960-61, agriculture and related occupations generated 52% of the nation's income, according to the National Income Committee and C.S.O. This sector alone made up 42.2% of the total in 1976-1977; in 1981-1982, that amount was 41.8%. In 2001-02, it generated around 32.4% of national income. This was further lowered to 18.64% in 2020, 17.33% in 2021, and16.61% in 2022.

Contribution of Agriculture in overall growth/ GDP of Indian economy



Source: World Bank

The above chart reveals GDP contribution of agriculture and its allied sectors to the economy of country. Additionally, it can be said that for the development of Indian economy without agricultural development is like a hollow development of the country like India whose 60% of the total population depends directly upon agriculture for their survival.

- ***Relevance to Global Trade***

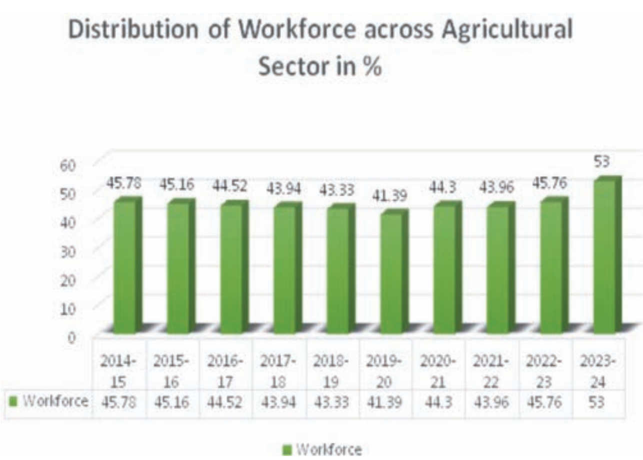
The agriculture industry provides the foundation for the country's trade. The majority of India's exports are agricultural goods such as tea, sugar, rice, tobacco, and spices. A smooth agricultural growth process results in significant decrease in imports and increase in exports. As a result, it helps to minimize the negative balance of payments and save foreign exchange.

- ***Origin of the Raw Material and Participation in Foreign Exchange Resources***

Leading industries including sugar, tobacco, edible and non-edible oils, cotton and jute textiles, etc. have derived their basic ingredients from agriculture. These are all directly reliant on agriculture. A substantial portion of the nation's export trade is made up of the agricultural industry. In the last fiscal half year of 2022-2023, agricultural products such as jute, tobacco, oilseeds, spices, raw cotton, tea, and coffee were estimated to have contributed to over 25% of India's total export value.

- ***Ample job opportunities***

The agricultural sector plays a vital role because it creates more job possibilities in the of irrigation projects, drainage systems, and other related activities. With a rapidly rising population and a high prevalence of unemployment and disguised unemployment in backward nations, only agriculture gives additional job opportunities for the labour force.



Source: World Bank, MOSPI (Ministry of Statistics and Programme Implementation), Dainik jagran

As per above chart, we can easily understand, presently above 50% of workforce employed in agriculture sector, which is continuously increases after Covid-19 pandemic.

- ***Source of Revenue to Government***

India's state governments receive a significant proportion of their income from agriculture. The state governments impose a variety of taxes on agriculture, including land revenue, irrigation tax, and others. Additionally, a substantial sum of money is generated from export and excise duties on agricultural goods.

- ***The foundation of economic development & Commercially viable Surplus***

Agriculture development provides the financial backing required to grow other sectors such as manufacturing, transportation, and international trade and commerce anddevelopment of the agriculture sector also results as marketable surplus. In practical terms, the modern world requires a balanced growth of industry as well as agriculture.

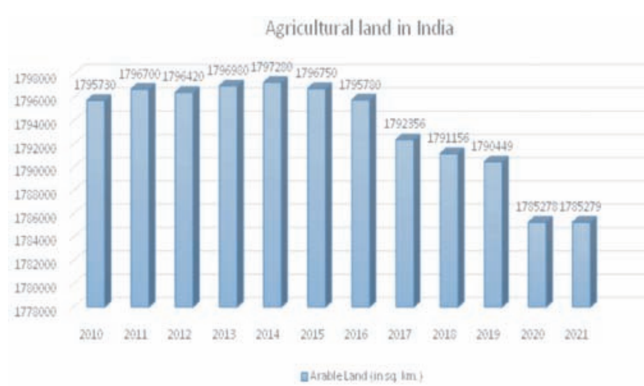
Major Issues faced by Indian Agriculture System

The agriculture sector plays an important role to the Indian economy. Farmers face a number of challenges. These challenges have an impact on the farmer's life, either directly or indirectly. Farmers deal with a number of difficulties, from input procurement to marketing and post-harvest activities. However, the issues encountered by farmers are largely overlooked. India's farmers deal with the following main issues:

- ***Small and fragmented land holdings:***

India is home to more than 17.5% of the world's population and makes up 2.4% of the land mass of the world. With the exception of the US, India has the largest amount of arable land and the largest amount of water areas among all nations, with the exception of the US and Canada. Thus, Indian life is centered on farming and other associated endeavor's in small towns and villages, where a significant portion of the population people's lives.

The majority of Indian agriculture operates on small, fragmented land holdings. This reduces the farmers' efficiency.



Source: World Bank, Economic Survey, Food and Agricultural Organization (FAO).

As per chart mentioned above, agricultural land decreases year on year. The major causes behind this fall are:

a. fragmentation of landholdings, which is due to rising population. This increase in population leads to division of land between the future generations.

b. Use of agricultural land for commercial and residential purposes.

- ***Instability in productivity levels due to Under-developed Irrigation Facilities, ground water depletion and poor quality of seeds etc.***

Smaller land holdings, poor quality of seeds, and poor irrigation facilities (As per world bank report India's 60% of gross cropped area is completely dependent on rainfall) are the primary cause of instability or low productivity levels. On the basis of various reports published, per unit productivity, India is lower than China, U.S.A., and Brazil.For instance, Indian farmers produce 2.8 tonnes of rice per hectare of land, far behind its actual potential. Conversely, 4.7 and 3.6 tonnes of rice respectively are produced per acre in China and Brazil.

- ***Lack of Insurance Support***

The country's agriculture sector faces serious problems from increasingly erratic weather patterns, climate change, and the frequency of natural catastrophes including floods, cyclones, and droughts. These occurrences may result in agricultural losses, animal deaths, and higher vulnerability for farmers. In India Agriculture Insurance Mechanism is very poor. In 192 mha gross sown area or 15 mha (mega hectare) that is approx. 7% gross sown area is insured. If we compare it from other countries, in US 70% of cropped area is insured, and in china, this cropped area is about 62-65%.[4]

- ***Insufficient Mechanization and Traditional Technique of farming***

Although agriculture has been heavily mechanized in some regions of the nation, the majority of agricultural activities in the country's bigger regions are still conducted by hand with the use of basic, traditional equipment's. According to census 2011, average land holding is 1.15 hectare and 85% farmers have less than 2 hectare of land holdings. These factors felt obstruction in implementing the modern mechanization. Modern agricultural practices are not widely adopted because of informational gaps, a lack of knowledge about current methods, and resistance to change.

- ***Inadequate Storage Facilities and Agriculture Marketing***

Post-harvest losses are caused by inadequate cold chain and storage facilities, poor rural roads, and restricted market access. These infrastructural deficiencies raise production costs and make it harder for farmers to get acceptable prices for their crops. Because of such conditions farmer has to sell their produce on low rates. The government of India reported that about 92,000 crore per annum of food wasted every year due to lack of storage facility.

Government Policies Affecting Indian Agriculture

India is giving priority to crops that need substantial intensificationespecially in the case of fungicidesas part of its national agricultural programme. The crop protection business may benefit greatly from the emphasis on increasing sugarcane output, horticulture, and grain production. Some major recent trends include:

4 https://icar.org.in/sites/default/files/2023-02/Indian-Agriculture-after-Independence

S. No.	Name of Plan and Policies	Launching Year	Objective
1	Kisan Credit Card Scheme	1989	This scheme helps to fulfill the various credit requirements of the farmers and the agricultural sector by providing monetary assistance to farmers.
2	Pradhan Mantri Krishi Sinchai Yojana	2015	The scheme aims to provide financial assistance to farmers for the installation of micro-irrigation systems.
4	Pradhan Mantri Fasal Bima Yojana	2016	The scheme aims to provide financial protection to farmers against crop losses due to natural calamities, pests, and diseases.
5	E-NAM (National Agriculture Market)	2016	To create a unified electronic national market for agricultural commodities.

6	Krishi Kalyan Abhiyan	2018	The scheme aims to improve the income and livelihood of farmers in aspirational districts of India.
7	Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)	2018	The objective of PM-AASHA is to provide a minimum price to farmers for their produce, which will help to stabilize their income and ensure their food security.
8	Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY)	2019	To provide a guaranteed monthly pension of Rs. 3,000 to small and marginal farmers after they reach the age of 60 years.
9	Pradhan Mantri KISAN Samman Nidhi (PM-KISAN)	2019	The government provides a direct benefit of Rs 6,000 per year to all small and marginal farmers in the country.
10	National Beekeeping and Honey Mission	2020	Mission aims to double the production of honey in India by 2025.
11	National Mission on Natural Farming	2021	The mission aims to increase the area under natural farming by 50% by 2025.
12	National Mission on Edible Oils	2021	The mission aims to achieve self-sufficiency in edible oil production by 2030.
13	Mission Amrit Sarovar	2022	Aims to revive and rejuvenate traditional water bodies like ponds and lakes.
14	Interest Subvention Scheme	2022	This scheme aims to provide short term crop loans and short-term loans for allied activities including animal husbandry, dairy, fisheries, bee keeping etc.

Suggestions for upliftment of agriculture and its Allied activities

1. Government should establish a statutory independent organization for agriculture and its allied sectors, which may work as a regulator and will be responsible for development of agriculture and its allied sector by understanding the opportunities and weaknesses of this sector.
2. To ascertain Minimum Fair Price (MFP) for each crop which automatically changes with change in inflation. Minimum Fair Price (MFP) can secure farmer from both economic and non-economic losses. Despite providing MFP to the farmers government may stop all amenities or facilities given to farmers.
3. To provide adequate agricultural credit facility, government must establish some specific agricultural rural banks or government can mark some bank for agricultural purposes only. So that farmers could get better facilities of credit at reasonable rate of interest.
4. Crop insurance policy to be made mandatory for all crops.
5. To ascertain better transportation and warehousing system for agriculture to each area, results in reduction of about 40% wastage.[5]
6. To provide High yield variety of seeds, fertilizers, and new technologies etc. in agriculture and its allied sector which resultant increase in productivity.
7. Government must encourage farmers to grow crops on the basis of soil and climatic conditions of any area. Also, if possible, assign few areas as the special crop zone (SCZ) where only pertinent crops are to be grown.
8. Government must increase expenditure from 2-3 percent to 8-10% of union budget. This amount will be spent on government plans and policies as well as expenditure of minimum fair prices (MFP) provided to farmers.
9. Agricultural land area decreases continuously year after year, so there is a need of government

5 lot.dhl.com/agricultural-wastage-is-turning-into-a-huge-problem-for-india-heres-why/

intervention to restrict the use of agricultural land for commercial, residential or any other purpose.

10. Government must focus on millets; food processing sector,export-oriented strategy of agriculture produce and also pay special attention on non-Farm sectors such as Dairy, Cattle farming, poultry farming, apiculture and fisheries etc which will be resultant as increase in forex.

11. As per report of Indian meteorological department (IMD) published in Times of India (August 26, 2023), 31% of India's area facing moderate to extreme dryness. So, Government must focus on Improving Water Resources, Irrigation/Drainage Management and rainwater harvesting to maintain moisture of soil that helps in increasing agricultural productivity.

Conclusion

It is well known fact that economic development of India was backed by agricultural and its allied sector. Being the largest employing sector of the country and contributing approx. 18% of GDP. Aim of India's $5 trillion economy can be achieved easily with agricultural growth. Government should focus on removing agricultural bottlenecks and implementing effective policies, which leads to growth of this sector as well as helping farmers to become self-reliant.

On the basis of study, an agriculture is been a foundation of Indian economy, it can be said that for the development of Indian economy without agricultural development is like a hollow development. So, in proposed plan of achieving $5 trillion economy the share of agriculture and its allied sector must be $1.5 trillion in place of $1 trillion. This increase in share of agricultural sector ultimately upturns the focus of government on agriculture and its allied activities which broadens the scope towards achieving the needed expansion of Indian economy by enhancing the chances of income and employment. Control in decrease in agricultural land, increase in farm production and increase in agricultural export might prove some of the major contributive steps towards reach of 5 trillion economy goals.

References

https://naas.org.in/Policy%20Papers/policy%2098.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=1909213

https://planet.outlookindia.com/opinions/making-indian-agriculture-future-ready--news-415109

https://moneymint.com/population-growth-agriculture-india/

economictimes-com.cdn.ampproject.org

https://enterclimate.com/start-food-processing-unit

Central Sector Scheme of Financing facility under 'Agriculture Infrastructure Fund'

https://pib.gov.in/TagbasedSearch.aspx?Tag=Ministry%20of%20finance

https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=IN

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On Generalized Chain Type Estimators of Population Mean under Double Sampling with Measurement Error and Nonresponse

[*]Arun Kumar, [**]Shashi Bhushan, [***]Shubhra Katara

Abstract

In this paper we have proposed a generalized class of estimators under measurement error and non-response error occurring simultaneously. Singh and Kumar (2010) proposed some ingenious classes of double sampling estimators which fared better in comparison to all the existing double sampling estimators under only the non-response. The regularity conditions which make the Singh and Kumar (2010) study a special case of this study is unique when we skip the term of measurement error. The result of the proposed estimator is compared with the existing estimators theoretically. An empirical study is carried out to judge the merit of the proposed classes.

1. Introduction

When any sample survey has been conducted, then the properties of the estimators based on data usually treated under the assumption that the observations are correct measurements on characteristics being studied. But such kind of supposition does not met in many applications and data is recorded with measurement errors, such as reporting errors and computing errors. These measurement errors make the result invalid. If measurement error is very small and we can neglect it, then the statistical inferences based on recorded data continue to remain valid. Contrary if measurement error is not negligible, the inferences may not be simply invalid and inaccurate, but may often lead to unexpected, undesirable and unfortunate consequences (see Srivastava and Shalabh (2001)).

We consider a finite population $U = (U_1, U_2, ..., U_N)$ of N units. Let Y and X be the study variate and auxiliary variate, respectively. Suppose that we have a set of n paired observations obtained through simple random sampling procedure on two characteristics X and Y. Further, suppose that (x_i, y_i) for the i^{th} sampling units are observed with measurement error instead of their true values (X_i, Y_i). For a simple random sampling scheme, let (x_i, y_i) be observed values instead of the true values (X_i, Y_i) for i^{th} (i=1,2,...n) unit such that

$$u_i = y_i - Y_i \tag{1.1}$$

$$v_i = x_i - X_i \tag{1.2}$$

where u_i and v_i are associated measurement errors which are stochastic (probabilistic) in nature with mean zero, variances σ_u^2 and σ_v^2 respectively. Further, we assume that u_i and v_i are uncorrelated although X_i are Y_i are correlated.

Let the population means of X and Y characteristics be μ_x, μ_y. Population variances of (x, y) be σ_x^2 and σ_y^2. Let σ_{xy} be the population covariance between x and y.

Most of the methods using auxiliary information like ratio type methods, regression type methods and difference type methods assume that the sample data contains no missing observations and the information regarding the auxiliary variable is either known or can be easily obtained. However, in most of the sample surveys involving human respondents, it has been observed that the information cannot be obtained from all the units which are selected in the sample. An estimator based on such incomplete information is generally biased and the inferences based on such incomplete information may be grossly misleading when the respondents set differs considerably from the non-respondents set. In their seminal paper Hansen and Hurwitz (1946) considered a technique of sub-sampling the non-respondents in order to adjust for the non-response bias in a mail survey.

* Department of Community Medicine, Maa Vindhyavasini Autonomous State Medical College, India
** Department of Statistics, University of Lucknow, India
*** Department of Statistics, Bareilly College, India (Communicating Author)

Let Y_i, i=(1,2,…,N) and X_i, i=(1,2,…,N) be the non-negative value of i^{th} unit of the population on the study character y and the auxiliary character x with their population means $\bar{Y}$ and $\bar{X}$ respectively. The whole population is supposed to be divided into two parts- the response stratum and the non-response stratum having N_1 and N_2 units respectively. Here the population mean $\bar{X}$ of the auxiliary character x is not known.

If the information about the population mean $\bar{X}$ is not known then Khare and Srivastava (1995), Okafor and Lee (2000), Tabassum and Khan (2004), Singh and Kumar (2010) among others suggested the use of double sampling. In double sampling, an estimate of the population mean $\bar{X}$ is obtained on the basis of a large first phase sample of size n' drawn from the finite population of size N by simple random sampling without replacement. Then a second phase sample of size $n(n<n')$ is drawn from n' by simple random sampling without replacement and the information on study variable is measured on it. Since all the sample units do not respond to the call of the interviewer, by using Hansen and Hurwitz (1946) approach, a sub-sample, from n_2 non-respondents, r units are selected at random and enumerated by direct interview, such that $r=(n_2/k,\ k>1)$, where $n=n_1+n_2$ and n_1 is the number of respondents. It is noteworthy to mention that all the above authors have assumed that the auxiliary information is available without any non-response. The estimator proposed by Hansen and Hurwitz (1946) is given by $\bar{y}^* = \frac{n_1}{n}\bar{y}_{(1)} + \frac{n_2}{n}\bar{y}^*_{(2)}$ $\left(\text{let } W_1 = \frac{n_1}{n} \text{ and } W_2 = \frac{n_2}{n}\right)$ where $\bar{y}_{(1)}$ and $\bar{y}^*_{(2)}$ denote the sample mean of y based on n_1 and r units respectively.

Singh and Kumar (2010), while proposing their estimators, considered the estimators proposed by Khare and Srivastava (1993, 1995), Okafor and Lee (2000), Tabassum and Khan (2004) given by

$$T_1 = \frac{\bar{y}^*}{\bar{x}^*}\bar{x}' \tag{1.3}$$

$$T_2 = \frac{\bar{y}^*}{\bar{x}'}\bar{x}^* \tag{1.4}$$

$$T_3 = \frac{\bar{y}^*}{\bar{x}}\bar{x}' \tag{1.5}$$

$$T_4 = \frac{\bar{y}^*}{\bar{x}'}\bar{x} \tag{1.6}$$

$$T_5 = \bar{y}^*\left(\frac{\bar{x}'}{\bar{x}^*}\right)\left(\frac{\bar{x}'}{\bar{x}}\right) \tag{1.7}$$

$$T_6 = \bar{y}^*\left(\frac{\bar{x}^*}{\bar{x}'}\right)\left(\frac{\bar{x}}{\bar{x}'}\right) \tag{1.8}$$

$$T_7 = \bar{y}^*\left(\frac{\bar{x}}{\bar{x}^*}\right)^{\alpha_1}\left(\frac{\bar{x}'}{\bar{x}}\right)^{\alpha_2} \tag{1.9}$$

$$T_8 = \bar{y}^* + d_1\left(\bar{x}-\bar{x}^*\right) + d_2\left(\bar{x}'-\bar{x}\right) \tag{1.10}$$

$$T_9 = \bar{y}^* + d_3\left(\bar{x}^*-\bar{x}'\right) \tag{1.11}$$

$$T_{10} = \bar{y}^* + d_4\left(\bar{x}-\bar{x}'\right) \tag{1.12}$$

where α_1, α_2, d_i (i=1,2,3,4) are characterizing scalars to be suitably chosen.

The MSE's of the Singh and Kumar (2010) estimators are also given as

$$MSE(T_1) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n}-\frac{1}{n'}\right)\left\{\left(\sigma_x^2+\sigma_v^2\right)-2\sigma_{yx}\right\} + \frac{W_2(k-1)}{n}\left\{\left(\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}\right)-2\sigma_{yx_{(2)}}\right\}\right] \tag{1.13}$$

$$MSE(T_2) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n}-\frac{1}{n'}\right)\left\{\left(\sigma_x^2+\sigma_v^2\right)+2\sigma_{yx}\right\} + \frac{W_2(k-1)}{n}\left\{\left(\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}\right)+2\sigma_{yx_{(2)}}\right\}\right] \tag{1.14}$$

$$MSE(T_3) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n}-\frac{1}{n'}\right)\left\{\left(\sigma_x^2+\sigma_v^2\right)-2\sigma_{yx}\right\}\right] \tag{1.15}$$

$$MSE(T_4) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{\left(\sigma_x^2 + \sigma_v^2\right) + 2\sigma_{yx}\right\}\right] \tag{1.16}$$

$$MSE(T_5) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{4\left(\sigma_x^2 + \sigma_v^2\right) - 4\sigma_{yx}\right\}\right.$$

$$\left. + \frac{W_2(k-1)}{n}\left\{\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right) - 2\sigma_{yx_{(2)}}\right\}\right] \tag{1.17}$$

$$MSE(T_6) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{4\left(\sigma_x^2 + \sigma_v^2\right) + 4\sigma_{yx}\right\}\right.$$

$$\left. + \frac{W_2(k-1)}{n}\left\{\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right) + 2\sigma_{yx_{(2)}}\right\}\right] \tag{1.18}$$

$$MSE(T_7) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{\alpha_2^2\left(\sigma_x^2 + \sigma_v^2\right) - 2\alpha_2\sigma_{yx}\right\}\right.$$

$$\left. + \frac{W_2(k-1)}{n}\left\{\alpha_1^2\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right) - 2\alpha_1\sigma_{yx_{(2)}}\right\}\right] \tag{1.19}$$

$$MSE(T_8) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{d_2^2\left(\sigma_x^2 + \sigma_v^2\right) - 2d_2^2\sigma_{yx}\right\}\right.$$

$$\left. + \frac{W_2(k-1)}{n}\left\{d_1^2\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right) - 2d_1\sigma_{yx_{(2)}}\right\}\right] \tag{1.20}$$

$$MSE(T_9) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{d_3^2\left(\sigma_x^2 + \sigma_v^2\right) + 2d_3\sigma_{yx}\right\}\right.$$

$$\left. + \frac{W_2(k-1)}{n}\left\{d_3^2\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right) + 2d_3\sigma_{yx_{(2)}}\right\}\right] \tag{1.21}$$

$$MSE(T_{10}) = MSE\left(\bar{y}^*\right) + \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{d_4^2\left(\sigma_x^2 + \sigma_v^2\right) + 2d_4\sigma_{yx}\right\}\right] \tag{1.22}$$

2. Suggested Class of Estimators-I

The main advantage of Singh and Kumar (2010) was that they were able to avail all possible information at their disposal to the best possible use as in most of the literature it is considered that non-response is present only on the study variable and not on the auxiliary variable and only the structure of HH estimator is adopted for the auxiliary character. It is also important to mention that the main idea was proposed by Singh and Kumar (2008) while Singh and Kumar (2010) incorporated the same under the double sampling scheme. We propose the following classes of estimators based on $\bar{y}^*$, $\bar{x}^*$, $\bar{x}$ and $\bar{x}'$ defined as

$$T_g = \bar{y}^* g\left(\bar{x}^*, \bar{x}, \bar{x}'\right) \tag{2.1}$$

where $g(.)$ is a bounded function satisfying the following regularity conditions

(i) $g(\mathbf{R})=1$ (2.2)

ii) The first order partial derivatives g_1, g_2 and g_3 of T with respect to $\bar{x}^*$, $\bar{x}$ and $\bar{x}'$ at point $\mathbf{R} \equiv \left(\bar{X}, \bar{X}, \bar{X}\right)$ respectively, satisfy

$$g_2 = -\left(g_1 + g_3\right) \tag{2.3}$$

where $\bar{x}$ is the sample mean of x based on n units; the sample mean of the study variable y and the auxiliary variable x are $\bar{y}^* = \frac{n_1}{n}\bar{y}_{(1)} + \frac{n_2}{n}\bar{y}_{(2)}^*$ and $\bar{x}^* = \frac{n_1}{n}\bar{x}_{(1)} + \frac{n_2}{n}\bar{x}_{(2)}^*$ where $\left(\bar{y}_{(1)}, \bar{x}_{(1)}\right)$ and $\left(\bar{y}_{(2)}, \bar{x}_{(2)}\right)$ are the sample means based on n_i units and the sub-sample means based on r units of the variables (y,x) respectively.

The bias and MSE's to the first order of approximation, are given by

$$Bias\left(T_g\right) = \bar{Y}\left[\frac{(N-n)}{Nn}\left\{\frac{1}{2}\left(g_{11} + g_{22} + 2g_{12} + \frac{2g_1}{\bar{X}}\right)\left(\sigma_x^2 + \sigma_x^2\right) - \sigma_{yx}g_3\right\}\right.$$

$$+ \frac{W_2(k-1)}{n}\left\{\frac{1}{2}\left(\sigma_{x_{(2)}}^2 + \sigma_{x_{(2)}}^2\right)g_{11} + \sigma_{yx_{(2)}}g_1\right\} + \frac{(N-n')}{Nn'}\left\{\frac{1}{2}\left(g_{33} + 2g_{13}\right.\right.$$

$$\left.\left.\left. + 2g_{23}\right)\left(\sigma_x^2 + \sigma_x^2\right) + \sigma_{yx}g_3\right\}\right] \tag{2.4}$$

$$MSE(T_g) = MSE(\bar{y}^*) + \bar{Y}^2\left[\left(\frac{1}{n} - \frac{1}{n'}\right)\left\{\left(\sigma_x^2 + \sigma_v^2\right)g_3^2\right\} + \frac{W_2(k-1)}{n}\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right)g_1^2\right]$$

$$-2\bar{Y}\left[\left(\frac{1}{n} - \frac{1}{n'}\right)\sigma_{yx}g_3 + \frac{W_2(k-1)}{n}\sigma_{yx_{(2)}}g_1\right] \tag{2.5}$$

Since the optimum value of and minimizing the mean square error of the estimator T_g is

$$g_{3_{(opt)}} = \frac{1}{\bar{Y}}\left(\frac{\sigma_{yx}}{\left(\sigma_x^2 + \sigma_v^2\right)}\right) = D_1 \tag{2.6}$$

and

$$g_{1_{(opt)}} = -\frac{1}{\bar{Y}}\left(\frac{\sigma_{yx_{(2)}}}{\left(\sigma_{x_{(2)}}^2 + \sigma_{v_{(2)}}^2\right)}\right) = D_2 \tag{2.7}$$

and the minimum mean square error is given by

$$MSE(T_g)_{\min} = MSE(\bar{y}^*) - \left[\left(\frac{1}{n} - \frac{1}{n'}\right)\frac{\left(\sigma_{yx}\right)^2}{\left(\sigma_x^2 + \sigma_v^2\right)} + \frac{(k-1)W_2}{n}\frac{\left(\sigma_{yx_{(2)}}\right)^2}{\left(\sigma_{x_2}^2 + \sigma_{v_2}^2\right)}\right] \tag{2.8}$$

3. Suggested Class of Estimators-II

We propose the following classes of estimators based on $\bar{y}^*, \bar{x}^*, \bar{x}$ and $\bar{x}'$ defined as

$$T_G = G\left(\bar{y}^*, \bar{x}^*, \bar{x}, \bar{x}'\right) \tag{3.1}$$

where $G(.)$ is a bounded function satisfying the following regularity conditions

$$T_G = G\left(\bar{y}^*, \bar{x}^*, \bar{x}, \bar{x}'\right) \tag{3.1}$$

(ii) the first order partial derivatives G_0, G_1, G_2, and G_3 of T_G with respect to

$\bar{y}^*$, $\bar{x}^*$, $\bar{x}$ and $\bar{x}'$ at point $\mathbf{S} \equiv \left(\bar{Y}, \bar{X}, \bar{X}, \bar{X}\right)$, respectively, satisfy

$$G_0 = 1 \tag{3.3}$$

$$G_2 = -(G_1 + G_3) \tag{3.4}$$

Where $\bar{x}$ is the sample mean of x based on n units; the sample mean of the study variable y and the auxiliary variable x are $\bar{y}^* = \frac{n_1}{n}\bar{y}_{(1)} + \frac{n_2}{n}\bar{y}^*_{(2)}$ and $\bar{x}^* = \frac{n_1}{n}\bar{x}_{(1)} + \frac{n_2}{n}\bar{x}^*_{(2)}$ where $\left(\bar{x}_{(1)}, \bar{y}_{(1)}\right)$ and $\left(\bar{x}^*_{(2)}, \bar{y}^*_{(2)}\right)$ are the sample means based on n_1 units and the sub-sample means based on r units of the variables (x,y) respectively. Here G_0, G_1, G_2 and G_3 are the first order partial derivatives of T_G with respect to $\bar{y}^*, \bar{x}^*$, $\bar{x}'$ and $\bar{x}$ respectively. It is important to note this class of estimator includes the classes of estimators proposed by Singh and Bhushan (2012), Singh and Kumar (2010), Tabassum and Khan (2004, 2006), Okafor and Lee (2000) among various other estimators available in literature.

The Bias and MSE, to the first order of approximation, are given by

$$Bias(T_G) = \left[\frac{(N-n)}{Nn}\left\{\frac{1}{2}(G_{11}+G_{22}+2G_{12})\left(\sigma_x^2+\sigma_v^2\right)+(G_{01}+G_{02})\sigma_{yx}\right\}\right.$$
$$+\frac{(k-1)W_2}{n}\left\{\frac{1}{2}\left(\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}\right)G_{11}+\sigma_{yx_{(2)}}G_{01}\right\}+\frac{(N-n')}{Nn'}\left\{\frac{1}{2}(G_{33}+2G_{13}\right.$$
$$\left.\left.+2G_{23})\left(\sigma_x^2+\sigma_v^2\right)+\sigma_{yx}G_{03}\right\}\right] \tag{3.5}$$

$$MSE(T_G) = MSE(\bar{y}^*) + \left[\left(\frac{1}{n}-\frac{1}{n'}\right)\left\{\left(\sigma_x^2+\sigma_v^2\right)G_3^2 - 2\sigma_{yx}G_3\right\}\right.$$
$$\left.+\frac{(k-1)W_2}{n}\left\{\left(\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}\right)G_1^2+2\sigma_{yx_{(2)}}G_1\right\}\right] \tag{3.6}$$

Since the optimum value of G_1 and G_3 minimizing the mean square error of the estimator T_G is

$$G_{3_{(opt)}} = \left(\frac{\sigma_{yx}}{\sigma_x^2+\sigma_v^2}\right) \tag{3.7}$$

and

$$G_{1_{(opt)}} = -\left(\frac{\sigma_{yx_{(2)}}}{\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}}\right) \tag{3.8}$$

and the minimum mean square error is given by

$$MSE(T_G)_{\min} = MSE(\bar{y}^*) - \left[\left(\frac{1}{n}-\frac{1}{n'}\right)\left\{\frac{\left(\sigma_{yx}\right)^2}{\sigma_x^2+\sigma_v^2}\right\}+\frac{(k-1)W_2}{Nn}\left\{\frac{\left(\sigma_{yx_{(2)}}\right)^2}{\sigma^2_{x_{(2)}}+\sigma^2_{v_{(2)}}}\right\}\right] \tag{3.9}$$

4. Determination of Optimum Values of n, n' and k

Let us consider a cost function for T_G as

$C = c'n' + cn + c_1n_1 + c_2r$

where c' is the cost per unit associated with the first phase sample n', c is the cost per unit of the first attempt with the sample, n; c_1 is the cost per unit for processing the respondent data at the first attempt in n_1 and c_2 is the cost per unit associated with the subsample, r of n_2.

Since the values of n_1 and r is not known until the first attempt is made, so the expected cost will be used in planning the survey. The expected values of n_1 and r are W_1n and $\frac{W_2n}{k}$. Thus the expected cost is given by

$$E(C) = C^* = c'n' + n\left[c + c_1W_1 + \frac{c_2W_2}{k}\right] \tag{4.1}$$

Theorem 1: To the first order of approximation, the optimum values of n, n' and k that minimize the cost for a fixed variance V_0 are given by

(i) $k_{opt} = \sqrt{\frac{c_2\left(U_1 - W_2U_2 - U_3\right)}{(c+c_1W_1)U_2}}$

(ii) $n_{opt} = \dfrac{\left\{U_1+\left(k_{opt}-1\right)W_2U_2-U_3\right\}\sqrt{\left\{c+c_1W_1+\frac{c_2W_2}{k_{opt}}\right\}}+\sqrt{c'\left\{U_1+\left(k_{opt}-1\right)W_2U_2-U_3\right\}U_3}}{\sqrt{\left\{c+c_1W_1+\frac{c_2W_2}{k_{opt}}\right\}}\left\{V_0+\frac{U_1}{N}\right\}}$

(iii) $n'_{opt} = \dfrac{\sqrt{\left\{U_1+\left(k_{opt}-1\right)W_2U_2-U_3\right\}U_3\left\{c+c_1W_1+\frac{c_2W_2}{k_{opt}}\right\}}+\sqrt{c'}U_3}{\sqrt{c'}\left\{V_0+\frac{U_1}{N}\right\}}$, and

(iv) $C^* = \frac{1}{V_0}\left[2\left(\sqrt{c'\left\{U_1+\left(k_{opt}-1\right)W_2U_2-U_3\right\}\left\{c+c_1W_1+\frac{c_2W_2}{k_{opt}}\right\}U_3}\right)+c'U_3\right.$
$\left.+\left\{U_1+\left(k_{opt}-1\right)W_2U_2-U_3\right\}\left\{c+c_1W_1+\frac{c_2W_2}{k_{opt}}\right\}\right]$

where C^* is the minimum cost.

Theorem 2: Let C_0 be the total cost (fixed) of the survey apart from overhead cost. The optimum values of n, n' and k that minimize the $MSE(T_g)$ for a fixed cost ($C^* < C_0$) along with the minimum MSE are given by

(i) $k_{opt} = \sqrt{\frac{c_2\left(U_1 - W_2 U_2 - U_3\right)}{\left(c + c_1 W_1\right) U_2}}$

(ii) $n_{opt} = \frac{C_0 \sqrt{\left\{U_1 + \left(k_{opt} - 1\right) W_2 U_2 - U_3\right\}}}{\left[\left\{c + c_1 W_1 + \frac{c_2 W_2}{k_{opt}}\right\} \sqrt{\left\{U_1 + \left(k_{opt} - 1\right) W_2 U_2 - U_3\right\}} + \sqrt{c'\left\{c + c_1 W_1 + \frac{c_2 W_2}{k_{opt}}\right\} U_3}\right]}$

(iii) $n'_{opt} = \frac{C_0 \sqrt{U_3}}{\left[\sqrt{c'\left\{U_1 + \left(k_{opt} - 1\right) W_2 U_2 - U_3\right\}\left\{c + c_1 W_1 + \frac{c_2 W_2}{k_{opt}}\right\}} + c'\sqrt{U_3}\right]}$

(iv) $MSE\left(T_g\right) = \frac{\bar{Y}^2}{C_0}\left[\left\{U_1 + \left(k_{opt} - 1\right) W_2 U_2 - U_3\right\}\left\{c + c_1 W_1 + \frac{c_2 W_2}{k_{opt}}\right\} + c' U_3\right.$

$$\left. +2\left\{\sqrt{c'\left\{U_1 + \left(k_{opt} - 1\right) W_2 U_2 - U_3\right\}\left\{c + c_1 W_1 + \frac{c_2 W_2}{k_{opt}}\right\} U_3}\right\}\right]$$

where $U_1 = \left[\sigma_y^2 + \sigma_u^2 + \left(\sigma_x^2 + \sigma_v^2\right) g_3^2 - 2\sigma_{yx} g_3\right]$,

$U_2 = \left[\left(\sigma^2_{y_{(2)}} + \sigma^2_{u_{(2)}}\right) + \left(\sigma^2_{x_{(2)}} + \sigma^2_{x_{(2)}}\right) g_1^2 + 2\sigma_{yx_{(2)}} g_1\right]$ $U_3 = \left(-\sigma_x^2 g_3^2 + 2\sigma_{yx} g_3\right)$ and λ is

Lagrange's multipliers.

5. An Empirical Study

The present data belong to the data on physical growth of upper socio-economic group of 95 school going children of Varanasi under an ICMR study, Department of Pediatrics, BHU during 1983-84 has been taken under study, Khare and Sinha (2007). The first 25% (i.e. 24 children) units have been considered as non-response units. The values of parameters related to the study characters y (weight of children in kg), the auxiliary character x (chest circumference of the children in cm) have been given as follows:

$\bar{Y}_2 = 19.4968$; $\bar{X} = 55.8611$; $\sigma_y = 3.0435$; $\sigma_x = 3.2735$; $\sigma_{y_{(2)}} = 02.3552$; $\sigma_{x_{(2)}} = 2.5137$; $\sigma_{yx} = 8.428611$; $\sigma_{yx_{(2)}} = 4.315874$.

The problem considered is to estimate the weight of the male children aged 6-7 years using chest circumference as the auxiliary character.

Table 5.1: PRE & MSE under measurement error & non-response

↓ Estimators		$1/k$			
	↓ ME %	1/2	1/3	1/4	1/5
$\bar{y}^*$	0%	0.3046(100)	0.3447(100)	0.3847(100)	0.4248(100)
	1%	0.3156(99)	0.3560(99)	0.3965(99)	0.4369(99)
	5%	0.3281(95)	0.3701 (95)	0.4122(95)	0.4542(95)
	10%	0.3437(91)	0.3878 (91)	0.4318(91)	0.4759(91)
	15%	0.3593(87)	0.4054 (87)	0.4514(87)	0.4975(87)
	20%	0.3750(83)	0.4230 (83)	0.4711(83)	0.5191(83)
	↓ ME %	½	1/3	¼	1/5
t_1p	0%	0.2885(106)	0.3123(110)	0.3362(114)	0.3600(118)
	1%	0.2916(105)	0.3159(110)	0.3402(114)	0.3645(118)
	5%	0.3040(105)	0.3301(110)	0.3562(113)	0.3824(117)
	10%	0.3195(105)	0.3479(109)	0.3763(112)	0.4047(115)
	15%	0.3350(104)	0.3657(108)	0.3964(112)	0.4271(114)
	20%	0.3505(104)	03835(108)	0.4164(111)	0.4495(113)
	↓ ME %	½	1/3	¼	1/5
t_2p	0%	0.4389(69)	0.6133(56)	0.7876(49)	0.9619(54)
	1%	0.4420(70)	0.6168(56)	0.7916(49)	0.9665(44)
	5%	0.4545(70)	0.6311(57)	0.8077(50)	0.9843(45)
	10%	0.4700(71)	0.6489(58)	0.8278(51)	1.0067(46)
	15%	0.4855(72)	0.6666(59)	0.8478(52)	1.0290(47)
	20%	0.5010(73)	0.6844(60)	0.8679(53)	1.0514(48)

	↓ ME %	½	1/3	¼	1/5
t_3p	0%	0.2834(107)	0.3021(114)	0.3209(120)	0.3397(125)
	1%	0.2866(107)	0.3060(114)	0.3254(119)	0.3448(124)
	5%	0.2996(107)	0.3214(113)	0.3432(118)	0.3649(122)
	10%	0.3158(106)	0.3405(111)	0.3652(116)	0.3899(120)
	15%	0.3318(105)	0.3594(110)	0.3869(114)	0.4145(118)
	20%	0.3478(105)	0.3782(109)	0.4085(113)	0.4384(116)
	↓ ME %	½	1/3	¼	1/5
t_5p	0%	0.2834(106)	0.3022(114)	0.3209(120)	0.3397(125)
	1%	0.2866(107)	0.3060(114)	0.3254(119)	0.3448(124)
	5%	0.2996(107)	0.3214(113)	0.3432(118)	0.3649(122)
	10%	0.3158(106)	0.3405(111)	0.3652(116)	0.3899(120)
	15%	0.3318(105)	0.3594(110)	0.3869(114)	0.4145(118)
	20%	0.3478(105)	0.3782(109)	0.4085(113)	0.4384(116)
	↓ ME %	½	1/3	¼	1/5
T_1	0%	0.2231(137)	0.2469(140)	0.2707(142)	0.2946(144)
	1%	0.2304(136)	0.2447(138)	0.2790(141)	0.3033(143)
	5%	0.2439(128)	0.2700(131)	0.2962(133)	0.3223(134)
	10%	0.2608(120)	0.2892(122)	0.3176(124)	0.3460(125)
	15%	0.2777(112)	0.3084(114)	0.3391(116)	0.3698(117)
	20%	0.2946(106)	0.3275(108)	0.3605(109)	0.3935(110)
	↓ ME %	½	1/3	¼	1/5
T_4	0%	0.2393(127)	0.2793(123)	0.3194(120)	0.3594(118)
	1%	0.2465(127)	0.2870(123)	0.3274(120)	0.3679(118)
	5%	0.2598(120)	0.3019(117)	0.3439(114)	0.3860(112)
	10%	0.2764(113)	0.3205(110)	0.3645(108)	0.4086(106)
	15%	0.2931(107)	0.3391(104)	0.3851(102)	0.4312(100)
	20%	0.3097(101)	0.3577(99)	0.4058(97)	0.4538(95)
	↓ ME %	½	1/3	¼	1/5
T_7	0%	0.1950(156)	0.2188(158)	0.2426(159)	0.2665(159)
	1%	0.2012(155)	0.2256(156)	0.2499(157)	0.2742(158)
	5%	0.2171(144)	0.2433(145)	0.2694(146)	0.2955(146)
	10%	0.2370(132)	0.2654(133)	0.2938(134)	0.3222(134)
	15%	0.2568(122)	0.2875(123)	0.3182(123)	0.3489(124)
	20%	0.2767(113)	0.3096(114)	0.3526(115)	0.3756(115)
	↓ ME %	½	1/3	¼	1/5
T_9	0%	0.1887(161)	0.2075(166)	0.2262(170)	0.2450(173)
	1%	0.1952(160)	0.2146(164)	0.2339(168)	0.2534(171)
	5%	0.2123(147)	0.2341(151)	0.2559(153)	0.2777(156)
	10%	0.2332(134)	0.2579(137)	0.2826(139)	0.3073(141)
	15%	0.2536(123)	0.2812(125)	0.3087(127)	0.3363(129)
	20%	0.2737(114)	0.3040(116)	0.3343(117)	0.3646(119)
	↓ ME %	½	1/3	¼	1/5
T_{11}	0%	0.1892(161)	0.2081(166)	0.2270(170)	0.2458(173)
	1%	0.1958(160)	0.2153(164)	0.2348(167)	0.2543(170)
	5%	0.2128(147)	0.2347(150)	0.2566(153)	0.2785(155)
	10%	0.2337(134)	0.2585(136)	0.2833(139)	0.3082(140)
	15%	0.2541(123)	0.2818(125)	0.3094(127)	0.3371(128)
	20%	0.2741(114)	0.3045(116)	0.3350(117)	0.3654(118)

	↓ ME %	½	1/3	¼	1/5
T_{12}	0%	0.2099(145)	0.2500(138)	0.2901(133)	0.3301(129)
	1%	0.2163(144)	0.2568(137)	0.2972(132)	0.3376(128)
	5%	0.2326(134)	0.2746(128)	0.3167(124)	0.3587(121)
	10%	0.2526(124)	0.2966(119)	0.3406(115)	0.3847(112)
	15%	0.2721(115)	0.3182(111)	0.3682(108)	0.4102(105)
	20%	0.2914(107)	0.3395(104)	0.3875(101)	0.4355(99)
	↓ ME %	½	1/3	¼	1/5
T_{10}	0%	0.1887(161)	0.2075(166)	0.2262(170)	0.2450(173)
	1%	0.1952(160)	0.2146(164)	0.2340(168)	0.2537(171)
	5%	0.2123(147)	0.2341(151)	0.2559(153)	0.2777(156)
	10%	0.2332(134)	0.2579(137)	0.2826(139)	0.3073(141)
	15%	0.2536(123)	0.2812(125)	0.3087(127)	0.3363(129)
	20%	0.2737(114)	0.3040(116)	0.3343(117)	0.3599(119)
	↓ ME %	½	1/3	¼	1/5
T_g	0%	0.1909(164)	0.2097(168)	0.2284(172)	0.2472(175)
	1%	0.1952(160)	0.2146(164)	0.2339(168)	0.2534(171)
	5%	0.2123(147)	0.2341(151)	0.2559(153)	0.2777(156)
	10%	0.2332(134)	0.2579(137)	0.2826(139)	0.3073(141)
	15%	0.2536(123)	0.2812(125)	0.3087(127)	0.3363(129)
	20%	0.2737(114)	0.3040(116)	0.3343(117)	0.3646(119)
	↓ ME %	½	1/3	¼	1/5
T_G	0%	0.1909(164)	0.2097(168)	0.2284(172)	0.2472(175)
	1%	0.1952(160)	0.2146(164)	0.2339(168)	0.2534(171)
	5%	0.2123(147)	0.2341(151)	0.2559(153)	0.2777(156)
	10%	0.2332(134)	0.2579(137)	0.2826(139)	0.3073(141)
	15%	0.2536(123)	0.2812(125)	0.3087(127)	0.3363(129)
	20%	0.2737(114)	0.3040(116)	0.3343(117)	0.3646(119)

Table 5.2: PRE(MSE) with measurement error and without non-response

Estimator	0%	1%	5%	10%	15%	20%
$\bar{y}^*$	0.4133(100)	0.4171(100)	0.4321(100)	0.4508(100)	0.4693(100)	0.4877(100)
t_{1p}	0.3934(105)	0.3970(105)	0.4112(105)	0.4288(105)	0.4463(105)	0.4638(105)
t_{2p}	0.3836(108)	0.3893(107)	0.4118(105)	0.4391(103)	0.4656(101)	0.4916(99)
t_{3p}	0.3843(108)	0.3878(108)	0.4017(108)	0.4189(108)	0.4361(108)	0.4532(108)
t_{5p}	0.3843(108)	0.3878(108)	0.4017(108)	0.4189(108)	0.4361(108)	0.4532(108)
T_1	0.4827(86)	0.4889(85)	0.5129(84)	0.5421(83)	0.5703(82)	0.5977(82)
T_4	0.4920(84)	0.4988(84)	0.5251(82)	0.5568(81)	0.5872(80)	0.6167(79)
T_7	0.4045(102)	0.4149(101)	0.4534(95)	0.4969(91)	0.5366(87)	0.5731(85)
T_9	0.3983(104)	0.4088(102)	0.4481(96)	0.4909(92)	0.5293(89)	0.5642(86)
T_{11}	0.3997(103)	0.4101(102)	0.4485(96)	0.4911(92)	0.5293(89)	0.5642(86)
T_{12}	0.3901(106)	0.4038(103)	0.4522(96)	0.5031(90)	0.5473(86)	0.5870(83)
T_{10}	0.3983(104)	0.4089(102)	0.4481(96)	0.4909(92)	0.5293(89)	0.5642(86)
T_g	0.3983(104)	0.4089(102)	0.4481(96)	0.4909(92)	0.5293(89)	0.5642(86)
T_G	0.3983(104)	0.4089(102)	0.4481(96)	0.4909(92)	0.5293(89)	0.5642(86)

Table 5.3: PRE (MSE) with measurement error for optimum value of *k*

Estimators ↓	MSE(PRE)				
Per cent of ME →	1%	5%	10%	15%	20%
$\overline{y}^*$	0.4175(100)	0.4340(100)	0.4546(100)	0.4753(100)	0.4960(100)
t_1p	0.3977(105)	0.4148(105)	0.4361(104)	0.4574(104)	0.4787(103)
t_2p	0.3888(107)	0.4095(106)	0.4349(105)	0.4593(103)	0.4846(102)
t_2p	0.3890(107)	0.4075(107)	0.4302(106)	0.4526(105)	0.4748(104)
t_5p	0.3890(107)	0.4075(107)	0.4302(106)	0.4526(105)	0.4748(104)
T_1	0.4893(85)	0.5156(84)	0.5477(83)	0.5792(82)	0.6101(81)
T_4	0.4988(84)	0.5257(82)	0.5584(81)	0.5903(80)	0.6215(80)
T_7	0.4149(101)	0.4545(95)	0.5004(91)	0.5430(87)	0.5831(85)
T_9	0.4093(102)	0.4507(96)	0.4976(91)	0.5404(88)	0.5801(85)
T_{11}	0.4107(102)	0.4519 (96)	0.4985(91)	0.5412(88)	0.5808(85)
T_{12}	0.4034(103)	0.4510(96)	0.5024(90)	0.5479(87)	0.5894(84)
T_{10}	0.4093(102)	0.4507(96)	0.4976(91)	0.5404(88)	0.5801(85)
T_g	0.4093(102)	0.4507(96)	0.4976(91)	0.5404(88)	0.5801(85)
T_G	0.4093(102)	0.4507(96)	0.4976(91)	0.5404(88)	0.5801(85)

Table 5.4: PRE(MSE) without measurement error and with non-response error for optimum value of *k*

Estimators	MSE
$\overline{y}^*$	0.4133(100)
t_1p	0.3934(105)
t_2p	0.3836(108)
t_3p	0.3843(108)
t_5p	0.3843(108)
T_1	0.4827(86)
T_4	0.4920(84)
T_7	0.4045(102)
T_9	0.3983(104)
T_{11}	0.3997(103)
T_{12}	0.3901(106)
T_{10}	0.3983(104)
T_g	0.3983(104)
T_G	0.3983(104)

Table 5.5: PRE(MSE) without measurement error and with non-response error

Estimators	1/2	1/3	¼	1/5
$\overline{y}^*$	0.3046(100)	0.3447(100)	0.3847(100)	0.4249(100)
t_1p	0.2885(106)	0.3123(110)	0.3362(114)	0.3600(118)
t_2p	0.4389(69)	0.6133(56)	0.7876(49)	0.9619(44)
t_3p	0.2834(108)	0.3021(114)	0.3209(120)	0.3397(125)
t_5p	0.2834(104)	0.3021(114)	0.3209(120)	0.3397(125)
T_1	0.2231(136)	0.2469(139)	0.2707(142)	0.2947(144)
T_4	0.2392(127)	0.2793(123)	0.3193(120)	0.3594(118)
T_7	0.1949(156)	0.2188(157)	0.2426(158)	0.2665(159)
T_9	0.1887(161)	0.2074(166)	0.2262(170)	0.2449(173)
T_{11}	0.1892(161)	0.2081(166)	0.2270(169)	0.2459(173)
T_{12}	0.2099(145)	0.2500(138)	0.2900(133)	0.3301(129)
T_{10}	0.1887(161)	0.2074(166)	0.2262(170)	0.4499(173)
T_g	0.1887(161)	0.2074(166)	0.2262(170)	0.4499(173)
T_G	0.1887(161)	0.2074(166)	0.2262(170)	0.4499(173)

6. Concluding Remarks

1. It is evident from the expressions (1.13) to (1.22), (2.5) and (3.6) of MSE's of the estimators that the measurement errors seem to have inflated the MSE of these estimators and thereby decreasing the efficiency.

2. The expressions (1.13) to (1.22), (2.5) and (3.6) of MSE can be broken into 4 major components owing to non-response and measurement error are given below:

$MSE = A+B+C+D$

where A= Component of MSE due to sampling error without measurement error and non-response,

B = Component of MSE due to sampling error with measurement error and without non-response,

C = Component of MSE due to sampling error without measurement error and with non-response, and

D = Component of MSE due to sampling error with measurement error and without non-response. For Example: Consider the expression of MSE of $\bar{y}_f$ given by

$$MSE(T_G) = \underbrace{\left(\frac{1}{n}-\frac{1}{n'}\right)\left(\sigma_y^2 + G_3{}^2\sigma_x^2 - 2G_3\sigma_{xy}\right) + \frac{1}{n'}\sigma_y^2}_{A}$$
$$+\underbrace{\frac{1}{n}\left(\sigma_u^2 + G_3{}^2\sigma_v^2\right)}_{B}$$
$$+\underbrace{\frac{W_2(k-1)}{n}\left(\sigma^2_{y_{(2)}} + G_1{}^2\sigma^2_{x_{(2)}} - 2G_1\sigma_{xy_{(2)}}\right)}_{C}$$
$$+\underbrace{\frac{W_2(k-1)}{n}\left(\sigma^2_{u_{(2)}} + G_1{}^2\sigma^2_{v_{(2)}}\right)}_{D}$$

3. If the measurement error is absent then we get the expression of the MSE of conventional estimators under non-response from the results of this study thereby the present study provides a more general and pragmatic approach for the estimation of population mean. For example: When $u_i = 0 = v_i$, for each i, then $\sigma_u^2 = \sigma_v^2 = \sigma_{u_2}^2 = \sigma_{v_2}^2 = 0$ and we get

$$MSE(T_G) = \underbrace{\left(\frac{1}{n}-\frac{1}{n'}\right)\left(\sigma_y^2 + G_3{}^2\sigma_x^2 - 2G_3\sigma_{xy}\right) + \frac{1}{n'}\sigma_y^2}_{A}$$
$$+\underbrace{\frac{W_2(k-1)}{n}\left(\sigma^2_{y_{(2)}} + G_1{}^2\sigma^2_{x_{(2)}} - 2G_1\sigma_{xy_{(2)}}\right)}_{C}$$

so that only components A and C are left, which is same expression as proposed by Bhushan and Naqvi (2015) while proposing T_g of Singh and Kumar (2010) as a special case of T_G.

4. If the measurement error is absent then we get the expression of the optimum values of the characterizing scalars/derivatives and minimum MSE of conventional estimators under non-response from the results of this study thereby the present study. For example: When u_i=0=v_i, for each i, then $\sigma_u^2 = \sigma_v^2 = \sigma_{u_2}^2 = \sigma_{v_2}^2 = 0$ and we get optimum values of G_1 and G_3 as

$$G_1 = -\sigma_{xy_{(2)}} / \sigma^2_{x_{(2)}} \text{ and } G_3 = \sigma_{xy} / \sigma_x^2 .$$

and the minimum mean square error of $\bar{y}_f$ as

$$MSE(T_G)_{\min} = \left(\frac{1}{n}-\frac{1}{n'}\right)\left(1-\rho^2\right)\sigma_y^2 + \frac{W_2(k-1)}{n}\left(1-\rho^2_{(2)}\right)\sigma^2_{y_{(2)}} + \frac{1}{n'}\sigma_y^2$$

which is same expression of minimum MSE as proposed by Bhushan and Naqvi (2015) while proposing T_g of Singh and Kumar (2008) as a special case of T_G.

5. The measurement error seems to have affected all the estimators but the optimal generalized estimator T_G and their optimal special cases T_7 and T_g perform far better than the remaining estimators where the auxiliary information was not properly utilized. For example: This is w.r.t. the empirical results in table 5.1 where T_G utilized the auxiliary information optimally and outperformed all the remaining estimators.

6. The measurement error seems to have affected the better estimators more where the auxiliary information was properly utilized than those estimators where the auxiliary information was not properly utilized. For example: This is w.r.t.the empirical results in table 5.1 where T_G utilized the auxiliary information optimally and has lost 52% efficiency with 1/3 sub-sampling fraction which is far more in comparison to T_4, estimator where the auxiliary information was not properly utilized, lost only 24% efficiency with 1/3 sub-sampling fraction or even $\bar{y}*$ which lost 17% efficiency with 1/3 sub-sampling fraction.

7. The gains in efficiency of various estimators were calculated w. r. t. $\bar{y}*$ with no non-response error in table 5.2. The best choice, which is in consonance with the theoretical results, is T_G at all levels of measurement error.

8. The percent relative efficiency of various estimators were calculated w. r. t. $\bar{y}*$ with optimum sub-sampling fraction $1/k$ in table 5.3. The best choice, which

is in consonance with the theoretical results, is T_G at all levels of measurement error.

9. The gains in efficiency of various estimators were calculated w. r. t. $\bar{y}*$ with no measurement error in table 5.4. The best choice, which is in consonance with the theoretical results, is T_G at all levels of measurement error.

10. The percent relative efficiency of various estimators were calculated w.r.t. $\bar{y}*$ without measurement error and with different non-respondent sub-sampling fraction $1/k$ in table 5.5. The best choice is T_G which is in consonance with the theoretical results of Bhushan and Naqvi (2015).

References

1. Hansen, M. H., Hurwitz, W. N. (1946). The problem of non-response in sample surveys. *Journal of American Statistical Association,* 41, 517-529.
2. Cochran, W.G. (1977). Sampling Techniques. 3rd ed., New York : John Wiley and Sons.
3. Rao, P. S. R. S. (1986). Ratio estimation with sub-sampling the non-respondents. *Survey Methodology,* 12(2), 217-230.
4. Rao, P.S.R.S. (1987). Ratio and regression estimates with sub-sampling the non-respondents. *International Statistical Association Meeting,* Tokyo, Japan, 2-16.
5. Khare, B.B., & Srivastava, S. (1993): Estimation of population mean using auxiliary character in the presence of non-response. *National Academy Science Letters (India),* 16(3), 111-114.
6. Khare, B.B., & Srivastava, S. (1997). Transformed ratio type estimators for the population mean in the presence of non-response. *Communication in Statistics - Theory and Methods,* 26(7), 1779-1791.
7. Okafor, F.C., & Lee, H. (2000). Double sampling for ratio and regression estimation with sub-sampling the non-respondents. *Survey Methodology,* 26(2), 183-188.
8. Srivastava, A. K. and Shalabh (2001). Effect of measurement errors on the regression method of estimation in survey sampling. *J. Statist. Res.,* 35(2): 35-44.
9. Tabasum, R., & Khan, I. A. (2004). Double sampling for ratio estimation with non-response. *Journal of Indian Society of Agricultural Statistics,* 58(3), 300-306.
10. Singh, H.P., & Kumar, S. (2008). A regression approach to the estimation of the finite population mean in the presence of non-response. *Australian and New Zealand Journal of Statistics,* 50(4), 395-408.
11. Singh, H. P., and Kumar, S. (2010). Estimation of mean in presence of non-response using two phase sampling scheme. *Statistical Papers,* 51, 559-582.
12. Bhushan, S. and Kumar, A. (2017), On some estimators of population mean under double sampling with measurement error and non response. *International Journal of Computational and Applied Mathematics,* 12(1), 141-165.

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Enhancing Academic Access : The Advent of Multiple Entry and Exit Systems in Indian Education

*Dr. Shaheen Fatima Khan

Abstract

The main goal of the National Education Policy (NEP) 2020 is to provide quality education to all the children of India. NEP 2020 makes special efforts to provide equal education to all. The main highlights of NEP 2020 is the introduction of multiple entry and exit options.

The concept of multiple entry and exit options proposed in the NEP 2020 makes higher education more inclusive. This system is an unprecedented attempt to transform the teaching process into a completely student-centric system. This method is beneficial in many ways. This includes the opportunity for students to learn at their own pace and acquire specific skills and qualifications without a full degree programme.

For example, a student enrolled in a four-year undergraduate program can choose to exit with a certificate after one year or a diploma after two years. If the student decides to continue, he or she can complete the entire degree course. Therefore, it can be said that this system is based on the principles of flexibility, adaptability and student-centricity.

With the implementation of MEES, the option a student will get to leave their course and resume it at a later stage can change the negative perception of school dropout in our society. One advantage of this system is that the burden on the student due to financial circumstances or other reasons will be reduced.

Thus it can be said that it is a kind of stress-buster step for the students. In this educational journey, no year of the students is to be wasted. The student has the possibility to pursue the course without any pressure. This system can prove to be a big boon for students as they will not have the fear of wasting one year or two if they are planning to switch to another course.

This paper will focus on an overview of the Multiple Entry and Exit System of NEP 2020 and describe the features and benefits of MEES along with the challenges of implementing it.

Introduction

New Education Policy 2020 can be defined as one of the historical change in the Indian Education System as it is revised after 36 years of the implementation of National Education Policy 1986.

The major difference in both the policy is about the education structure. Previously it designate with 10+2+3, which mainly focused on 10 years of school education, 2 years of higher secondary education and three years of graduation whereas NEP is entitle as 5+3+3+4 which is referred as secondary education (lower and higher), upper primary, lower primary, play group/initial stage.

The main culmination of NEP 2020 is the introduction of 'Multiple Entry and Exit System' (MEES). Which states that a student can switch into different stream or exit from any course without completing the given number of years; hence they can be entitled with a diploma or certificate? MEES also states that students who are having certain problems (financial or others) can drop at any stage of the course and resume it later whenever they have favourable conditions, thus it will be helpful for many students who have any sudden crisis or unexpected problem while pursuing any course.

One important reform aimed at improving the democratic and student-friendly aspects of the higher education system is the Multiple Entry and Exit System (MEES). MEES would transform the Indian educational system, but it will also make it more difficult for the institutions to manage and process students' exit and entry decisions. The Multiple Entry and Exit System will function at its optimum when appropriate and capable technology is in place. This innovative approach, if strategically

* Asst. Professor, Education Department, Karamat Husain Muslim Girls, P.G. College, Lucknow

implemented, will provide students with unified mobility, guaranteeing zero-year loss and enabling them to learn from anywhere at any time any course in between was awarded nothing and their time investment goes in vain.

The article will be highlighting a brief overview about MEES of National Education Policy 2020, its advantages and the obstacles of implementing them on ground level.

Concept of Multiple Entry and Exist System

The main objective of MEES is to help students choose subjects of their choice and create new learning opportunities for them. MEES also emphasizes that higher education institutions should be changed as per the need and convenience of the students so as to pave a seamless path for them. NEP 2020 envisages mobility, degree structure and year adjustment along with an Academic Bank of Credit to pave the way for seamless students.

A certificate in a subject that includes professional and vocational domains after a year of study, a diploma after two years, or a bachelor's degree following a three-year program are a few examples. However, the four-year interdisciplinary Bachelor's degree is the best choice since it gives students the chance to focus on their major and minor courses according to their preferences while also providing them with the opportunity to experience the complete a comprehensive and diverse education.

a) Flexible Learning

The NEP, 2020 highlights the importance of flexible learning and points out that a creative and flexible curriculum will eliminate the present inflexible boundaries and enable the study of creative combinations of disciplines. With these, students would have more alternatives for what to study and which subjects to choose, allowing Higher Education Institutions (HEIs) to be tailored to their interests, needs, and convenience. In order to promote seamless student mobility between and among degree-granting HEIs, the NEP, 2020 calls for modifications to degree program lengths and structures in addition to the establishment of an Academic Bank of Credits (ABC). This will be accomplished by formalizing credit recognition, accumulation, transfers, and redemption. This will promote flexible and dispersed learning.

b) Academic Bank of Credits (ABC)

The Ministry of Education and UGC created and oversee the Academic Bank of Credits for students to provide academic services by opening academic accounts. NEP, 2020 aims to advance this by encouraging rigorous research-based specialization and possibilities for interdisciplinary collaboration in academia, government, and major multidisciplinary universities. This includes graduate, masters, and doctorate level education.

Credit transfer is the provision or facility to consider the knowledge acquired in the form of credits by a student at the same level in customizing his/her degree providing the condition of the degree providing institutions are satisfied.

The involvement of credit score is also one of the key aspect of multiple entry and exit options, the score achieved in one course can be credited in the next course he/she is willing to switch in thus it cannot be considered as total loss for the previous course they were enrolled in. thus this credit score system boost up their passion of switching in the stream they are dreaming for.

The credit awarded will be valid to a purpose of redemption for a particular duration specified by the credit awarding and credit accepting institutions subject to a maximum of 7 years. Credit transfer and multiple entry and exit are closely related providing a gateway leading to certificate, diploma, and degree in a particular course. Earlier student's dropping any course in between was awarded nothing and their time investment goes in vain.

Entry and Exit in Academic Programmes offered in Higher Education Institutions

The seven-year multidisciplinary program is an option for students that offers the opportunity to experience the full range of holistic and preferred subjects.

MEES is such an educational boon for the students in which apart from education, students can choose major and minor subjects as per their choice and convenience.

The biggest advantage of this scheme is that if a student does any research work prescribed by the higher education institution in the four-year undergraduate program, then he will be awarded a degree along with the research.

For postgraduate programmes, the HEI will have a design as per the following:

a) A two-year programme with the second year devoted entirely to research for those who have completed the three-year Bachelor's programme.

b) A one-year Master's programme for students who are completing a four year Bachelor's programme with Research.

c) An integrated five-year undergraduate /masters programs in which students have the option to exit with a bachelor's degree and simultaneously enter a master's program at another higher education institution.

Multiple Entry and Exit System: Different levels and its credit requirements

To make the multiple entry and exit system successful in four-year academic programmes, certificates, diplomas and degrees are arranged in ascending order from Level 5 to Level 10, forming a chain. Level 5 represents certification while level 10 represents research degrees. Courses within the four-year undergraduate program may include:

Disciplinary/interdisciplinary - major	40-56 credits
Disciplinary/interdisciplinary - minor	20-28 credits
Vocational studies	12-18 credits
Field projects/internship/apprenticeship/ community engagement and services	24-32 credits

The entry and exit options for students at different years

First Year - Level 5

Entry 1: Requirement - Secondary School Leaving Certificate

Exit 1: An undergraduate certificate will be given to the student who exits at the end of the first year.

Credits required at this level– 36-40 credits.

Second Year - Level 6

Entry 2: Requirement - A certificate obtained after completing the first year of the undergraduate programme.

Exit 2: A diploma shall be awarded to the student who exits at the end of the second year.

Credits required– 72-80 credits (from levels 5 to 6, with 36-40 credits.)

Third Year - Level 7

Entry 3: Requirement - A diploma obtained after completing two years of the undergraduate programme.

Exit 3: A degree will be awarded after completing the graduate program of three years.

Credits required– 108-120 credits (from levels 5 to 7, with 36-40 credits at level 5, 36-40 credits at level 6, and 36-40 credits at level 7.

Fourth Year - Level 8

Entry 4: A student seeking admission to a undergraduate degree, (Honours/Research)in a particular field of learning, they must have completed all the requirements of their three year degree programme. After completing the requirements of a three year Bachelor's degree, the minimum CGPA required is 7.5 to continue their fourth year of the undergraduate programme.

Exit 4: A student will be awarded a degree with Hons or Research if he successfully completes the fourth year.

Credits required– The total of 144-160 credits (from levels 5 to 8, with 36-40 credits at level 5, 36-40 credits at level 6, and 36-40 credits at level 7, and 36-40 credits at level 8.)

Features and benefits of Multiple Entry and Exit System

- **Easy switching-** The MEES make it easy for student to switch into a different course without any hesitation about the time they have invested in the current course they are pursuing.
- **Credit Transfer-** this is one of the key aspect of MEES, students who are switching from one course to another are given credit on their performance in the previous field. Depending of various things these credits are useful in opting for admission in some other course/institutions
- **Co-curricular-** with the inclusion of MEES there will be everything certified on academic front and a student can show cast his/her talent in different courses, as there are students who want to understand the basic concept of certain courses but are not willing to pursue the full 3-4 years course can take it as a boom for improvising their skills.
- **Multiple knowledge-** MEES helps in optimizing various skill set in terms of academics a person can have various diplomas or certification in number of fields they are having keen interest or want to have learning of it.
- **Low Pressure-** In some cases there might be certain circumstances where a student have to drop his/ her education due to some financial or other reason,

hence they can re-enter in the same course from where they have left earlier.

- **Tried and Testing Approach-** As it is universally proven that if you have tried something you better know the value of that thing, hence if its not worthy of what you were expecting it to be you can definitely have an option of quitting it in the later stage, thus paving a way towards what you feel you should have done. As there are many examples of people entering in certain courses and after a matter of time they lost interest or before joining they were unaware about what it will be in real, but due to their time which they have invested they don't have the courage to stop it at any particular time hence without interest they just keep on continuing it without their soul involved into it completely.
- **Passionate learning-** It also opens the door for students who would like to have some knowledge of certain course or in which they are interested or have passion for the same, thus a hobby for learning something can be certified as one of the academic achievements.
- **Lack of certification courses-** The inclusion MEES in the NEP 2020 will work as one of the booster in the Indian education system which previously lack diploma and certification in many of the courses.

The multiple entry and exit definitely have a student centric approach which paves way towards a non-barrier learning with a systematic approach of valued learning with ease of continuing according to the interest at a particular time period.

Challenges in the Implementation of Multiple Entry and Exit System in Higher Education Proposed Under National Education Policy (NEP) 2020

As stated earlier in this article, one of the interesting features of the National Education Policy (NEP) 2020 is the system of multiple entry and exit in higher education. Recognising the seriousness of this issue, a Parliamentary Standing Committee was set up to examine the issues in implementing various features of NEP 2020 and make necessary recommendations. The Committee submitted its report in September 2023 and has suggested the Government of India to hold a wider consultation with various stakeholders involved in the implementation process of NEP. As regards the practical implementation of multiple entry and exit system in higher education the Standing Committee as well as other organisations and individual researchers have raised their voices. Some of the major challenges/barrier identified in this respect include the following:

1. **Uneven geographical distribution of higher education institutions.** One of the primary challenges is the uneven geographical distribution of HEIs in India. Ironically, the majority of HEIs are located in urban areas, while a large part of India's population still reside in rural or semi-urban areas, making it difficult for students from rural areas to access higher education in terms of costly fee structure, locational shift and barriers to accommodate and acclimatise themselves with new environment, sophisticated technology involved in teaching-learning process and thus face difficulty in competing with other students. This could lead to a situation where students from rural areas are unable to take advantage of the multi-entry and exit system.
2. **Lack of infrastructure and inadequate resources.** The implementation of the multiple entry and exit system requires HEIs to have adequate infrastructure and sufficient resources, including classrooms, laboratories, libraries, and other facilities; as well as trained and qualified faculty, staff, and adequate funding, to support the increased number of students. However, many HEIs in India lack the necessary infrastructure and resources even to carry out their regular academic activities properly, then what to talk of the implementation of the multiple entry/exit system.
3. **Quality assurance:** The implementation of the MEES requires HEIs to ensure that the quality of education is not compromised, and that students receive the same quality of education regardless of the entry and exit points. The multi-entry and exit system requires a high level of coordination between HEIs to ensure that students are able to transfer credits between institutions. However, the quality of education varies widely between HEIs, making it difficult to ensure that students receive a consistent level of education. The coordination between various institutions of higher learning continues to remain a major challenge. The rules and academic procedures adopted and practised by different universities and colleges vary considerably challenging a uniform and consistent academic pattern throughout the country to allow for multiple entry/exit. Individual states emphasise culture-

specific and region-specific course contents. Even the mode of distance education and courses hosted online on SWAYAM, etc. have not been able to reach the masses; their course material is not translated in all languages of study.

4. **Unpredictability:** The unpredictability of student entry and exits could disrupt the pupil-teacher ratio and create administrative challenges for HEIs. The implementation of the multi-entry and exit system requires HEIs to be able to manage the flow of students in and out of the institution. However, the unpredictability of student entry and exits could make it difficult for HEIs to manage the flow of students. This option would permit students of different age groups to pursue their courses of interest on their choice and at any point of time. In such cases, some other quantitative indicators of regular assessment will have to be devised, because, indicators, like pupil-teacher ratio and gross enrolment ratio will have hardly any sense.
5. **The Transformation of the entire curriculum-** as courses are defined for 3-4 years and accordingly in every year it is thought, from making a basic knowledge to putting additional value it is designed according to the years a student will be taught. So if proving a certificate after the first year may not be worthy for the students in the present scenario.
6. **Loss of the institutions-** A student dropping out before the completion of their degree will leave a vacant seat, this will be a big financial loss to the institutions.
7. **Population-** this is one of the key factors for a country like India, as students may be switching towards a particular course depends on the demand at that particular time, hence how can the seats be managed for that course.
8. **Institutions Preference-** every institutions have their own criteria for admitting a student some have their own entrance exam, therefore it will be interesting how these institutions reacts on the credit obtain by a student.

The challenges discussed above, need to be addressed to ensure the successful implementation of the multiple entry and exit system in higher education under the National Education Policy (NEP) 2020. The Ministry of Education, Government of India, in consultation with various stakeholders, including experts, students, parents, etc. should evolve a qualitative and quantitative framework with more comprehensive and effective set of guidelines and clear-cut instructions to deal with these challenges. India should learn from international experiences in this respect. Some countries have already implemented this kind of multiple entry/exit system successfully. One such country is the United States. The multi-entry and exit system is known there as the 'modular degree system' in the US, and it has been implemented in several universities. Another country that has implemented the multi-entry and exit system is Australia. The system there is referred to as the 'flexible learning system', and it has been implemented in several universities.

In the Indian context, the practical difficulties in implementing the multi-entry and exit system are significant. In recent past, there have been instances of fake universities/institutions, fake degrees and certificates, etc. An effective monitoring mechanism has to be developed to prevent such malpractices under the proposed multi entry/exit system. At best, it may be expected that sooner or later, the proposed system will be a 'dream-come-true' reality for the future higher education system in India.

To Sum-up

The National Education Policy (NEP) 2020 is a desirable strategy that aims to make the educational system broad, flexible, multidisciplinary, and aligned with the 2030 Sustainable Development Goals and 21st century demands. The high population, lack of employments and unavailability of basic knowledge providing tools/services does make very challenging situations to reform the educational structure.

MEES gives students the opportunity to choose subjects and institutions as per their interest and convenience; it can solve the current and future education related problems in India. Along with this, it also helps in building a civil society through new skills and advanced innovative capacity and techno-competence based on human values.

Despite all its qualities, Multiple Entry and Exit System (MEES) present several challenges to higher education institutions. It replaces the traditional entry method and offers a fast and attractive system. Its successful implementation will therefore require a robust and proactive admission management system equipped with all the necessary tools to support higher education institutions in the smooth conduct of the academic year, which is an urgent priority.

As the liberty song says ***'united we stand divided we fall'*** but in the academic scenario I will suggest it as: ***"United we go Divided we rule".*** - Dr. shaheen F. khan

References

Parliamentary Standing Committee Report No. 356 on Implementation of National Education Policy 2020. https://sansad.in/getFile/rsnew/Committee_site/Committee_File/ReportFile/16/189/356_2023_9_15.pdf?source=rajyasabha

Guidelines for Multiple Entry and Exit in Academic Programmes offered .... https://www.education.gov.in /sites/upload_files/mhrd/files/upload_document/abc_doc.pdf.

The multiple entry and multiple exit options proposed in the National .... https://www.insightsonindia.com/2023/09/25/the-multiple-entry-and-multiple-exit-options-proposed-in-the-national-education-policy-nep-2020-may-not-work-effectively-in-india-due-to-challenges-related-to-infrastructure-resources-and-quality/.

'Multiple Entry, Exit Points Under NEP Unfit for Indian Education .... https://thewire.in/education/multiple-entry-exit-points-under-nep-unfit-for-indian-education-system-parliamentary-panel.

NEP's multi-entry and exit system may face hurdles in India .... https://timesofindia.indiatimes.com/education/news/indian-institutions-likely-to-face-issues-in-implementation-of-multiple-entry-and-exit-system-par-panel/articleshow/103937450.cms.

Why the multiple entry-exit system for students is a leap for higher .... https://www.indiatoday.in/india-today-insight/story/why-the-multiple-entry-exit-system-for-students-is-a-leap-for-higher-education-in-india-2450155-2023-10-17.

The multiple entry-exit system. https://bestcolleges.indiatoday.in/news-detail/the-multiple-entry-exit-system.

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Factors Influencing Teachers' Readiness to Integrate Artificial Intelligence into their Teaching Practices

*Nyanda Benjamin, **Dr. Kiran Lata Dangwal

Abstract

The integration of artificial intelligence (AI) into teaching and learning practices holds significant potential for enhancing learning experiences. Successful implementation of AI depends on teachers' readiness to adopt and utilize AI tools effectively. This paper combines existing literature to identify key factors influencing teachers' readiness to integrate AI into their teaching practices. Drawing upon various theoretical frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), this review examines socio-technical factors that shape teachers' attitudes and intentions towards AI integration. Factors such as perceived usefulness, ease of use, technological self-efficacy, professional development opportunities, institutional support, and pedagogical alignment emerge as essential determinants of teachers' readiness. Additionally, individual characteristics, including age, experience, and attitudes towards technology, play significant roles in shaping teachers' readiness levels. Moreover, contextual factors such as organizational culture, policy frameworks, and infrastructure availability are crucial in facilitating or hindering AI integration efforts. Through a comprehensive analysis of these factors, this paper provides insights into designing effective strategies for promoting teachers' readiness and successful adoption of AI in educational settings. By addressing these factors, educators and policymakers can foster a conducive environment for utilizing AI technologies to enhance teaching and learning outcomes. This review highlights the importance of addressing complex factors influencing teachers' readiness to utilize AI, thereby promoting a culture of innovation and technology integration in education.

Introduction

The noticeable ability of computer programs to independently learn and reason is termed artificial intelligence (AI). It includes tasks like human intelligence that software can perform (Mitchell, 2019). The adoption of AI technology has led to its widespread integration across various sectors such as industry, agriculture, medical education, and services (Rosales et al., 2020; Wartman, 2018). Particularly in the field of education, there has been a notable flow in AI utilization, resulting in important improvements in teaching efficacy, efficiency, and overall academic standards.

The emergence, incorporation, and broad application of cutting-edge technology, like AI, have significantly enhanced educators' abilities, enabling them to fulfill their duties with greater effectiveness and efficiency. One significant impact lies in delivering curriculum-aligned materials tailored precisely to meet the unique needs and skills of each learner, as evidenced by research (Chassignol *et al.,* 2018; Chen *et al.,* 2020).

The growth and incorporation of artificial intelligence within education, particularly through online and web-based learning systems, have led to significant advancements in educational methodologies. AI has facilitated the development and utilization of increasingly sophisticated teaching tools on these platforms (Pokrivcakova, 2019). To adequately prepare for the impending digital shift, the education sector must conduct a comprehensive assessment of the evolving landscape and devise pertinent curricula. As the Asian integration process advances, the potential for heightened productivity via AI implementation emerges as a crucial opportunity. Embracing AI technology holds the potential to bridge existing disparities and reinforce the country's competitiveness, both domestically and globally (Islahi, 2019).

Despite the growing interest in integrating artificial intelligence (AI) into educational settings, there remains a significant gap in understanding the factors that influence teachers' readiness to adopt and incorporate AI technologies into their teaching practices. While numerous studies (Chassignol *et al.,* 2018; Islahi, 2019; Holden & Blade, 2020 & Seo *et al.,* 2021) have explored the benefits and challenges of AI integration in education, there is

* ICCR African Scholar, Department of Education, University of Lucknow
** Associate Professor, Department of Education, University of Lucknow

limited research focusing specifically on the readiness of teachers to embrace these advancements. Therefore, this study aims to fill this gap by examining the various factors that shape teachers' attitudes, perceptions, and preparedness to incorporate AI tools into their teaching methodologies. By exploring into existing studies and conducting empirical research, this study seeks to provide valuable insights into the dynamics of AI integration in education and offer practical implications for policy-makers, educators and educational technology developers.

Teachers' attitude of Integrating AI Tools in Teaching Practices

AI technologies offer educators innovative methods to enhance their teaching strategies, such as personalized assistance, effective communication channels, and data-driven insights (Brooker, 2023). Teachers integrating AI-powered tools can enhance their effectiveness, foster student self-regulation, and facilitate meaningful exchanges (Holden & Blade, 2020; Seo *et al.,* 2021; Torda, 2020). Despite the advantages, many educators have not embraced AI-enabled devices. It is essential to recognize the challenges they might encounter in implementing these technologies and equip them with the digital skills necessary to enhance student learning outcomes.

Teachers hold different perceptions and concerns regarding the incorporation of Artificial Intelligence in Education (AIED). Some fear about potential job displacement, fearing that AI could diminish their professional roles (Holmes & Tuomi, 2022). This apprehension might result in a unwillingness to embrace AI technology completely, as educators may not fully grasp its potential as a supplement rather than a replacement for their roles. In an age where ethical considerations of technology are important, educators may hesitate to adopt AI-powered tools without a clear understanding of how student data will be safeguarded and biases mitigated. Additionally, in numerous educational settings, inadequate infrastructure, funding, and support impede the widespread implementation of AI (Sharma *et al.,* 2022). Lastly, educators may lack the technical or pedagogical expertise needed to effectively integrate AI-powered resources into their classrooms, leading to feelings of apprehension and uncertainty.

Factors Influencing Teachers' Readiness to Integrate Artificial Intelligence into Their Teaching Practices

Teachers play essential role in facilitating the integration of AI into classrooms, yet their readiness to embrace AI-driven tools and methodologies is influenced by a many factors. Understanding these factors is crucial for designing targeted interventions and support systems to empower educators in attaching the potential of AI for enriching teaching and learning environments. In this paper, explore several factors that influence teachers' readiness to integrate artificial intelligence into their teaching practices.

Constraining Factors

Teachers' resistance to implementation new educational technologies can be attributed to a range of obstacles, including personal, technological, and institutional barriers (Graham *et al.,* 2013; Lawrence & Tar, 2018). They encounter both external and internal hurdles when incorporating digital tools into their teaching. External challenges, such as limited internet connectivity, insufficient financial backing, inadequate ICT infrastructure, lack of comprehensive training programs, absence of technical support, and unclear policies and plans (Al-Azawei *et al.,* 2017), can impede teachers' inclination to adopt digital technologies in education. Similarly, internal challenges like ICT proficiency (Jones, 2004 & Peralta, 2007), computer self-confidence (Kusumaningrum, 2019), lack of motivation, and unawareness (Al-Azawei *et al.,* 2017) can deter teachers from embracing innovative technologies.

Buabeng-Andoh (2012) contends that obstacles at both institutional and systemic levels deter teachers from utilizing technology in educational practices. Gupta and Singh, (2017) also underscore the significance of hindrances such as infrastructure limitations, inadequacy of human resources, and a scarcity of educational tools in impeding teachers' adoption of technology. Wee and Zaitun (2006) affirm that integrating technology into teaching demands additional time and effort, with little to no incentive from management, consequently diminishing teachers' inclination toward ICT usage. Furthermore, teachers' proficiency, competencies, and attitudes play a pivotal role in their utilization of technology in education. Several scholars posit that teachers' negative attitudes and reluctance to change (Alsheibani *et al.,* 2018) significantly impact their willingness to embrace technology and incorporate it into teaching methodologies. Challenges arise when teachers encounter difficulties aligning their curriculum with technological tools (Rizvi *et al.,* 2017), compounded by inadequate training and support, which serves as a substantial barrier (Rakhyoot, 2017).

Ineffective technical support personnel have an adverse effect on educators' inclination to incorporate technology into teaching and foster a pessimistic outlook on its usage (Rizvi *et al.,* 2017). Additionally, the absence of clear guidance, leadership, and ambiguous policies exacerbate the hurdles in technology adoption, leading to a negative perception among teachers (Rizvi *et al.,* 2017).

Encouraging Factors

Teachers face numerous obstacles and difficulties when incorporating AI into their teaching practices. Nonetheless, the impact of these obstacles can be mitigated by boosting teachers' enthusiasm for integrating technology into their everyday teaching and related responsibilities. According to Pokrivcakova, (2019) both external incentives and internal motivations play crucial roles in driving teachers' willingness to embrace ICT in education. Encouragement, advancement opportunities, and financial incentives have been identified as effective means of motivating teachers to utilize ICT in their teaching endeavors (Brooker, 2023). Similarly, McLaren and Aleven, (2019) contend that when teachers receive recognition for their digital initiatives, they are more inclined to continue utilizing technological advancements.

Pokrivcakova, (2019) contend that educators are motivated to integrate innovative technologies into their teaching practices due to the advantages they offer in terms of fostering engaging teaching and learning experiences, enhancing learning outcomes, and elevating teaching quality. The perceived benefits of utilizing Information and Communication Technology (ICT) in education serve as a catalyst for teachers to embrace ICT-based teaching methodologies (Ahmad *et al.,* 2017; Hao & Lee, 2015). Educators who prioritize the quality of their teaching and value feedback from students are more inclined to incorporate ICT tools into their instructional approaches, aiming to enhance the effectiveness of their teaching (Ahmad *et al.,* 2017). Teachers' self-satisfaction with their work and sense of achievement by using ICT tools (Watty *et al.,* 2016) can also motivate them for using innovative technologies. Similarly, teacherswho are concerned about their professional development always feel motivated to make use of digitaltechnologies in teaching (Kusumaningrum, 2019). According to Pokrivcakova, (2019) self-motivated teachers are personally innovative and always look for the opportunity for continuous learning for professional development.

School districts and other educational reform initiatives offer a range of resources and support systems to assist teachers in incorporating technology into their classrooms. Literature often emphasizes the importance of having knowledgeable individuals who can facilitate the process of technology integration within schools. According to Pokrivcakova, (2019) technology support is considered a crucial element for teachers to effectively utilize technology. However, findings regarding the impact of technology support on teacher practices vary across different studies. Rizvi *et al.* (2017) repeat this inconsistency in their research. On the contrary, some scholars have discovered that perceived support from technical personnel or coordinators significantly influences technology integration (Hsu and Kuan; Razak *et al.,* 2018). These conflicting results underscore the need for further investigation into the relationship between technology support and its effects on teacher technology usage.

Research indicates that the indirect influence of technology support, encompassing both technical assistance and pedagogical guidance, holds considerable significance. Voithofer, and Cheng, (2019) demonstrated that such support has a positive and substantial indirect impact on technology use by enhancing teachers' proficiency and beliefs in technology. Similar findings were reported by Islahi, (2019)who highlighted the indirect effects of support through improvements in technology skills and teachers' perceptions of the utility of technology. For instance, Voithofer, and Cheng, (2019) specifically observed a direct correlation between teachers' perceptions of support, encompassing both technical and overall assistance, and the integration of AI technology.

Conclusion and Recommendations

The current research has focused on identifying both the inhibiting and motivating factors influencing the adoption of AI-based teaching and learning solutions among educators in higher education. The study's findings highlight that institutional challenges, particularly the shortage of resources and time constraints, significantly hinder teachers from incorporating AI-driven teaching approaches into their practices. The absence of adequate institutional support in terms of essential resources and time allocation makes it arduous for educators to integrate AI-enabled solutions into their teaching methodologies. These findings align with previous studies (Salem & Mohammadzadeh, 2018; Teeroovengadum *et al.,* 2017), which underscore the inadequacy of equipment and resources as major obstacles to the implementation of advanced educational technologies. Furthermore, the lack of available time emerges as a critical barrier impeding the adoption of cutting-edge technologies in higher education. Given the myriad responsibilities of educators in higher education institutions, including teaching, research, and administrative duties, they have limited opportunities to explore and incorporate technological innovations like AI. Consequently, the burden of existing obligations makes it exceedingly challenging for educators to embrace new educational technologies (Watty *et al.,* 2016).

Another obstacle impeding teachers' desire to integrate AI into their teaching approaches is compatibility, presenting a technological hurdle. Teachers are reluctant to adopt AI in their teaching if they encounter challenges in harmonizing their teaching methodologies with AI's prerequisites. John (2015) similarly contended that the compatibility of technology with current methods is the primary factor influencing the integration of ICT into teaching practices.

The results also indicate that obstacles at the personal level, such as low confidence in computer skills, fear of technology, and individual willingness to innovate, are comparatively less significant compared to institutional and technological hurdles. These findings align with John's (2015) research, which highlighted computer self-efficacy and computer anxiety as key factors influencing the adoption of ICT in teaching. However, in this study, personal traits of teachers received less emphasis in terms of importance.

Regarding the factors that drive motivation, the research suggests that educators in higher education are more inclined to embrace AI-driven teaching methods when their efforts are acknowledged by their institutions. Recognition for their endeavors in integrating technological innovations into their teaching, whether through monetary rewards or other forms of acknowledgment, can incentivize them to adopt educational technologies such as AI (Gupta & Singh, 2017). Additionally, teachers find motivation to adopt AI-based teaching solutions when such initiatives are associated with opportunities for career advancement. These findings are consistent with those of Chassignol, *et al.* (2018), who asserts that teachers are more likely to embrace new educational technologies if they receive recognition in the form of promotions or performance evaluations.

An essential motivator for teachers to embrace AI-driven teaching solutions is the improvement they bring to teaching quality. These AI-enabled teaching tools offer tailored content that matches the capabilities and learning preferences of students. Furthermore, by incorporating AI into their teaching methodologies, educators can streamline various tasks like curriculum development, assignment creation, and assessments, allowing them to allocate more time to high-quality teaching. Consequently, the educational advantages of AI serve as a compelling incentive for educators in higher education to integrate AI-based educational advancements.The self-motivation of teachers is found to be the least important factor that may influence teachers' adoption of AI in higher education. This can be attributed to the fact that the teachers are so occupied with teaching and administrative workloads that they fail to find self-motivation for experimenting with any technology. They are less concerned with their own learning and development as com-pared to other factors such as recognition and educational benefits.

References

Ahmad, A., Ibrahim, M., & Ahmad, A. (2017). Managerial, organizational and technological determinants of ICT adoption: Survey of academic staff in Bauchi state. *ATBU Journal of Science, Technology and Education,* 5(1), 157-165. http://www.atbuftejoste.com/index.php/joste/article/view/340.

Al-Azawei, A., Parslow, P., & Lundqvist, K. (2017). The effect of universal design for learning (UDL) application on e-learning acceptance: A structural equation model. *The International Review of Research in Open and Distributed Learning:* IRRODL, 18(6) 54-87. https://doi.org/10.19173/irrodl.v18i6.2880.

Alsheibani, S., Cheung, Y., & Messom, C.(2018). Artificial intelligence adoption: AI-readiness at firm-level. PACIS 2018 Proceedings,37. *Association for Information Systems.* https://aisel.aisnet.org/pacis2018/37/.

Brooker, R. (2023). Adoption of Artificial Intelligence in Schools: Unveiling Factors Influencing Teachers' Engagement. In International Conference on Artificial Intelligence in Education (pp. 151-163). Cham: Springer Nature Switzerland.

Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and DevelopmentUsing Information and Communication Technology* (IJEDICT), 8(1), 136-155. https://files.eric.ed.gov/fulltext/EJ1084227.pdf

Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial Intelligence trends in education: a narrative overview. *Procedia Computer Science,* 136, 16-24.

Graham, C. R., Woodfield, W., & Harrison, J. B. (2013). A framework for institutional adoption and implemen-tation of blended learning in higher education. *The Internet and Higher Education,* 18, 4-14. https://doi.org/10.1016/j.iheduc.2012.09.003.

Gupta, K.P. & Singh, S. (2017). Prioritization of factors influencing employee adoption of e-gov-ernment using the analytic hierarchy process. *Journal of Systems and Information Technology,* 19(1/2), 116-137. https://doi.org/10.1108/JSIT-04-2017-0028.

Holden, H., & Rada, R. (2011). Understanding the influence of perceived usability and technology self-efficacy on teachers' technology acceptance. *Journal of Research on Technology in Education,* 43(4), 343-367. https://doi.org/10.1080/15391523.2011.10782576.

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education,* 57(4), 542-570.

Islahi, F. (2019). Exploring teacher attitude towards information technology with a gender perspective. *Contemporary Educational Technology,* 10(1), 37-54.

Jones, A. (2004). A review of the research literature on barriers to the uptake of ICT by teachers. *Becta.* https://dera.ioe.ac.uk/1603/.

Kusumaningrum, A. (2019). Professional development of a teacher in the ICT era. *KnE Social Sciences,* 3(10), 203-211. https://doi.org/10.18502/kss.v3i10.3902.

McLaren, B.M., & Aleven, V. (2019). Designing for complementarity: Teacher and student needs for orchestration support in AI-enhanced classrooms. In Artificial Intelligence in Education: 20th International Conference, AIED 2019, Chicago, IL, USA, June 25-29, 2019, Proceedings, Part I 20 (pp. 157-171). Springer International Publishing.

Mitchell, M. (2019). Artificial Intelligence: A Guide for Thinking Humans. Penguin UK.

Peralta, H., & Costata, A.F. (2007). Teacher's competence and confidence regarding the use of ICT. *Sísifo-Educational Sciences Journal,* 3, 75-84. https://repositorio.ul.pt/bitstream/10451/7008/1/%282007%29PER-ALTA%2CH%26COSTA%2CF%28ICTCompetenceConfidence%29S%C3%8DSIFO3eng.pdf.

Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education,* 7(3), 135-153.

Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education,* 7(3), 135-153.

Rakhyoot, W.A.A. (2017). Institutional and individual barriers of e-learning adoption in higher education in Oman: Aca-demics' perspectives [Doctoral Dissertation. Glasgow, United Kingdom: University of Strathclyde]. https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.714734.

Razak, N.A., Jalil, H.A., Krauss, S.E., & Ahmad, N.A.(2018). Successful implementation of information and communication technology integration in Malaysian public schools: An activity systems analysis approach. *Studies in Educational Evaluation,* 58, 17-29.

Rizvi, N. F., Gulzar, S., Nicholas, W., &Nkoroi, B. (2017). Barriers in adopting blended learning in a private university of Pakistan and East Africa: Faculty members' perspective. *MHealth,* 3(5), 18. https://doi.org/10.21037/mhealth.2017.04.04.

Rosales, M.A., Jo-ann, V.M., Palconit, M.G.B., Culaba, A. B., & Dadios, E.P. (2020). Artificial intelligence: the technology adoption and impact in the Philippines. In 2020 IEEE 12th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM) (pp.1-6). IEEE.

Seo, K., Tang, J., Roll, I., Fels, S., & Yoon, D. (2021). The impact of artificial intelligence on learner-instructor interaction in online learning. *International Journal of Educational Technology in Higher Education,* 18(1), 1-23.

Sharma, M., Savage, C., Nair, M., Larsson, I., Svedberg, P., & Nygren, J. M. (2022). Artificial intelligence applications in health care practice: scoping review. *Journal of medical Internet research,* 24(10), e40238.

Voithofer, R., & Cheng, S. L. (2019). Mediating factors that influence the technology integration practices of teacher educators. *Computers & Education,* 128, 330-344.

Watty, K., McKay, J., & Ngo, L. (2016). Innovators or inhibitors? Accounting faculty resistance to new educational technologies in higher education. *Journal of Accounting Education,* 36(C), 1-15. https://doi.org/10.1016/j.jaccedu.2016.03.003

Wee, M.C., & Zaitun, A. B. (2006). Obstacles towards the use of ICT tools in teaching and learning of information systems in Malaysian Universities. The *International Arab Journal of Information Technology,* 3(3), 203-209. https://pdfs.semanticscholar.org/6e5e/a836463da1072b980ea151f77023dceb35ed.pdf.

Effective Use of an Enterprise's Financial Resources Under Modern Management Conditions

*Saubhagya Singh, **Prof. Sudhir Kumar Shukla

Abstract

The article covers the characteristics of the formation and efficient use of the financial assets of the firm under modern management environment. The idea, nature, and sorts of financial assets that the business has are discussed in particular, as well as the challenges and circumstances surrounding their creation and effective application. Two private firms and two corporations that are publicly traded were used to analyse four businesses in this article. The primary sorts of financial resources that the company uses to build its assets, generate revenue, and make a profit were pointed out. Financial and economic systems have to operate.Financial resources are the only kind of enterprise resource that can be changed into another form in a short period of time, according to research. It has been shown that the business's financial capabilities cover all of its requirements for continual development and functioning.

Efficiency is a gauge of the way well finances are used; it is affected by both internal and external factors, including economic, legal, and social factors. It has been developed that a set of standards have to be developed in order to assess the effectiveness of use of financial resources, despite the availability of numerous financial plans and different methods for doing so. possible to evaluate. the most straightforward, most logical, and most accurate allocation of financial resources but additionally taking the type of economic activity of the company organization into account. It has been determined that every company organization has to develop a special plan for handling its financial assets if it is to operate successfully financially in the current business climate.

Introduction

In the context of the economic system's transition, a firm's financial resources are crucial for its ability to operate successfully and to engage in a process of sustained reproduction. In addition to preserving their financial stability and ability to pay their debts for as long as they are in procedure, companies must manage effective utilization and development of financial resources. All other resources originate through financial resources, therefore a company's ability to adjust to changing market conditions is mostly dictated by how well they manage their financial resources. One of the most critical components in the operations and growth of an organization in the market economy is the production of cash resources through various channels. The capability to produce funds constantly shifts in response to the needs of both production and sales targets, the growing complexity of economic linkages, and other factors related to manufacturing (Balabanov, 2009).[1] The term "resource" is often utilized for the technology it, if employed and altered in a certain manner, enables the accomplishing of the desired outcome. "Financial resources" relate, in its broadest sense, to the means at one's disposal for carrying out certain responsibilities in accordance with a specific plan and making it possible to accomplish the intended economic output. Let's examine the evolution of the term "financial resources" from the years 1960s though the 1970s and up to the present.[2]

The sources of capital for business entities are one of several key ideas in the structure of enterprise finance. They are always expressed in monetary terms, have an accumulating nature, and are a reflection of the generation and use of multiple enterprise funds, revenues, profits, and various kinds of enterprise duties. The spending plans of insurance companies, and banks, the socioeconomic and technological advancement of the entire firm, as well as the funding of business entities engaged in the process of prolonged reproduction, have all had an impact on the

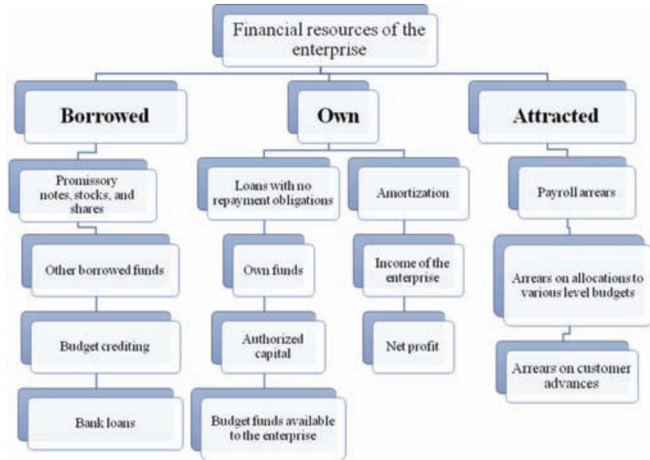
* Research Scholar, Department of Commerce, Mahatma Gandhi Kashi Vidyapith, Varanasi U.P., India-221002

** Former Head, Department of Commerce, M.G. Kashi Vidyapith, Varanasi, U.P., India-221002

quantity, quality, and layout of financial resources. The financial wellness, liquidity, money, and stability of the finances of business entities are established by an in-depth look of the methods of the creation and use of financial resources, and the basis of the financial support for economic activity of companies.

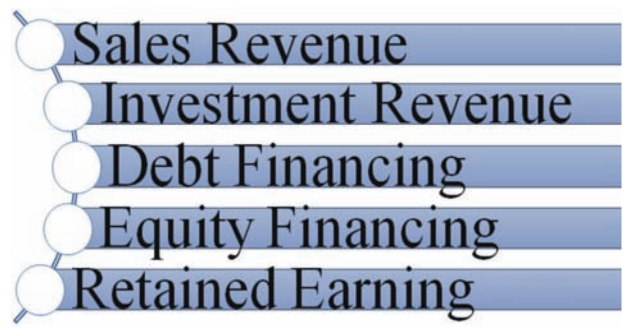
- **Strategic planning:** A thorough grasp of the enterprise's objectives and strategies is the initial step in successful financial leadership. Financial decision-making is aided by a clearly defined strategy, making sure that funds are divided in a way which encourages the successful achievement of the goals.
- **Financial projections and budgeting:** The company need to establish precise forecasts and budgets so as to manage financial resources appropriately. This involves estimating future cash flows plus seeing possible hazards and gains. The company can determine the financial resources necessary to sustain its operations and goals for investment by doing this.
- **Effective financing management:** The financial health of a business is dependent upon effective working capital management. Managing the business's current resources and commitments, such as cash, stocks, accounts receivable, and payments payable, falls under this category. The company can increase its liquidity and decrease the risk of fiscal problems by improving working capital management.
- **Diversification of revenue sources:** To lessen its reliance on just one source, a business ought to attempt to broaden its funding sources. Integrating borrowing, financing via equity, and other types of capital may be used in this instance.
- **Risk planning:** A sound risk management plan is vital to efficient financial management. An company should recognize possible monetary hazards and establish strategies for mitigation for them. This may entail taking precautions against market volatility as well as mitigating monetary and currency risks.

In conclusion, an important aspect in modern firm leadership involves the creation and efficient use of financial resources. An organization may maximize its liquidity and achieve long-term success by determining an explicit plan, anticipating and budgeting properly, handling its liquidity efficiently, diversifying its source of funding resources, and managing financial risks.



Source: Based on the information, the author developed

The main factors of the enterprise's creation of financial resources



The development of funds for a company depends on by many of vital features, including:

- **Sales revenue:** A business's gross revenue represents one to the primary sources of money. Included in this is the revenue made with the sale for goods or services, it is able to be utilized for reimbursement for present activities and new project developments.
- **Investment income:** Companies can also make income by buying other companies, stocks, or real estate. This income could be used as funding for investment or plans for expansion.
- **Debt financing:** To finance their activities or Spending plenty of companies rely on funding from debt in the form of cash advances or bonds. Whereas debt financing can be an honest source of funds, it also carries the risk of high debt repayments and expensive fees for interest.
- **Equity financing:** Firms can also raise funds by offering shareholders shares of their ownership. This has an opportunity to raise a significant amount of

money, but it also has the risk of eroding ownership and control.

- **Retained earnings:** Retained earnings were another resource for enterprises' finances. This is the portion of profits that are kept by the business and not paid forth as dividends. Retained earnings might be made use of to fund new initiatives or to amass reserves for possible investment in the future.

Overall, based on the specific demands or goals of the business, an assortment of those elements are involved in the creation of capital for an enterprise.

Review of Literature

Murodovich, GV. and Maxmudovich S.I. (2022)[3] One of the primary sources of financing for entrepreneurs, lending from banks are currently difficult for small enterprises to secure. This article addresses these challenges and suggests remedies. The system of financial assistance for companies along with the rise in investment operations are also examined.

Alsharari, N. (2022)[4] The benefits of an ERP system will be addressed as is the manner in how businesses can use it. It also promotes the business's internal growth in networks as well as its internal and external procedures (company activities and processes). ERP serves as essential for streamlining the process to achieve the intended result (to the firm's advantage). Innovative technology has benefitted traditional systems by enhancing security, making it easier to access the intended outcome, and helping the organization to conclude a variety of jobs fast.

Pulatovich, EM.(2020)[5] Business financial success and long-term viability indications vary country to nation and cannot be widely recognized. When measuring economic viability, enterprise elements are taken into account. likewise, this makes it challenging to assess the economic viability of an entity.

Shashi, *et al.* (2019)[6] Leanness, innovation in items, procedures, financial performance, and ecological sustainability are all discussed in this essay. We utilize information from 374 Indian industrial SMEs to test out the hypotheses put forward by the model in order to achieve this. This work expands upon the model of structural equations (SEM). The concept's figures are examined specifically using confirmed factor analysis (CFA), and the structural modelling's assertions are tested employing path analysis of the model. The study's conclusions confirm the model's hypotheses and show that creative thinking and leanness both substantially enhance financial and environmental performance.

R, Kamini *et al.* (2019)[7] Financial awareness is the ability to take important choices concerning how to use cash responsibly and effectively. The authors of the current study have demonstrated a correlation between the level of financial literacy of working women in Delhi, India, and variables such as understanding of finance, financial conduct, and financial attitude.

S, Bruno. *et al.* (2019)[8] The public-private partnership framework is flexible and adaptable, making it appropriate for any sustainable development endeavor. A proprietary conceptual model of environmentally friendly development financing by public-private partnership offers solutions that can be put into practice with the aim to serve as an intellectual basis and practical structure for the implementation of public-private partnership to be a mechanism of financing sustainable development.

Nekhaychuk, D *et al.* (2019)[9] Given that it decides the formulas to calculating organized indicators and the steps in the planning process according to the conceptual strategy, the authors investigated different types of strategic management in the context of the financial planning system and advised taking that stage of concretization along with coordination of financial strategy for the planning period into attention.

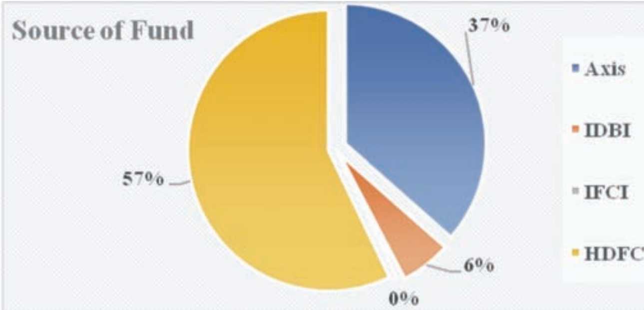
Kumar, C. *et al.* (2019)[10] considering that it defines the formulas to calculating intended indicators and the steps in the planning process according to the conceptual method, the authors investigated different types of strategic oversight in the planning process system and advised taking that stage of implementation along with coordination of the financial plan for the time frame for planning into attention.

Objectives of study

1) To identify the Financial Resources of Enterprises in India.
2) To identify the factors of these resources in India.
3) To identify the share of unprofitable Enterprise and financial results of profitable Enterprises.
4) To determine the uses of an Enterprise's Financial Resources.

- **To identify the Financial Resources of Enterprises in India**

Figure No. 1 Revenue of Enterprise

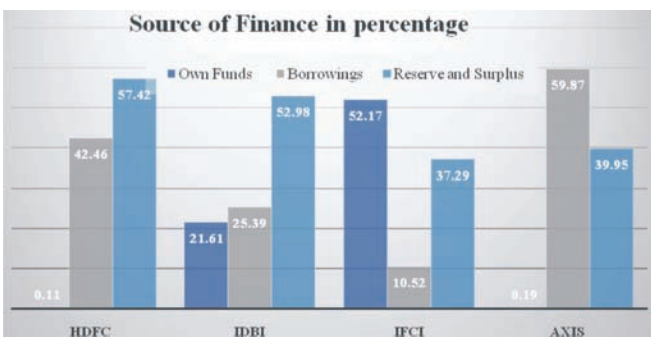


Source: Annual Report (2022-2023)[11-12]
money control [(13-14)]

The chart that follows depicts the funding sources that are utilized by organizations. As to the afore-mentioned figure, [11]HDFC's financing is obtained from the largest source–57%, or 486964.58 crores–while [14]IFCI's derives from the most modest source–0%, or 4208.85 crores. In contrast, [13]Axis is in second place with 37% (or 311293.28 crores), followed by [12]IDBI in third place with 6% (or 49755.25 crores). The funds from multiple sources are presented in detail in the sections that follow graph:

- **To identify the factors of these resources in India**

Figure No.2 : Source of the Enterprises



Source: Annual Report (2022-2023)[11-12]
money control [(13-14)]

Axis has generated the most resources by lending, subsequent to IFCI, IDBI, and HDFC, who have produced the most through reserves and surplus, according to the graph indicated below. The majority of the money were additionally raised by Axis through Reserve and Surplus. IFCI made more money than Axis has through its the reserves surpluses, borrowings, and own funds. Own funds were used to create the most value. In the instance of IDBI, reserve, surplus, and internal revenue accounted for the majority of the funding. Reserve and excess cash as well as borrowings served as HDFC's funding sources.

In the earlier picture, IFCI has a balanced source of funding; they utilize a range of sources of finance, whereas others primarily count on borrowings, reserves, and surpluses.

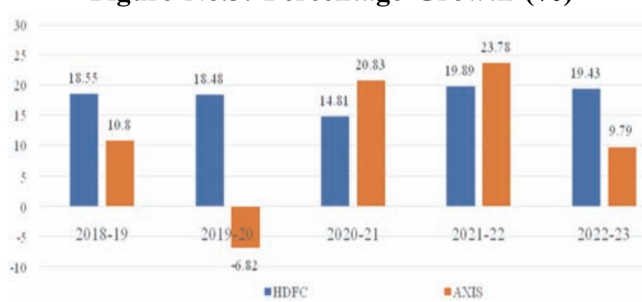
- **To identify the share of unprofitable Enterprise and financial results of profitable Enterprises**

Table No.1: Shows the Profit (INR) in cr. of the Enterprises in (F.Y. 2018-19 to 2022-23)

Year	Enterprises			
	HDFC	Growth (%)	AXIS	Growth (%)
2022-23	137294.38	19.43	47680.34	9.79
2021-22	110614.15	19.89	43010.76	23.78
2020-21	88608.93	14.81	32778.96	20.83
2019-20	75480.62	18.48	25950.21	-6.82
2018-19	61531.58	18.55	27719.66	10.80
CAGR*	1.174	-	0.897	-

Source: Money Control [(15-18)]

Figure No.3: Percentage Growth (%)



The graph and table above show that in 2021-2022, the banks HDFC and AXIS Bank witnessed maximum rate of expansion of 19.89% and 23.78%, respectfully. AXIS Bank, on the other hand, saw growth of -6.82% during the tax year 2019-20, while HDFC Bank was the bank that saw the smallest increase of 14.81% in the fiscal year 2020-21. The Covid-19 outbreak was primarily to blame for the HDFC Bank and AXIS Bancorp's lowest earnings growth.

Table No.2: ShowstheLoss (INR) in cr. of the Enterprises in (F.Y. 2018-19 to 2022-23)

Enterprise	IDBI[15]	Percentage loss (%)	IFCI[16]	Percentage loss (%)
2022-23	40079.04	-7.18	287.58	-592.43
2021-22	42956.91	-2.95	1991.30	1.68
2020-21	44226.70	-2.65	1957.81	85.80
2019-20	45400.26	28.89	277.88	-59.72
2018-19	32280.30	48.17	443.83	212.71
CAGR*	0.248	-	0.129	-

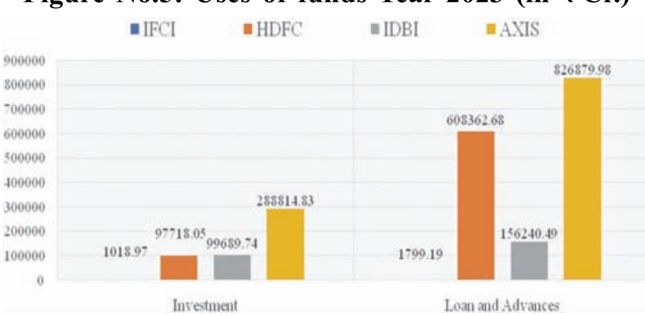
Source: Money Control [14-17]

Figure No.4: Percentage Growth (%)

The table and graph above indicate that the maximum loss rates for the IDBI Bank and IFCI Bank in the 2018-19 fiscal year were 48.17% and 212.71%, respectively. On the other hand, IDBI and IFCI Bank had the smallest losses rates, with -7.18% and -592.43, respectively.

- **To determine the uses of an Enterprise's Financial Resources.**

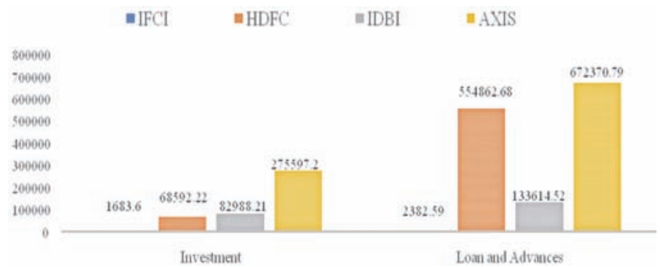
Figure No.5: Uses of funds Year 2023 (in ₹ Cr.)



Source: Annual Report (2022-2023)[11-12-(13-14*money control)]

According to the graph above, Axis Bank had the most fund use between IFCI, HDFC, & IDBI, using 288814.83 cr. in investing and 826879.98 cr. in advances and loans. IFCI invested 1018.97 crore and borrowed and advanced 1799.19 crore. In contrast to their investments, IDBI and HDFC's loans and advances totalled respectively 99689.74 respectively 97718.05 crores and 156240.49 and 608362.68 crores.

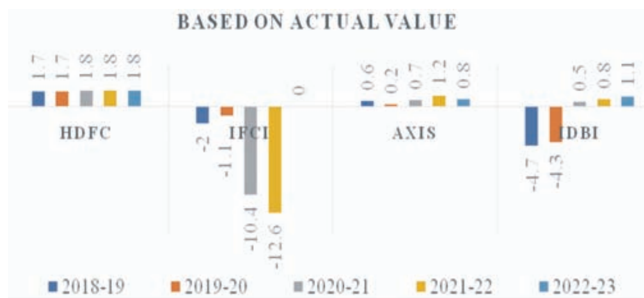
Figure No.6: Uses of funds Year 2022 (in ₹ Cr.)



Source: Annual Report (2022-2023)[11-14]

The chart above indicates that Axis Bank will be used for 275597 Investments and Lending & Advance transactions in 2022. Furthermore, it was 672370.79, beating all banks in the graph above, but FC's loan, advance, and investment were 2382. 59 and 1683. Which loan, advance, and investment from IDBI and HDFC, at 133614. 82988. 21 and 554862. 68, was the lowest? It was 68592.22.

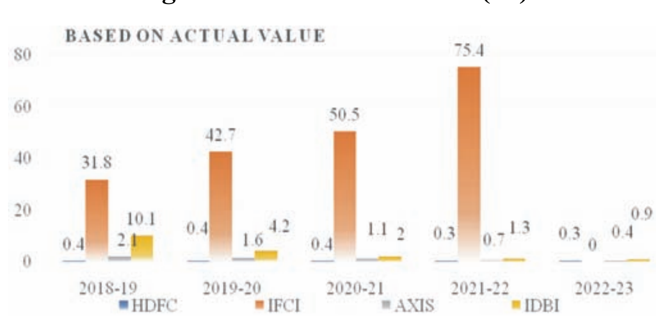
Figure No.7: Return on Assets in(%)



Source: Equitymaster[20-22]

As mentioned the graph shows that HDFC bank has average return of 1.8 in last five years and it is highest among all the enterprises and IFC was negative throughout the years in which highest negative growth is seen in 2021-22 same axis Bank has also shown positive result and highest in 2021-22 with 1.2, finally IDBI Bank has positive growth in last three years 2021to 2023 and negative growth in next 2 years with highest negative -4.7. in the F.Y 2018-19and highest positive growth rate was 1.1 in the year F.Y. 2022-23.

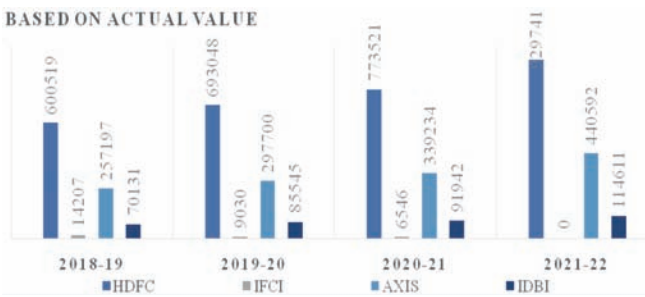
Figure No.8: Net NPAs in (%)



Source: Equitymaster[20-22]

This graph indicates that HDFC Bank had the lowest net NPA across the previous five years, whilst IFCI Bank had the highest, at 75.4 to 2021-22, and that IDBI Bank had the highest net NPA over the previous five years, at 10.1 in 2018-19. Axis Bank experienced a decline in net NPA over the past five years.

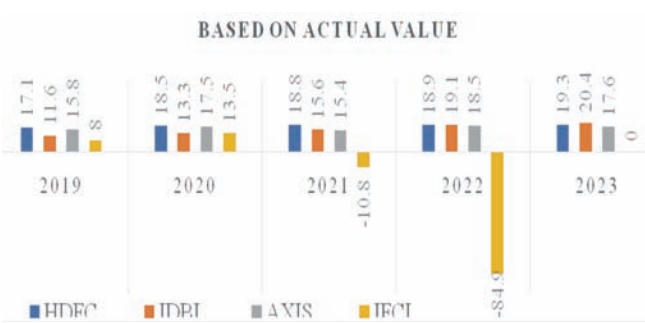
Figure No.9: Net interest income (INR million)



Source: Equitymaster [(20-22)]

According to the graph above, HDFC Bank had the largest net interest income over the course of the past five years, with a peak of $929741 in 2022-2023. at terms of ascending order, Axis Bank and IDBI Bank are at second and third place respectively. The bank with the lowest income of descending order is IFC Bank, which additionally happens to be the most effective income producer.

Figure No.10: Capital adequacy ratio (%)



Source: Equitymaster [(20-22)]

According to the aforementioned graph, HDFC Bank had the greatest capital return ratio over the five years before that (19.3 in FY 2022-2023). And it displays a rising tendency; on the same leg, IDBI Bank is displaying an ascending pattern, and Axis Bank and IFCI Bank display a varying trend, with the greatest drop in IFCI Bank occurring in the years 2021-2022.

Discussion

To begin to figure out how corporate finances operates, we'll explore the sources of funding given for corporate finance along with the people it serves. Despite the fact that the majority of the scientific literature from the 1960s and 1970s focussed on the governmental level of financial capacity creation, A. Biermann stressed a need for a more thorough investigation of the nature the financial procedures underlying links at the level of the institution. In order to corroborate his claims, he provided testimony, pointing out that a good deal of the money emerged within organizations from different sectors during the making of materials, suggesting that the creation of them was a centralized operation (Kirichenko, 2014). Regeneration approach adherents describe financial resources as an estimate of the country's overall economic output. However, this idea of financial resources is vague whenever it comes to their contribution to the flow of money (Kirichenko, 2014).[23] As such, a business's finances are a combination of internal funds and outside revenue that may be used to develop fixed and current assets that are required for the running of the business as well as greater production support.

Conclusions

In the report, private enterprises are functioning successfully and producing an acceptable profit, whereas government interference hinders public enterprises from running well. They currently run at a loss as a result. The research for this paper suggests it is feasible to describe "a nationally company's financial resources" as a combination of a company's own cash and outside financing that can be employed for the production of fixed or current funds required for the company's and kept production upkeep. There are several ways in which financial assets of a business are unique from other types of money. These qualities include: being the focus of financial management, having ownership rights, being affected by time, having an impact on money, being at risk, and being in responsibility of repaying financial obligations. The financial resources of an enterprise change swiftly as they play a role both in the financial potential and the advancement of the economy and society. The information that was analysed shows that managing the production of financial resources includes an assortment of tasks aimed at controlling equity and outside funding as well as creating and overseeing the capital structure with the objective to decrease the company's average weighted capital value and increase its market value. The growth of the manufacture and financing fields, as well as a growth of manufacturing companies, are all supported by this collection. The range of ways that money are employed to support leadership renders this collection of activities an intricate subject with numerous components.

Suggestion

- **Tracking and Performance Analysing:** Put set up trustworthy processes for tracking and assessing financial performance. To monitor the company's financial health and progress toward its goals, and evaluate its financial statements, indicators of performance (KPIs), and financial ratios on a regular basis. It allows for quick adjustments and well-informed choices.
- **Marketing and customer acquisition market:** Spend money on marketing and customer-acquisition initiatives to grow the customer base and income of the company. To efficiently reach the target socioeconomic, use social media platforms, digital marketing pathways, and targeted marketing efforts. To ensure that funds are allocated with as much efficiency as possible, measure the ROI for advertising activity.
- **Risk management:** Allocate funds to put efficient risk-management determines into reality. Assess and identify potential threats to the operation, standing, and financial stability of the business in question. Create a plan to reduce risk, buy the right insurance, and keep a reserve fund on hand to handle catastrophes or unexpected events.
- **Investing in Science and Innovation:** Take advantages of technological breakthroughs and spend funds on creative solutions that can boost output, simplify procedures, and spur growth. Analyse the potential ROI of using new technologies or improving current systems. Depending on the specific needs of the business, this could involve robotics, analytics of data, computing in the cloud, or artificial intelligence.

References

1. Balabanov, V.T. (2009). *Osnovy finansovogo menedzhmenta* [Fundamentals of Financial Management]. Moscow: Finansy i statistika. (p. 512).
2. Nekhaychuk, D., Nogas, I., Nekhaychuk, E., & Dzhelilov, A. (2019, June). The financial planning and its tasks in modern models of enterprise management. In *Volgograd State University International Scientific Conference" Competitive, Sustainable and Safe Development of the Regional Economy"* (CSSDRE 2019) (pp. 38-41). Atlantis Press.
3. Murodovich, G. R., & Maxmudovich, S. I. (2022). Support of Small Business and Private Entrepreneurship in Uzbekistan through Loans of Commercial Banks. *American Journal of Social and Humanitarian Research,* 3(6), 197-201.
4. Alsharari, N. (2022). the Implementation of Enterprise Resource Planning (ERP) in the United Arab Emirates: a Case of Musanada Corporation. *International Journal of Technology, Innovation and Management (IJTIM),* 2(1).
5. Эшов, (2020). Impact of Financial Sustainability on Enterprise Value Expansion. *Архив научных исследований*, (18).
6. Centobelli, P., Cerchione, R., & Singh, R. (2019). The impact of leanness and innovativeness on environmental and financial performance: Insights from Indian SMEs. *International Journal of Production Economics,* 212, 111-124.
7. Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modeling approach. *FIIB Business Review,* 8(1), 51-60.
8. Sergi, B. S., Popkova, E. G., Borzenko, K. V., & Przhedetskaya, N.V. (2019). Public-private partnerships as a mechanism of financing sustainable development. *Financing sustainable development: Key challenges and prospects,* 313-339.
9. Nekhaychuk, D., Nogas, I., Nekhaychuk, E., & Dzhelilov, A. (2019, June). The financial planning and its tasks in modern models of enterprise management. In *Volgograd State University International Scientific Conference" Competitive, Sustainable and Safe Development of the Regional Economy"* (CSSDRE 2019) (pp. 38-41). Atlantis Press.
10. Majid, M.A. (2020). Renewable energy for sustainable development in India: current status, future prospects, challenges, employment, and investment opportunities. *Energy, Sustainability and Society,* 10(1), 1-36.
11. https://www.hdfc.com/content/dam/housingdevelopmentfinancecorp/pdf/investors/relations/annual-reports/2022-2023/annual-reports/HDFC-Shareholder-Annual-Report-2022-23.pdf

12. https://www.moneycontrol.com/financials/ifci/balance-sheetVI/IFC02
13. https://www.axisbank.com/docs/default-source/annual-reports/for-axis-bank/annual-report-for-the-year-2022-2023.pdf
14. https://www.moneycontrol.com/financials/idbibank/balance-sheetVI/IDB05
15. https://www.moneycontrol.com/stocks/company_info/print_main.php
16. https://www.moneycontrol.com/financials/hdfcbank/profit-lossVI/HDF01
17. https://www.moneycontrol.com/financials/axisbank/profit-lossVI/AB16
18. https://www.moneycontrol.com/financials/idbibank/profit-lossVI/IDB05
19. https://www.moneycontrol.com/financials/ifci/profit-lossVI/IFC02
20. https://www.equitymaster.com/stock-research/compare/HDBK-UTIB/Compare-HDFC-BANK-AXIS-BANK?utm_source=views-on-news&utm_medium=website&utm_campaign=rightband&utm_content=compare-company
21. https://www.equitymaster.com/stock-research/compare/HDBK-IDBI/Compare-HDFC-BANK-IDBI-BANK?utm_source=compare-company-intl-page&utm_medium=website&utm_campaign=rightband&utm_content=compare-company
22. https://www.equitymaster.com/stock-research/financial-data/IFCI/IFCI-Detailed-Share-Analysis
23. Kirichenko, T.V. (2014). *Finansovyi menedzhment* [Financial Management]. Moscow: Dashkov i K. (p. 284).

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बिना बोझ की शिक्षा : कागजविहीन कक्षा-कक्ष (Paperless Classroom) की संकल्पना

*रजनी, **डॉ. रश्मि गोरे

सारांश

किसी राष्ट्र को समृद्ध बनाने के लिए उसकी शिक्षा व्यवस्था को सुदृढ़ करना अत्यंत आवश्यक है। विद्यालय औपचारिक शिक्षा के प्रमुख केंद्र हैं। वर्तमान में विद्यार्थियों का पाठ्यक्रम अत्यंत व्यापक हो गया है, जिससे उनके बस्ते का बोझ भी बढ़ गया है। इस बोझ को कम करने के लिए ही कागजविहीन कक्षा-कक्ष की संकल्पना की गई है। कागजविहीन शिक्षा न केवल कम लागत में, अधिक संख्या में विद्यार्थियों को शिक्षा प्रदान करने में सक्षम है, बल्कि यह अधिविन्यास (Assignment), गृहकार्य जैसी पाठ्यक्रम से सम्बन्धित प्रक्रियाओं को सम्पन्न करने तथा परीक्षाओं को आयोजित करने में होने वाली थकान से भी बचाती है (शोनफिल्ड, 2017)। इसके द्वारा स्याही की कीमत, कागज की कीमत एवं रख-रखाव से बचा जा सकता है (आर. एलिस, 2003)। इस प्रकार यह पर्यावरण संरक्षण में भी योगदान देती है (डी.कोनिस, 2011)। इसीलिए कागजविहीन शिक्षा की अवधारणा का औपचारिक शिक्षा में महत्त्वपूर्ण स्थान है। कागजविहीन कक्षा-कक्ष में विद्यार्थी बिना कागज, पेन तथा किताबों के कक्षा-कक्ष में आकर शिक्षा ग्रहण करता है। इसके अंतर्गत सभी शिक्षण-अधिगम कार्य कंप्यूटर, मोबाइल या नोटपैड के माध्यम से संपन्न किए जाते हैं (बोनिस, 2011)। पेपरलेस कक्षा-कक्ष विभिन्न दृष्टिकोणों में किताबों, कागज और कलम के स्थान पर आईपैड और ओवरहेड प्रोजेक्टर के साथ ब्लैकबोर्ड सॉफ्टवेयर के साथ आईपैड का उपयोग कर शिक्षण को बोधगम्य तथा तनावमुक्त करने में योगदान देती है (स्लोंस्की, 2000)। कागजविहीन कक्षा-कक्ष में प्रत्येक अध्यापक को शिक्षण कार्य को बेहतर, प्रभावी एवं संगठित बनाने हेतु विशेष प्रयास तथा प्रशिक्षण की आवश्यकता है। कागजविहीन कक्षा-कक्ष एक नवाचारयुक्त अवधारणा है जिसे यदि विचारपूर्वक एवं सावधानी के साथ आयोजित किया जाये तो शिक्षण कार्य एवं शिक्षण-अधिगम प्रक्रिया श्रेष्ठ रूप से संपन्न की जा सकती है तथा अपने अभीष्ट लक्ष्यों को प्राप्त किया जा सकता है।

प्रस्तुत शोधपत्र में औपचारिक शिक्षा के कक्षा-कक्ष की वर्तमान स्थिति, कागजविहीन कक्षा-कक्ष की संकल्पना, आवश्यकता, लाभ, तथा इसकी राह में आने वाली चुनौतियां एवं उन्हें दूर करने के लिए कुछ सुझाव का विस्तारपूर्वक वर्णन किया गया है।

प्रस्तावना

शिक्षा किसी भी समाज में निरंतर चलने वाली सोद्देश्य सामाजिक प्रक्रिया है, जिसके द्वारा मनुष्य की जन्मजात शक्तियों का विकास, उसके ज्ञान एवं कौशल में वृद्धि तथा संज्ञानात्मक, भावात्मक तथा क्रियात्मक व्यवहारों में परिवर्तन किया जाता है। इस प्रकार उसे सभ्य, सुसंस्कृत एवं योग्य नागरिक बनाने का प्रयास किया जाता है। शिक्षा व्यक्ति की उन सभी योग्यताओं का विकास है, जो उसमें अपने पर्यावरण पर नियंत्रण रखने तथा अपनी संभावनाओं को पूरा करने की सामर्थ्य प्रदान करती है। शिक्षा में शिक्षक, शिक्षार्थी और पाठ्यक्रम तीन ध्रुव होते हैं। औपचारिक शिक्षा इन्हीं तीनों ध्रुवों के अनुसार सम्पन्न होती है। विद्यालय में हम औपचारिक शिक्षा प्रदान करते हैं जिसका अपना एक पाठ्यक्रम, तथा समय सीमा होती है। औपचारिक शिक्षा में पाठ्यक्रम को समय पर पूर्ण करना ही वर्तमान शिक्षा व्यवस्था का मुख्य उद्देश्य बन गया है। शिक्षक तथा बालक पुस्तकों, कापियों के साथ पाठ्यक्रम को पूर्ण करने के लिए एक अकथित दौड़ में शामिल हो गये हैं, इसके कारण बालकों का सर्वांगीण विकास सही ढंग से नहीं हो पा रहा है, और पढ़ाई उन्हें बोझ लगने लगी है। छोटे-छोटे बालक अपने वजन के समतुल्य वजन कंधे पर लाद कर विद्यालय जा रहे हैं, इस स्थिति में उनका संज्ञानात्मक, शारीरिक, मानसिक तथा नैतिक विकास हो या न हो किन्तु उनके कंधों में दर्द का विकार जरूर हो सकता है। इस बोझ को कम करने के लिये कागजविहीन कक्षा-कक्ष का स्वरूप नवाचार के रूप में सामने आया है। कागजविहीन कक्षा में छात्रों को पुस्तकें, कापियां आदि लाने की आवश्यकता नहीं होती। कागजविहीन कक्षा-कक्ष एक ऐसी व्यवस्था है जहाँ बिना पेपर-पेन और ब्लैकबोर्ड-

* शोध अध्येत्री, शिक्षा विभाग, छत्रपति शाहूजी महाराज, कानपुर

** सह-आचार्या, शिक्षा विभाग, छत्रपति शाहूजी महाराज, कानपुर

चॉक के शिक्षा प्रदान की जाती है (डोद्‌थी, डी., 2023)। इसमें पेपर दस्तावेजों को इलेक्ट्रॉनिक दस्तावेजों जैसे नोटपैड, वर्ड डॉक्यूमेंट, एक्सेल इत्यादि द्वारा प्रतिस्थापित किया जाता है। डिजिटल तकनीक छात्रों में नवाचार, रचनात्मकता एवं संचार को बढ़ाती है। कागजरहित कक्षाएं प्रकृति के संरक्षण में भी उत्कृष्ट योगदान देती है, क्योंकि इन कक्षाओं मे कागज की कोई आवश्यकता ही नहीं होती और इस प्रकार असंख्य वृक्षों को काटने से बचाया जा सकता है (मेंजगो, एम., 2022)। पेपरलेस कक्षा-कक्ष में शैक्षिक कार्यक्रम से संबंधित सभी गतिविधियां इलेक्ट्रॉनिक रूप से सम्पन्न की जाती है इसलिए, सीखने की गतिविधियों को पूरा करने के लिए इलेक्ट्रॉनिक उपकरणों पर पूरी तरह से निर्भरता होती है (लिंच, 2002)। पेपरलेस वातावरण में, शिक्षक और शिक्षार्थियों के बीच सीखने की सामग्री का आभासी आदान-प्रदान होता है (गोरे आर. एवं रजनी, 2023)।

साहित्यिक समीक्षा

शैक्षिक रूप से अधिक सशक्त विद्यार्थियों को नोटबुक के स्थान पर, कंप्यूटर पर कार्य करना सुविधाजनक लगता है (मेशर-ताल एवं सोनफील्ड, 2019)। गत वर्षों में कोरोना वैश्विक महामारी के समय गूगल क्लासरूम आदि जैसी लर्निंग मैनेजमेंट सिस्टम (LMS) पर निर्भरता अधिक हो गयी थी (मिरी सोनफील्ड एवं अन्य 2019)। शिक्षण संसाधनों की उपलब्धता एवं शैक्षिक गतिविधियां (असाइनमेंट, क्विज) इत्यादि के सन्दर्भ में डिजिटल मोड पर कार्य करना विद्यार्थियों को अधिक सुविधाजनक कार्य लगा है (हुलसे, 2019)। 'डिजिटल तकनीक' ने शिक्षकों को भी डिजिटल रूप से संसाधन उपलब्ध कराकर अधिक सशक्त किया है और वे विभिन्न कौशल क्षेत्रों जैसे उच्चारण, व्याकरण सम्बन्धी शुद्धता इत्यादि के उपयोग के सन्दर्भ में अधिक आत्मविश्वास अनुभव करने लगे हैं (त्सोधिक ग्रिगोरियन एवं अन्य, 2015)। छात्रों को अनुभव प्रदान करने के सन्दर्भ में डिजिटल संसाधनों के कारण शिक्षकों की लोचनीयता विशेष रूप से महत्वपूर्ण हो गयी है (अकबराव एवं अन्य, 2018)। कागजरहित कक्षा कंप्यूटिंग प्रौद्योगिकियों से घनिष्ठ रूप सम्बन्धित है (एंथोनिया ओमेहिया एवं ओनीमा एनसिरिम, 2022)। वर्तमान में टैबलेट गणित कक्षाओं में प्रमुख शिक्षण उपकरण की भूमिका निभा रहा है (पीटर ओसमान, 2011)। इस प्रकार के अध्ययन पेपरलेस कक्षाएं विकसित करने में महत्वपूर्ण हो सकते हैं (कैपेक और होला, 2015)।

वर्तमान समय में औपचारिक शिक्षण व्यवस्था के अंर्तगत कक्षा-कक्ष की स्थिति

- **अपर्याप्त छात्र-शिक्षक अनुपात :** छात्र-शिक्षक अनुपात ही हमें छात्र को मिलने वाले व्यक्तिगत ध्यान को बताता है। अनुपात कम होने से शिक्षक प्रत्येक छात्र पर व्यक्तिगत रूप से विशेष ध्यान दे सकता है, इसी प्रकार छात्र भी अपनी समस्या का समाधान शिक्षक से बेझिझक ले सकता है। निःशुल्क और अनिवार्य बाल शिक्षा का अधिकार (आरटीई) अधिनियम, 2009 अपनी अनुसूची में प्राथमिक स्तर पर छात्र शिक्षक अनुपात (पीटीआर) 30:1 और उच्च प्राथमिक स्तर पर 35:1 निर्धारित किया है। राष्ट्रीय माध्यमिक शिक्षा अभियान (आरएमएसए) ने माध्यमिक स्तर पर पीटीआर 30:1 निर्धारित किया। शिक्षा के लिए एकीकृत जिला सूचना प्रणाली (यूडीआईएसई) के अनुसार प्राथमिक स्कूलों के लिए राष्ट्रीय स्तर पर पीटीआर 24:1 है और माध्यमिक स्कूलों के लिए यह 27:1 है (मानव संसाधन विकास मंत्रालय)।

  किन्तु वर्तमान में छात्रों की संख्या शिक्षकों की संख्या में ज्यादा है। पश्चिम बंगाल, उत्तर प्रदेश, झारखंड, गुजरात, दिल्ली, दादरा और नगर हवेली, चंडीगढ़, बिहार का नाम शामिल है, वहीं माध्यमिक और उच्च माध्यमिक सरकारी स्कूलों के मामले में भी 11 राज्य ऐसे हैं जहाँ छात्र और शिक्षकों का अनुपात निर्धारित मानक से ज्यादा है। छात्र शिक्षक अनुपात अधिक होने से शिक्षक प्रत्येक छात्र पर व्यक्तिगत ध्यान नहीं दे पाता।

- **मनोवैज्ञानिक संप्रत्ययों का प्रयोग न किया जानाः** वर्तमान शिक्षा व्यवस्था छात्र केन्द्रित शिक्षा है, इसलिये प्रत्येक शिक्षक को मनोवैज्ञानिक सम्प्रत्यों का ज्ञान होना अनिवार्य है। शिक्षक को कक्षा में मनोवैज्ञानिक सम्प्रत्यों जैसे- व्यक्तिगत विभिन्नता, छात्र-केन्द्रित शिक्षण विधियों का प्रयोग, छात्रों की रुचियों को स्थान, अभिप्रेरणा एवं पुनर्बलन का प्रयोग, तत्परता एवं अभ्यास के नियमों को महत्त्व, सृजनात्मकता के लिए छात्रों को अवसर प्रदान करना, छात्रों के उद्दीपनों की व्यवस्था करना, विशिष्ट छात्रों की पहचान एवं तदनुसार शिक्षण उपचारात्मक शिक्षण की व्यवस्था, गतिशीलता का प्रभावशाली ढंग से उपयोग आदि का प्रयोग करना चाहिए, किन्तु वर्तमान शिक्षा प्रणाली में शिक्षक इनके प्रयोग में कम रुचि लेते हैं। जिस कारण छात्रों की व्यक्तिगत विभिन्नता, रुचि, दक्षता इत्यादि अनदेखी रह जाती है तथा छात्रों के सर्वांगीण विकास के लिये उनकी कक्षा में सक्रिय भागीदारी नहीं हो पाती।

- **कक्षा शिक्षण हेतु पारम्परिक शिक्षण विधियों पर अधिक निर्भरता संक्रिया आधारित अधिगम (एक्टिविटी बेस्ड लर्निंग) अपर्याप्त प्रयास :** कक्षा शिक्षण में शिक्षकों द्वारा पारम्परिक व्याख्यान विधि को बहुतायत से उपयोग में लाया जाता है, जबकि क्रियाशीलता आधारित अधिगम से विद्यार्थियों में कौशल विकसित किये जा सकते हैं। इसमें

छात्र केवल किताबी कीड़ा न बनकर सक्रिय रहकर शिक्षण अधिगम प्रक्रिया में भागीदारी करते हैं और इस प्रकार शोध के द्वारा यह सिद्ध हो चुका है कि विद्यालयों में एक्टिविटी बेस्ड लर्निंग अन्य शिक्षण पद्धतियों की तुलना में ज्यादा प्रभावी है। किन्तु पाठ्यक्रम पूरा करने की जल्दी में शिक्षक एक्टिविटी बेस्ड लर्निंग के स्थान पर व्याख्यान विधि का अधिक उपयोग करते हैं, जिससे विद्यार्थियों की अधिगम में क्षमताओं का विकास नहीं हो पाता।

- **कक्षाओं का यंत्रवत संचालनः** अधिकांश शिक्षकों का कक्षाओं के प्रारम्भ से अंत तक सम्पूर्ण प्रयास मात्र पाठ्यचर्या को ससमय पूर्ण करना रहता है इस प्रकार वर्तमान कक्षाओं में शिक्षक का कक्षा में प्रवेश करना, विद्यार्थियों को निर्देश देना, ब्लैक-बोर्ड/व्हाइट-बोर्ड की सहायता से पारम्परिक शिक्षण कार्य सम्पादित करना, छात्रों का उत्तर पुस्तिकाओं में कार्य करना सब कुछ मशीन की तरह यंत्रवत बोझिल रूप से चलता रहता है। कक्षाओं में छात्र एक यन्त्र के सामान कार्य करते हैं। कक्षाओं में छात्रों का आनंद के साथ, रुचि लेकर उत्साह के साथ सक्रिय रूप से सीखना नहीं हो पाता। बोरियत भरी कक्षाओं में शिक्षण भले ही हो, अधिगम न्यून ही रहता है।
- **नवाचार के सन्दर्भ में उदासीनता :** शिक्षण-अधिगम प्रक्रिया तभी प्रभावशाली होती है जब इसमें छात्र सक्रिय भागीदारी करते हैं, शारीरिक रूप से तत्पर होते हैं, बहु दिशाओं में चिंतन करते हों तथा नवीन मौलिक विचारों को अन्वेषण के रूप में प्रस्तुत करते हैं।

  किन्तु खेद का विषय है कि वर्तमान कक्षाओं में न तो छात्रों को नवाचारों हेतु अभिप्रेरित किया जाता है, और न ही शिक्षक अपने शिक्षण में नवाचारों जैसे- हाइब्रिड लर्निंग, फ्लिप क्लासरूम, ई-संसाधन, ई-प्लेटफार्म, जर्क-तकनीकी, पेपरलेस क्लास, को-आपरेटिव लर्निंग, कांसेप्ट मैपिंग आदि के प्रयोग में कोई रुचि लेते हैं।
- **शिक्षकों का रूखा व्यवहारः** सामान्यतया देखा गया है कि शिक्षक छात्रों के सर्वांगीण विकास में कोई रुचि नहीं लेते एवं उनका छात्रों के प्रति रूखा व्यवहार होता है। ऐसे में छात्र शिक्षक के पास अपनी बात कहने से हिचकिचाते हैं तथा अपनी जिज्ञासाओं का शमन नहीं कर पाते।
- **बस्ते का बढ़ता बोझः** वर्तमान में कक्षा-1 से ही पाठ्यक्रम इतना व्यापक हो गया है कि छोटी-सी खेलने की उम्र में ही बच्चों पर भारी बस्ते का बोझ आ गया है। छात्रों को नैतिक शिक्षा, अंग्रेजी, गणित, हिंदी, आर्ट, विज्ञान, सामाजिक विज्ञान आदि अनेक विषयों की पुस्तकों के साथ-साथ उनकी कापियां भी साथ में विद्यालय ले जानी होती हैं, जो उनके बस्ते के बोझ बढ़ाने के साथ-साथ उनका बचपन भी छीन रही हैं। कई विद्यालय एवं बोर्ड एक ही विषय में कई-कई पुस्तकें अध्ययन में सम्मिलित करते हैं, जिन्हें कक्षा में नहीं लाने पर कई बार छात्रों को दण्ड भी मिलता है। इससे कई बार छात्र विद्यालय जाने से ही कतराने लगते हैं।

  इसके लिये पेपरलेस कक्षा-कक्ष की संकल्पना की गयी, जहां छात्रों को बिना पुस्तक कॉपी बैग के आना होता है। उन्हें केवल एक नोटपैड या लैपटॉप लेकर आना होगा और छोटी कक्षा में प्रोजेक्टर के द्वारा तथा छात्रों को विद्यालय में ही पुस्तकों को प्रदान कर इस बोझ को कम किया जा सकता है। वैश्विक परिदृश्य व्यापक हो गया है अतः पाठ्यपुस्तकों को भी पारंपरिक रूप से निकलकर डिजिटल स्वरूप को अपनाना होगा। तभी परिवर्तन और बहुआयामी शिक्षण को समाहित करने की चुनौतियों का सामना किया जा सकेगा। (Rossomondo, 2012)

पेपरलेस कक्षा-कक्ष की संकल्पना

एक पेपरलेस कक्षा में, शिक्षक और शिक्षार्थी जानकारी के आदान-प्रदान के लिए पाठ्यपुस्तकों और नोटबुक के स्थान पर कंप्यूटर, लैपटॉप, आईपैड और संस्थान द्वारा पेश किए गए अन्य तकनीकी उपकरणों का उपयोग करते हैं। शैक्षिक कार्यक्रम से संबंधित सभी गतिविधियां इलेक्ट्रॉनिक रूप से की जाती है। कागजविहीन कक्षा छात्र और शिक्षक दोनों के ही समय की बचत करती है। शिक्षक अपने बचे समय का सदुपयोग कर छात्रों के व्यक्तिगत विभिन्नताओं के बारे में जानकारी प्राप्त कर उनके सर्वांगीण विकास में सहायता कर सकते हैं। पेपरलेस क्लासरूम में छात्र शैक्षिक प्रयोग की सहायता से अपने ज्ञान के साथ ही साथ अपने रचनात्मक कौशल का संवर्धन कर सकते हैं जिससे उनका सर्वांगीण विकास होगा। पेपरलेस कक्षा में शिक्षण अधिगम प्रक्रिया पूर्णतः डिजिटल होती है। प्रस्तुतीकरण के द्वारा सभी विषयवस्तु पढाये जाते हैं जो बहुत ही रुचिकर और ज्ञानवर्धक होता है इसमें छात्रों को आनंद के साथ-साथ ज्ञान की भी प्राप्ति होती है।

पेपरलेस कक्षा ने छात्रों का मूल्यांकन करना भी आसान बना दिया है। शिक्षक छात्रों के उपकरणों पर गूगल फॉर्म के रूप में भी परीक्षण भेज सकते हैं, और एक एडटेक ऐप उत्तरों की जांच करता है और मिनटों के भीतर विश्लेषण प्रदान करता है। छात्रों को प्रश्नपत्र भेजने के बाद उनके द्वारा दिए गये उत्तर स्वतः ही सेव हो जाते हैं तथा उत्तरों के अनुसार उनको ग्रेडिंग प्रदान किये जाने में भी कम समय लगता है इन परिणामों को भविष्य में कभी भी उपयोग किया जा सकता है।

पेपरलेस क्लासरूम के लाभ

- कागजरहित कक्षाओं से कक्षा के आसपास फटे हुए कागजात के अवांछित कूड़े को कम किया जा सकता है।
- एक पेपरलेस कक्षा में, शिक्षक और शिक्षार्थी जानकारी के आदान-प्रदान के लिए पाठ्यपुस्तकों और नोटबुक का उपयोग न कर केवल कंप्यूटर, लैपटॉप, आईपैड और संस्थान द्वारा प्रदान किए गए अन्य तकनीकी उपकरणों का उपयोग करते हैं (जन्ना अर्नी एवं अन्य)।
- ये बस्ते के बोझ को कम करता है।
- इसके लिए किसी भी भौतिक कागज की आवश्यकता नहीं होती है जो कभी भी खो सकता है और जो समय के साथ नष्ट हो सकता है।
- शिक्षकों को प्रत्येक हैंडआउट की फोटोकॉपी बनाने की आवश्यकता नहीं है (Grover, 2003)।
- छात्रों के सभी व्याख्यान नोट्स, पाठ्यपुस्तकें और अन्य सभी काम आईपैड पर आसानी से संग्रहीत किए जा सकते हैं (Ochi, K., 2021)।
- कम समय और कम लागत में गुणवत्तापूर्ण शिक्षा।
- शिक्षक सामग्री और पाठ्यक्रम सामग्री अपलोड कर सकते हैं जो छात्रों को किसी भी समय कहीं भी एक्सेस करने में सक्षम बनाता है या ईमेल द्वारा शिक्षकों के साथ बातचीत कर सकता है।
- छात्रों की दक्षता, सीखने की शैली, सीखने में लगने वाला समय आदि के आधार पर अध्ययन सम्भव।
- पारंपरिक कक्षा में प्रस्तुत करते समय उन्हें ब्लैकबोर्ड में लिखने के लिये एक जगह ही रहना होता हैं जबकि पेपरलेस क्लास रूम में वे व्हाइटबोर्ड पर जानकारी प्रस्तुत करते समय स्वतंत्र रूप से घूम सकते हैं।
- छात्रों को आईपैड पर शैक्षिक ऐप्स के साथ काम करने का आनंद मिलता है।
- स्कैन की गई पाठ्यपुस्तक छात्रों के पास हमेशा रहती है जिससे उन्हें भारी पाठ्य पुस्तकों को साथ में नहीं ले जाना पड़ता न ही उन्हें भूलते हैं।
- सभी पाठ्य पुस्तकों, व्याख्यान नोट्स और छात्रों के काम को आईपैड पर संग्रहीत किया जा सकता है।
- यदि शिक्षक होमवर्क देना भूल गये, तो इसे कक्षा के बाद में भी दिया जा सकता है।
- वे वर्तनी और शब्दावली-निर्माण का अभ्यास करने के लिए ऐप्स का उपयोग कर सकते हैं।
- **सीखने की परिस्थितियों में लचीलापन :** कभी भी कहीं भी (बुतरा, 2021)।
- सीखने के संसाधन एवं सहायता मात्र एक क्लिक पर उपलब्ध।
- 24x7 पाठ्य सामग्री की सुलभता।
- विद्यार्थियों के अस्वस्थ होने, आकस्मिक कार्य से विद्यालय में अनुपस्थित होने की दशा में भी उन्हें पाठ्य सामग्री की सुलभता।
- छात्र आने वाले e-युग की चुनौतियों का सामना करने में सक्षम होंगे (के. थॉमस, 2020)।

कागजरहित कक्षा में चुनौतियां

- विद्यालयों में शिक्षण व शिक्षणेतर कर्मचारियों में तकनीकी कौशल ज्ञान की कमी (Mpho, 2023)।
- इलेक्ट्रॉनिक मीडिया का अधिक उपयोग।
- ग्रामीण क्षेत्रों में निरंतर विद्युत उपलब्धता एक चुनौती है।
- आर्थिक रूप से अधिक मंहगा होने के कारण सभी छात्र लैपटाप, आईपैड या नोटपैड को खरीद सकने में असमर्थ हैं (Gore, R; Rajni, 2023)।
- शैक्षिक एप्लिकेशन को डाउनलोड करने में बहुत समय लगता है, कई बार छात्र पासवर्ड भूल जाते हैं (Mpho, 2023)।
- छात्रों की कक्षा में निष्क्रिय स्थिति (Rajab *et al.*, 2020)।
- **नीरस, अरुचिकर एवं बोझिल कक्षाएं:** ऑनलाइन कक्षाओं के एकतरफा संचालन तथा इन्टरनेट पर पहले से उपलब्ध स्टडी मटेरियल के कारण कभी-कभी ऑनलाइन कक्षायें विद्यार्थियों को बोझिल और अरुचिकर लगने लगती हैं। इसके लिए इन कक्षाओं को इंटरैक्टिव बनाना चाहिए(Toquero, 2020)
- कक्षा में सृजनात्मकता के अवसर नहीं।
- विद्यार्थियों के व्यक्तित्व विकास के लिए उपयुक्त वातावरण का सृजन ना हो पाना।
- छात्र कभी-कभी चार्जिंग करना भूल जाते हैं और कम बैटरी के साथ क्लास में आते हैं, किन्तु प्लग सॉकेट सीमित होने के कारण समस्या उत्पन्न होती है।
- सभी छात्रों के पास घर पर असीमित इंटरनेट उपलब्ध नहीं (लोरेंस क्रेवेन, 2017)।
- छात्र आईपैड पर अध्ययन करने के लिए उत्साहित महसूस कर सकते हैं, किन्तु यह कुछ समय के पश्चात् बोरिंग काम लगने लगता है। (डेविड डोहर्टी, 2023)
- छात्र अक्सर सोशल मीडिया का उपयोग करने और गेम खेलने की आदत लग जाने से उनका पढ़ाई से मन हटने लगता है।

- छात्रों और शिक्षकों को पेपरलेस कक्षाओं में उपयोग की जाने वाली तकनीक की आदत डालने में समय लग सकता है।
- लम्बे समय तक लैपटॉप, आईपैड, नोटपैड देखने या इस्तेमाल करने से आँखों और शरीर में अनेक प्रकार की समस्या होने लगती है जो एक बड़ी गंभीर समस्या है।

सुझाव

- शिक्षकों और छात्रों के लिये तकनीकी ज्ञान संवर्धन हेतु वर्कशॉप, ओरिएंटेशन, रिफ्रेशर आदि कार्यक्रम आयोजित किये जायें, ताकि उन्हें अपने कार्य से संबंधित सभी तकनीकी कौशल की जानकारी प्राप्त हो सके एवं तकनीकी रूप से सक्षम शिक्षक पेपरलेस कक्षा-कक्ष में छात्रों की हर प्रकार की समस्याओं का समाधान कर सके।
- आर्थिक रूप से कमजोर छात्रों के लिए एंड्राइड फोन या नोटपैड की व्यवस्था सरकार अथवा विद्यालयों द्वारा की जानी चाहिए, ताकि वो भी सभी के साथ शिक्षा प्राप्त कर सके। उत्तर प्रदेश सरकार का टेबलेट वितरण कार्यक्रम इस सन्दर्भ में सराहनीय है तथा यह कागजविहीन कक्षाओं के लिए आधारभूत संरचना प्रदान करने में मुख्य भूमिका निभाने में सक्षम साबित होगा।
- आधारभूत शिक्षा के सन्दर्भ में विद्यालय की कक्षा अतकनीकी रूप से व्यवस्थित एवं सुसज्जित होने चाहिये जैसे-
    - अ) इन्टरनेट की हाईस्पीड और सभी तक पहुंच के लिये सरकार और विद्यालय के प्रबंधकों को व्यवस्था करनी चाहिए जिससे सभी छात्र इसका लाभ उठा सकें तथा इन्टरनेट के कारण शिक्षण-अधिगम कार्य बाधित न हो पाए।
    - ब) विद्यालय में चार्जिंग के लिये अनेक प्लग की व्यवस्था होनी चाहिये जिससे छात्रों को शिक्षण-अधिगम के समय पर भी चार्जिंग करने से संबंधित असुविधा न हो।
    - स) शहरों के साथ-साथ ग्रामीण क्षेत्रों में अबाधित विद्युत आपूर्ति सुनिश्चित की जानी चाहिए।
    - द) शिक्षण-अधिगम के समय आने वाली तकनीकी समस्याओं के निवारण हेतु तकनीकी सहायक अवश्य रूप से नियुक्त किये जाने चाहिए।
- छात्रों को एजुकेशन के संबंधित वेबसाइटों की जानकारी देनी चाहिए साथ ही उनके द्वारा उपयोग किये जाने वाले लैपटॉप या नोटपैड को अभिभावकों एवं शिक्षकों के द्वारा निगरानी भी की जानी चाहिए ताकि वे गेमिंग एवं अनेक गलत सोशल साइट्स के आदि न हो पाए और शिक्षा पर ध्यान दे।

उपसंहार

वर्तमान युग तकनीकी का युग है, पपेरलेस कक्षा-कक्ष वर्तमान शिक्षा प्रणाली की मांग है। इसके द्वारा बस्ते के बोझ को कम करके शिक्षा को रुचिकर और छात्रों के अनुरूप बनाया जा सकता है। यह भविष्य के लिए छात्रों को तैयार करती है। छात्र कक्षाओं के दौरान डिजिटल कौशल प्राप्त करते हैं। ऑनलाइन वातावरण ने छात्र और शिक्षकों के बीच बातचीत के नए साधनों, सीखने की दक्षता, सीखने की प्रक्रिया की पारदर्शिता और मूल्यांकन की प्रभावशीलता को बेहतर किया है। पपेरलेस कक्षा-कक्ष समय की बचत करता है और शिक्षक-छात्रों के बीच होने वाले सम्बन्ध को मजबूत बनाता है। प्रौद्योगिकी ने शिक्षकों को पाठों को छात्रों को सक्रिय और सार्थक, रुचिकर शिक्षा के लिए डिजाइन करने में सहायता की है।

References

Arney, J., Jones, I., & Wolf, A. (n.d.). Going green: Paperless technology and feedback from the classroom.

Akbarov, Azamat; Gonen, Kemal; Aydogan, Hakan (2018) Students' attitudes toward blended learning in EFL context. *Acta Didactica Napociensia,* 11(1), 61-68

Baby, K.T., & Saeed, M.A. (2020). Beyond the Classroom Through the Paperless Mode. 3(1), 77-81. https://doi.org/10.32996/ijllt.2020.3.1.9

Butura, M. (2021). Advantages and Shortcomings of Online Training in the University Environment. *Revista Universitara de Sociologie,* 17(2), 196.

CRAVEN, L. (2017, August 7). A Paperless Classroom: Benefits and Challenges. THINK-IAFOR-ORG- The Asian Conference on Language Teaching and Technology in the Classroom, UAE. https://think.iafor.org/a-paperless-classroom-benefits-and-challenges/

De Bonis, S., & De Bonis, N. (2011), Going Green: Managing a Paperless Classroom. Online Submission. https://eric.ed.gov/?id=ed522208

Doherty, D. (2023). How Paperless Schools are Transforming the Face of Learning. In Beyond the paperless classroom. https://www.cflowapps.com/paperless-school/

Doherty, D. (2023). The Paperless School: Benefits and Challenges. In Cflow. https://www.cflowapps.com/paperless-school/

Ellis-Behnke, R., Gilliland, J., Schneider, G. E., & Singer, D. (2005). Educational Benefits of A Paperless Classroom Utilizing Tablet PCS. 1-10.

Gore, R., & Rajni. (2023). माध्यमिक विद्यालयों में ऑनलाइन

शिक्षा की चुनौतियाँ। *Bhartiya Shiksha shodh Patrika*, 42(4).

Grigoryan, T. (2022). Investigating the Effectiveness of iPad Based Language Learning in the UAE Context-Open Learning, 37(2), 146-168. https://doi.org/10.1080/02680513.2020.1718488

Grover, C. (2003). From "Paperless Classroom" to "Deep Reading"–Five Stages in Internet Pedagogy.

Hulse, R. (2019). The use and implementation of Google Classroom in a Japanese university: *The Center for the Study of English Language Teaching Journal,* 7, 71-105.

K Thomas baby, M Amin Saeed (2020). Beyond the Classroom through the paperless mode, *Internatinal Journal of Linguistics*, *Literature and Translation.* https://www.papers.ssrn.com

Lynch, M. (2002). The online education: A guide to creating.

Masango, M.M., Van Ryneveld, L., & Graham, M.A. (2022). A Paperless Classroom: Importance of Training and Support in the Implementation of Electronic Textbooks in Gauteng Public Schools. *Electronic Journal of E-Learning,* 20(3), 336-350.

Motebele, M., Yassim, K., & Uleanya, C. (2023). Challenges and Constraints of the Paperless Classroom: Way Forward. Cultural and Historical Heritage: Preservation, Presentation, Digitalization, 9, 38-60. https://doi.org/10.55630/KINJ.2023.090203

Ochi, K. (2021). Students' Perception of Paperless English Classroom: A Case Study of a Japanese IT University Campus. *Teaching English with Technology,* 21(4), 35-50. https://www.tewtjournal.org

Omehia, A., & Nsirim, O.(2022). Computing Technologies and Paperless Classroom in Library Schools in Rivers State.

Osmon, P. (n.d.). Paperless classrooms: A networked Tablet PC in front of every child. 31(2).

Rajab, M.H., Gazal, A.M., Alkattan, K., Rajab, M.H., Gazal, A.M., & Alkattan, K. (2020). Challenges to Online Medical Education During the COVID-19 Pandemic. *Cureus,* 12(7). https://doi.org/10.7759/cureus.8966

Rajni, & Gore, R. (2023). Rashtriy Shikhsa 2020 tahta Shikshak Shiksha. *Shikshan Shodh Manthan*, 9(1), 231-233.

Rossomondo, A., Gillian Lord (2018). The world is not flat, so why are our textbooks\ Hispania, 100(5). 251-257.

Shonfeld, M., & Meishar-Tal, H. (2017). The Voice of Teachers in a Paperless Classroom. *Interdisciplinary Journal of E-Skills and Life-long Learning,* 13, 2017. https://doi.org/10.28945/3899.

Shonfield, Miri; Meishar-Tal, Hagit (2017). The voice of teachers in a paperless classroom. *Interdisciplinary Journal of e-skills and life long learning.*

Slowinski, J. (2000). Flaunt IT: Construction of paperless classroom.in L. Mearly and B. Laller (eds) e-learning: *Expanding thtrining classroom through technology,* 117-127 IHRIM, Inc

Stuebner, G. (2016). Let Me Google That: The Effect of a Paperless Classroom on Student Engagement. University of Mary Washington. teacher-ratio-and-the-education-quality/

Team, S.G. (2022, May 12). कागजविहीन कक्षा-कक्ष, लाभ, चुनौतियाँ, प्रायोगिक कदम, विशेषताएँ। *Sarkari Guider*. https://sarkariguider.in/कागजविहीन-कक्षा-कक्ष/

The Connection between Low Student-Teacher Ratio and the Education. (2022, May 25). Chanderbala Modi Academy. https://www.cma1.in/the-connection-between-low-student-

The Paperless School: Benefits and Challenges. Cflow. https://www.cflowapps.com/paperless-school/

Toquero, C.M. (2020). Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. *Pedagogical Research,* 5(4), em0063. https://doi.org/10.29333/pr/7947

Wang, J.F. (2010). Creating a paperless classroom with the best of two worlds. *Journal of Instructional Pedagogies*, 2, 1-22.

छात्र-शिक्षक अनुपात में संतुलन के मायने जितना कम होगा अनुपात, उतनी गुणवत्तापूर्ण होगी शिक्षा–Student Teacher Ratio in India lower the student teacher ratio higher will be the quality of education. (n.d.). Jagran. Retrieved May 19, 2023, from https://www.jagran.com/news/national-student-teacher-ratio-in-india-lower-the-student-teacher-ratio-higher-will-be-the-quality-of-education-21829663. html

छात्र-शिक्षक अनुपात. (n.d.). Retrieved April 2, 2024, from https://pib.gov.in/newsite/PrintRelease.aspx\relid=158326

A Chain Type Generalized Estimator of Population Mean Under Measurement Error and Nonresponse

*Arun Kumar, **Shashi Bhushan, ***Shubhra Katara

Abstract

In this paper, we propose a generalized estimator of cost efficient for estimating the population mean of study variable using auxiliary information in presence of measurement error and non-response error occurs simultaneously. The generalized estimators in this paper have been proposed as an alternative to the class of estimators proposed by Singh and Kumar (2008). Properties of the suggested generalized estimators are studied and compared with those of existing estimators. It is shown that the estimator $\bar{y}_f$ is most efficient among all the estimators proposed by Singh and Kumar (2008) under both errors response and non-response errors occurring simultaneously. The efficiency of the proposed estimator seems to be drastically curtailed with increasing measurement error and/or decreasing subsampling fraction.

1. Introduction

Auxiliary information is often used for the purpose of improving upon the efficiency of the estimates of the population parameters. The purpose of making use of the information based on an auxiliary variable is to obtain increased precision by taking advantage of the correlation between the study variable and the auxiliary variables. When the study variable and the auxiliary variable are positively correlated it is better to use the ratio estimator however the correlation between the study and auxiliary variable is negative one may make use of the product estimator. Thus in this regard it can be said that the ratio and product method are good examples for estimating the population mean $\bar{Y}$ if the population variable is readily available and accounts to more precise estimates.

In survey sampling, the properties of the estimators based on data usually treated under the assumption that the observations are correct measurements on characteristics being studied. But such kind of assumption does not satisfied in many applications and data is recorded with measurement errors, such as reporting errors and computing errors. These measurement errors make the result invalid. If measurement error is very small and we can neglect it, then the statistical inferences based on observed data continue to remain valid. On the other hand if measurement error is not negligible, the inferences may not be simply invalid and inaccurate, but may often lead to unexpected, undesirable and unfortunate consequences (see Srivastava and Shalabh (2001)).

Consider a finite population $U = (U_1, U_2, ..., U_N)$ of N units. Let Y and X be the study variate and auxiliary variate, respectively. Suppose that we have a set of n paired observations obtained through simple random sampling procedure on two characteristics X and Y. Further, suppose that (x_i, y_i) for the i^{th} sampling units are observed with measurement error instead of their true values (X_i, Y_i). For a simple random sampling scheme, let (x_i, y_i) be observed values instead of the true values (X_i, Y_i) for i^{th} $(i=1,2,...n)$ unit such as

$$u_i = y_i - Y_i \tag{1.1}$$

$$v_i = x_i - X_i \tag{1.2}$$

where u_i and v_i are associated measurement errors which are stochastic (probabilistic) in nature with mean zero, variances σ_u^2 and σ_v^2 respectively. Further, we assume that u_i and v_i are uncorrelated although X_i and Y_i are correlated. Let the population mean of X and Y characteristics be μ_x and μ_y where population variances of X and Y characteristics be σ_x^2 and σ_y^2 respectively. Let σ_{xy} be the population covariance between x and y.

Consider a finite population of size N and a random sample of size n drawn by simple random sampling without replacement. In surveys on human populations, it is often the case that n_1 units respond and remaining $(n-n_1)$ do not any response. The initial survey may be conducted through the mail or by telephone, perhaps

* Department of Community Medicine, Maa Vindhyavasini Autonomous State Medical College, India
** Professor, Department of Statistics, University of Lucknow, India
*** Department of Statistics, Bareilly College, India (Communicating Author)

computer aided; see Rao (1986). In the case non-response, in the initial attempt, Hansen & Hurwitz (1946) suggested a double sampling scheme for estimating the population means comprising the following steps.

(a) A simple random sample of size n is drawn and the questionnaire is mailed to the sampled units.

(b) A sub-sample of size $r=(n/k)$, $(k>1)$ from the n_2 non-responding units in the initial step attempt is contacted through personal interviews.

Note that Hansen & Hurwitz (1946) are the pioneer of the non-response problem and they considered mail surveys in the first attempts, and personal interview in the second attempt. In the Hansen and Hurwitz method, the population of size N is supposed to be composed of two stratum, namely respondentsand non-respondents, having size N_1 and N_2 $(=N - N_1)$. Thus we label the data as $Y_1, Y_2, ..., Y_{N_1}$ for the response stratum, and as Y_{N_1+1}, $Y_{N_1+2}, ..., Y_{N_1+N_2}$ for the non-response stratum. Further, we assume that $\bar{Y} = \sum_{i=1}^{N} Y_i / N$ and $\sigma_y^2 = \sum_{i=1}^{N} (Y_i - \bar{Y})^2 / N$ denote population mean and variance, respectively. Let $\bar{Y}_1 = \sum_{i=1}^{N_1} y_i / N_1$ and $\sigma_{y_1}^2 = \sum_{i=1}^{N_1} (y_i - \bar{Y}_1)^2 / N_1$ denote the mean and variance of response stratum, respectively, and similarly, $\bar{Y}_2 = \sum_{i=N_1+1}^{N_1+N_2} Y_i / N_2$ and $\sigma_{y_2}^2 = \sum_{i=N_1+1}^{N_1+N_2} (Y_i - \bar{Y}_2)^2 / N_2$ denote the mean and variance of non-response stratum respectively. The population mean can be written as $\bar{Y} = W_1 \bar{Y}_1 + W_2 \bar{Y}_2$, where $W_1 = N_1 / N$ and $W_2 = N_2 / N$. The sample mean $\bar{y}_1 = \sum_{i=1}^{n_1} y_i / n_1$ is unbiased for $\bar{Y}_1$, but has a bias equal to $W_2(\bar{Y}_1 - \bar{Y}_2)$ in estimating the population mean $\bar{Y}$.

The sample mean $\bar{y}_{2r} = \sum_{i=1}^{r} y_i / r$ is unbiased for the mean $\bar{y}_2$ of the n_2 units. An unbiased estimator for the population mean $\bar{Y}$ is

$$\bar{y}^* = W_1 \bar{y}_1 + W_2 \bar{y}_{2r} \tag{1.3}$$

where $W_1 = n_1 / n$ and $W_2 = n_2 / n$.

The variance of $\bar{y}^*$ is given by

$$Var(\bar{y}^*) = \frac{1}{n}\sigma_y^2 + \frac{W_2(k-1)}{n}\sigma_{y_2}^2 \tag{1.4}$$

Let $X_i (i = 1,2,...N)$ represent an supplementary variate correlated with the study variate $Y_i (i = 1,2,...N)$. The population mean of the supplementary variate x is $\bar{X} = \sum_{i=1}^{N} x_i / N$. Let $\bar{X}_1$ and $\bar{X}_2$ denote the means of response and non-response groups, respectively. Let $\bar{x}$ denotes the mean of all n units. Further, we suppose that $\bar{x}_1$ and $\bar{x}_2$ denote the means of n_1 responding units and n_2 non-responding units, respectively. Furthermore, let, $\bar{x}_{2r} = \sum_{i=1}^{r} x_i / r$ represent the mean of the sub-sampled units and the population variance of X and Y are denoted by σ_x^2 and σ_y^2 respectively. The population covariance between X and Y denoted by σ_{xy}. The unbiased estimator of the population mean $\bar{X}$ of the auxiliary variate x is

$$\bar{x}^* = W_1 \bar{x}_1 + W_2 \bar{x}_{2r} \tag{1.5}$$

and the variance of $\bar{x}^*$ is given by

$$Var(\bar{x}^*) = \frac{1}{n}\sigma_x^2 + \frac{W_2(k-1)}{n}\sigma_{x_2}^2 \tag{1.6}$$

where $\sigma_{x_2}^2 = \sum_{i=N_1+1}^{N=N_1+N_2} (X_i - X_2)^2 / N_2$.

2. Generalized Estimators under Non-reaponse Error and Measurement Error occuring Simultaneously

Here we consider the following different situations.

Situation I

Cochran (1977) defined the ratio, product and difference estimators under non-response error. Here we consider on the same lines under non-response error and measurement error occurs on both the study variable y and the auxiliary variable x, and the population mean $\bar{X}$ of the auxiliary variable is known. Then the conventional ratio, product and difference estimators for the estimating the mean $\bar{Y}$ of study variable y are respectively defined as

$$t_{R1} = \bar{y}^* \left(\frac{\bar{X}}{\bar{x}^*} \right) \tag{2.1}$$

$$t_{P1} = \bar{y}^* \left(\frac{\bar{x}^*}{\bar{X}} \right) \tag{2.2}$$

$$t_{lr1} = \bar{y}^* + d_1 \left(\bar{X} - \bar{x}^* \right) \tag{2.3}$$

where d_1 is suitably chosen constant.

Situation II

Perusing the above idea, later Rao (1986) proposed some more estimators in which the Non-response error occurs only on the study variable whereas measurement error occurs on both the study variable as well as on the auxiliary variable and the population mean $\bar{X}$ of the auxiliary variable is known. In this case the usual ratio, product and difference estimators for estimating the population mean $\bar{Y}$ of study variable are defined as

$$t_{R2} = \bar{y}^* \left(\frac{\bar{X}}{\bar{x}} \right) \tag{2.4}$$

$$t_{P2} = \bar{y}^* \left(\frac{\bar{x}}{\bar{X}} \right) \quad (2.5)$$

$$t_{lr2} = \bar{y}^* + d_2 \left(\bar{X} - \bar{x} \right) \quad (2.6)$$

where d_2 is suitably chosen constant.

Situation III

Further non-response occurs on the study variable whereas measurement error occurs on both the study variable as well as on the auxiliary variable and the population mean $\bar{X}$ of the auxiliary variable is known. In this situation the usual ratio, product and difference estimators for estimating the population mean $\bar{Y}$ of study variate y are defined as below

$$t_1 = \bar{y}^* \left(\frac{\bar{x}}{\bar{x}^*} \right) \quad (2.7)$$

$$t_2 = \bar{y}^* \left(\frac{\bar{x}^*}{\bar{x}} \right) \quad (2.8)$$

$$t_{lr3} = \bar{y}^* + d_3 \left(\bar{x} - \bar{x}^* \right) \quad (2.9)$$

where d_3 is suitably chosen constant.

SITUATION IV

We consider situation II, on the lines of Singh and Kumar (2008) where the non-response errors occurs only in the study variable and measurement errors occurs both the variables study variable as well as supplementary variable. Information on the supplementary variable x is obtained from all the sample units (i.e. the initial sample units) and the population mean $\bar{X}$ of the auxiliary variable is known but some sample units are not responding about the information of study variable y. Now using this information we define the following estimators of the population mean $\bar{Y}$ as

$$t_{R4} = \bar{y}^* \left(\bar{X} / \bar{x}^* \right) \left(\bar{X} / \bar{x} \right) \quad (2.10)$$

$$t_{P4} = \bar{y}^* \left(\bar{x}^* / \bar{X} \right) \left(\bar{x} / \bar{X} \right) \quad (2.11)$$

$$t_g = \bar{y}^* \left(\bar{x} / \bar{x}^* \right)^{\alpha_1} \left(\bar{X} / \bar{x} \right)^{\alpha_2} \quad (2.12)$$

$$t_d = \bar{y}^* + d_1' \left(\bar{x} - \bar{x}^* \right) + d_2' \left(\bar{X} - \bar{x} \right) \quad (2.13)$$

where α_i s(i=1, 2) and d_i s (i=1, 2) are suitably chosen constant.

Here we note that, when suggesting the estimator for the population mean $\bar{Y}$ Rao (1986) used only the information on the sample mean $\bar{x}$ and on the population mean $\bar{X}$ of the auxiliary variate x. However, one can also obtain the unbiased estimator $\bar{x}^* = (n_1/n)\bar{x}_1 + (n_2/n)\bar{x}_{2r}$ of $\bar{X}$ (without any extra effort) while in the process of obtaining $\bar{y}^* = (n_1/n)\bar{y}_1 + (n_2/n)\bar{y}_{2r}$, the unbiased estimator of the population mean $\bar{Y}$. Hence in situation II, we have two unbiased estimators, $\bar{x}^*$ and $\bar{x}^*$, of the population mean $\bar{X}$ of the supplementary variate x.

3. Proposed Generalised Class

Here we have proposed a generalized cost efficient class of estimators for estimating the population mean when some sample units fail to supply information on the study variable but the information on the auxiliary variable is obtained on all the sample units and its population mean is also known. We proposed the following generalized class of estimators given b

$$\bar{y}_f = f\left(\bar{y}^*, \bar{x}, \bar{x}^* \right) \quad (3.1)$$

where $f(.)$ being a bounded function satisfy the following regularity conditions such that

(i) $f\left(\bar{Y}, \bar{X}, \bar{X} \right) = \bar{Y}$ (3.2)

(ii) First order partial derivative with respect to $\bar{y}^*$ at $R \equiv \left(\bar{Y}, \bar{X}, \bar{X} \right)$ is unity, that is,

$f_0 = 1$ (3.3)

(iii) $f_{00} = 0$ (3.4)

(iv) First order partial derivative of $f\left(\bar{y}^*, \bar{x}, \bar{x}^* \right)$ with respect to $\bar{x}$, and $\bar{x}^*$ respectively at $R \equiv \left(\bar{Y}, \bar{X}, \bar{X} \right)$ satisfy

$f_1 = -(f_2 + \gamma)$ (3.5)

where γ is some suitably chosen constant and the subscript 0, 1 and 2 denote the derivative of the concerned function with respect to $\bar{y}^*$, $\bar{x}$, and $\bar{x}^*$ respectively.

4. Bias and Mean Square Error

For obtaining the bias and mean square error of the above estimator define in different situation, we define the following error terms

$\bar{y}^* = \bar{Y} + \varepsilon_0^*$, $\quad \bar{x}^* = \bar{X} + \varepsilon_1^*$ $\quad \bar{x} = \bar{X} + \varepsilon_1$

such that

$$E(\varepsilon_0^*) = E(\varepsilon_1^*) = E(\varepsilon_1) = 0$$

and

$$E(\varepsilon_0^{*2}) = \frac{1}{n}\left(\sigma_y^2 + \sigma_u^2 \right) + \frac{W_2(k-1)}{n}\left(\sigma_{y_2}^2 + \sigma_{u_2}^2 \right)$$

$$E(\varepsilon_1^{*2}) = \frac{1}{n}\left(\sigma_x^2 + \sigma_v^2 \right) + \frac{W_2(k-1)}{n}\left(\sigma_{x_2}^2 + \sigma_{v_2}^2 \right)$$

$$E(\varepsilon_1^2) = \frac{1}{n}\left(\sigma_x^2 + \sigma_v^2 \right)$$

$$E(\varepsilon_0^* \varepsilon_1^*) = \mathrm{cov}(\bar{y}^*, \bar{x}^*) = \frac{1}{n}\sigma_{xy} + W_2 \frac{(k-1)}{n}\sigma_{xy2}$$

$$E(\varepsilon_0^* \varepsilon_1) = \text{cov}(\bar{y}^*, \bar{x}) = \frac{1}{n}\sigma_{xy}$$

$$E(\varepsilon_1^* \varepsilon_1) = \text{cov}(\bar{x}^*, \bar{x}) = \frac{1}{n}\left(\sigma_x^2 + \sigma_v^2\right)$$

$$Bias(t_{R1}) = \frac{1}{n\bar{X}}\left[\left\{R\left(\sigma_x^2+\sigma_v^2\right)-\sigma_{xy}\right\}+W_2(k-1)\left\{R\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-\sigma_{xy_2}\right\}\right] \tag{4.1}$$

$$Bias(t_{P1}) = \frac{1}{n\bar{X}}\left[\sigma_{xy}+W_2(k-1)\sigma_{xy_2}\right] \tag{4.2}$$

$$Bias(t_{R2}) = \frac{1}{n\bar{X}}\left[\left\{R\left(\sigma_x^2+\sigma_v^2\right)-\sigma_{xy}\right\}\right] \tag{4.3}$$

$$Bias(t_{P2}) = \frac{1}{n\bar{X}}\sigma_{xy} \tag{4.4}$$

$$Bias(t_{R3}) = \frac{1}{n\bar{X}}\left[W_2(k-1)\left\{R\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-\sigma_{xy_2}\right\}\right] \tag{4.5}$$

$$Bias(t_{P3}) = \frac{1}{n\bar{X}}\left[W_2(k-1)\sigma_{xy_2}\right] \tag{4.6}$$

$$Bias\left(t_{R4}\right) = \frac{1}{n\bar{X}}\left[3R\left(\sigma_x^2+\sigma_v^2\right)-2\sigma_{xy}\right]+\frac{W_2(k-1)}{n\bar{X}}\left[R\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-\sigma_{xy_2}\right] \tag{4.7}$$

$$Bias\left(t_{P4}\right) = \frac{1}{n\bar{X}}\left[\left(\sigma_x^2+\sigma_v^2\right)+2\sigma_{xy}\right]+\frac{W_2(k-1)}{n\bar{X}}\sigma_{xy_2} \tag{4.8}$$

$$Bias\left(t_g\right) = \frac{1}{2n\bar{X}}\left[\alpha_2\left(\alpha_2+1\right)\left(\sigma_x^2+\sigma_v^2\right)-2\alpha_2\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{2n\bar{X}}\left[\alpha_1\left(\alpha_1+1\right)\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-2\alpha_1\sigma_{xy_2}\right] \tag{4.9}$$

$$Bias\left(\bar{y}_f\right) = \frac{1}{n}\left[\left(\sigma_x^2+\sigma_v^2\right)\left(f_{11}+f_{22}\right)+\sigma_{xy}\left(f_{01}+f_{02}\right)\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[\left(\sigma_{x_{(2)}}^2+\sigma_{v_{(2)}}^2\right)f_{22}+\sigma_{xy_{(2)}}f_{02}\right] \tag{4.10}$$

To the first order of approximation the MSE of the proposed estimators is given by

$$MSE\left(t_{R1}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)-2R\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[R^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-2R\sigma_{xy_{(2)}}\right] \tag{4.11}$$

$$MSE\left(t_{P1}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)+2R\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[R^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)+2R\sigma_{xy_{(2)}}\right] \tag{4.12}$$

$$MSE\left(t_{lr1}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[d_1^2\left(\sigma_x^2+\sigma_v^2\right)-2d_1\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[d_1^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-2d_1\sigma_{xy_{(2)}}\right] \tag{4.13}$$

$$MSE\left(t_{R2}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)-2R\sigma_{xy}\right]+\frac{W_2\left(k-1\right)}{n}\sigma_{u_2}^2 \tag{4.14}$$

$$MSE\left(t_{P2}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)+2R\sigma_{xy}\right]+\frac{W_2\left(k-1\right)}{n}\sigma_{u_2}^2 \tag{4.15}$$

$$MSE\left(t_{lR2}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[d_2^2\left(\sigma_x^2+\sigma_v^2\right)-2d_2\sigma_{xy}\right]+\frac{W_2(k-1)}{n}\sigma_{u_2}^2 \tag{4.16}$$

$$MSE\left(t_1\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)\right]+\frac{W_2(k-1)}{n}\left[R^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-2R\sigma_{xy_{(2)}}\right] \tag{4.17}$$

$$MSE\left(t_2\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)\right]+\frac{W_2(k-1)}{n}\left[R^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)+2R\sigma_{xy_{(2)}}\right] \tag{4.18}$$

$$MSE\left(t_{lr3}\right) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[d_3^2\left(\sigma_x^2+\sigma_v^2\right)\right]+\frac{W_2(k-1)}{n}\left[d_3^2\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)+2d\sigma_{xy_{(2)}}\right] \tag{4.19}$$

$$MSE(t_{R4}) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[4R^2\left(\sigma_x^2+\sigma_v^2\right)-4R\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)-2R\sigma_{xy}\right] \tag{4.20}$$

$$MSE(t_{P4}) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[4R^2\left(\sigma_x^2+\sigma_v^2\right)+4R\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[R^2\left(\sigma_x^2+\sigma_v^2\right)+2R\sigma_{xy}\right] \tag{4.21}$$

$$MSE(t_g) = MSE\left(\bar{y}^*\right)+\frac{1}{n}\left[R^2\alpha_2^2\left(\sigma_x^2+\sigma_v^2\right)-2R\alpha_2\sigma_{xy}\right]$$

$$+\frac{W_2\left(k-1\right)}{n}\left[R^2\alpha_1^2\left(\sigma_x^2+\sigma_v^2\right)-2R\alpha_1\sigma_{xy_2}\right] \tag{4.22}$$

$$MSE(t_d) = MSE\left(\bar{y}^*\right)+\frac{d_2'}{n}\left[d_2'\left(\sigma_x^2+\sigma_v^2\right)-2\sigma_{xy}\right]$$

$$+\frac{W_2(k-1)d_1'}{n}\left[d_1'\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)-2\sigma_{xy_2}\right] \tag{4.23}$$

$$MSE\left(\bar{y}_f\right) = \frac{1}{n}\left\{\left(\sigma_y^2+\sigma_u^2\right)+\gamma^2\left(\sigma_x^2+\sigma_v^2\right)-2\gamma\sigma_{xy}\right\}$$

$$+\frac{\left(k-1\right)W_2}{n}\left\{\left(\sigma_{y_{(2)}}^2+\sigma_{u_{(2)}}^2\right)+f_2^2\left(\sigma_{x_{(2)}}^2+\sigma_{v_{(2)}}^2\right)+2f_2\sigma_{xy_{(2)}}\right\} \tag{4.24}$$

5. Optimum Values and Minimum MSE

Now minimizing (4.13) with respect to d_1 we obtained the optimum value of d_1 is given by

$$d_1 = \frac{\sigma_{xy}+W_2\left(k-1\right)\sigma_{xy_2}}{\left(\sigma_x^2+\sigma_v^2\right)+W_2\left(k-1\right)\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)} \tag{5.1}$$

and the minimum MSE of (2.3) is given by

$$MSE\left(t_{lr1}\right)\min = MSE\left(\bar{y}^*\right)-\frac{\left[\sigma_{xy}+W_2\left(k-1\right)\sigma_{xy_2}\right]^2}{n\left[\left(\sigma_x^2+\sigma_v^2\right)+W_2\left(k-1\right)\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)\right]} \tag{5.2}$$

On optimizing (4.16) optimum value of d_2 is

$$d_2 = \frac{\sigma_{xy}}{\left(\sigma_x^2+\sigma_v^2\right)} \tag{5.3}$$

Minimum MSE of (2.6) is given by

$$MSE\left(t_{lr2}\right)\min = MSE\left(\bar{y}^*\right)-\frac{\sigma_{xy}}{n\left(\sigma_x^2+\sigma_v^2\right)} \tag{5.4}$$

On optimizing (4.19) optimum value of d_3 is given by

$$d_3 = \frac{\sigma_{xy_2}}{\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)} \tag{5.5}$$

and the minimum MSE of t_{lr3} is given by

$$MSE\left(t_{lr3}\right)\min = MSE\left(\bar{y}^{*}\right) - \frac{W_2\left(k-1\right)}{n}\frac{\sigma_{xy_2}}{\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)} \tag{5.6}$$

Differentiating (4.22) with respect to α_1, α_2 and equating the resulting derivatives to zero, we obtain the optimum value of α_1 and α_2 given as

$$\alpha_1 = \frac{\sigma_{xy_2}}{R\left(\sigma_{x_2}^2+\sigma_{v_2}^2\right)} \text{ and } \alpha_2 = \frac{\sigma_{xy}}{R\left(\sigma_x^2+\sigma_v^2\right)} \tag{5.7}$$

Putting these values of α_1 and α_2 in the expression of MSE of t_g we get the minimum MSE of t_g given as

$$MSE(t_g)_{\min} = MSE\left(\bar{y}^{*}\right) - \frac{1}{n}\left[\frac{\left(\sigma_{xy}\right)^2}{\sigma_x^2+\sigma_v^2}\right] - \frac{W_2(k-1)}{n}\left[\frac{\left(\sigma_{xy_2}\right)^2}{\sigma_{x_2}^2+\sigma_{v_2}^2}\right] \tag{5.8}$$

Now minimizing (4.23) with respect to d'_1 and d'_2, we obtained the optimum values of d'_1 and d'_2 given by

$$d'_1 = \frac{\sigma_{xy_2}}{\sigma_{x_2}^2+\sigma_{v_2}^2} \text{ and } d'_2 = \frac{\sigma_{xy}}{\sigma_x^2+\sigma_v^2} \quad . \tag{5.9}$$

Putting these values of d'_1 and d'_2 in (4.23) the minimum mean square error of t_d is given by

$$MSE(t_d)_{\min} = MSE\left(\bar{y}^{*}\right) - \frac{1}{n}\left[\frac{\left(\sigma_{xy}\right)^2}{\sigma_x^2+\sigma_v^2}\right] - \frac{W_2(k-1)}{n}\left[\frac{\left(\sigma_{xy_2}\right)^2}{\sigma_{x_2}^2+\sigma_{v_2}^2}\right] \tag{5.10}$$

Now minimizing (4.24) with respect to f_2 and γ, we obtained the optimum values of f_2 and γ is given by

$$f_{2(opt)} = -\frac{\sigma_{xy_{(2)}}}{\sigma_{x_{(2)}}^2+\sigma_{v_{(2)}}^2} \tag{5.12}$$

$$\gamma_{(opt)} = \frac{\sigma_{xy}}{\sigma_x^2+\sigma_u^2} \tag{5.13}$$

Putting these values of f_2 and γ in (4.24) the minimum mean square error of $\bar{y}_f$ is given by

$$MSE_{\min}(\bar{y}_f) = MSE(\bar{y}^{*}) - \left[\frac{\left(\sigma_{xy}\right)^2}{\left(\sigma_x^2+\sigma_v^2\right)} + \frac{W_2\left(k-1\right)}{n}\frac{\left(\sigma_{xy_{(2)}}\right)^2}{\left(\sigma_{x_{(2)}}^2+\sigma_{v_{(2)}}^2\right)}\right] \tag{5.14}$$

which is the same as the minimum mean square error of the difference estimator t_d and t_g given by (5.8) and (5.10) respectively.

Optimum Value of *n* and *k*

The expected total cost of the survey apart from the overhead cost is given by

$$C = n\left(c + c_1W_1 + \frac{c_2W_2}{k}\right) \tag{5.15}$$

where c is the cost per unit of the first attempt with the sample, n; c_1 is the cost per unit for processing the respondent data at the first attempt in n_1 and c_2 is the cost per unit associated with the sub sample r of n_2.

Let the MSE of the estimators is

$$MSE\left(t_i\right) = \frac{V_1 - W_2V_2}{n} - \frac{W_2V_2k}{n}$$

Case I: Fixed Variance

To determine the optimum values of n and k that minimize the cost for a fixed variance V_0, we consider the function,

$$\phi = C^{*} + \lambda\left\{MSE\left(\bar{y}^{*}\right) - V_0\right\}$$

$$= n\left[c + c_1W_1 + \frac{c_2W_2}{k}\right] + \lambda\left[\left\{\frac{\left(V_1 - W_2V_2\right)}{n} + \frac{W_2V_2k}{n}\right\} - V_0\right] \tag{5.16}$$

where, V_1 is the term of coefficient of $\frac{1}{n}$ and V_2 is the term of coefficient of $\frac{W_2\left(k-1\right)}{n}$ and λ is Lagrange's multiplier.

Now differentiating (5.16) with respect to n and k, and on equating them with zero, we get

$$n = \sqrt{\frac{\lambda\left\{V_1 + (k-1)W_2V_2\right\}}{\left\{c + c_1W_1 + \frac{c_2W_2}{k}\right\}}} \tag{5.17}$$

$$\frac{n}{k} = \sqrt{\frac{\lambda V_2}{c_2}} \tag{5.18}$$

On putting (5.17) in (5.18) we get,

$$k_{opt} = \sqrt{\frac{c_2\left(V_1 - W_2V_2\right)}{\left(c + c_1W_1\right)V_2}} \tag{5.19}$$

which is required optimum value of k. Further substituting the value of n and k in the expression of MSE, we get

$$\sqrt{\lambda} = \frac{\sqrt{\left\{V_1 + (k-1)W_2V_2\right\}\left\{c + c_1W_1 + \frac{c_2W_2}{k}\right\}}}{V_0} \tag{5.20}$$

On using this value of λ, we get the optimum value of n given by,

$$n_{opt} = \frac{\left\{V_1 + \left(k_{opt} - 1\right)W_2V_2\right\}}{V_0} \tag{5.21}$$

On substituting the optimum value of n and k in (5.15), we get the minimum cost for fixed variance V_0 given by

$$C^{*} = \frac{\left\{V_1 + \left(k_{opt} - 1\right)W_2V_2\right\}\left\{c + c_1W_1 + \frac{c_2W_2}{k_{opt}}\right\}}{V_0} \tag{5.22}$$

Case II: Fixed Cost

In order to determine the optimum values of n and k that minimize the $MSE(\bar{y}^*)$ for a fixed cost C_0, we consider the following function using the Lagrange's principle of maxima and minima

$$\phi^* = MSE(\bar{y}^*) + \lambda\left\{\left(c + c_1W_1 + \frac{c_2W_2}{k}\right) - C_0\right\}$$

$$= \left\{\frac{V_1 - W_2V_2}{n} - \frac{W_2V_2k}{n}\right\} + \lambda\left\{\left(c + c_1W_1 + \frac{c_2W_2}{k}\right) - C_0\right\} \quad (5.23)$$

where V_1 is the term of coefficient of $\frac{1}{n}$ and V_2 is the term of coefficient of $\frac{W_2(k-1)}{n}$ and is λ Lagrange's multiplier.

Now, differentiating (5.23) with respect to n and k, and equating them to zero, we get

$$n = \sqrt{\frac{\{V_1 + (k-1)W_2V_2\}}{\lambda\left\{c + c_1W_1 + \frac{c_2W_2}{k}\right\}}} \quad (5.24)$$

$$\frac{n}{k} = \sqrt{\frac{V_2}{\lambda c_2}} \quad (5.25)$$

On using (5.24) in (5.25), we get

$$k_{opt} = \sqrt{\frac{c_2(V_1 - W_2V_2)}{(c + c_1W_1)V_2}} \quad (5.26)$$

Further, substituting the values of n and k in the expression of expected cost, we get

$$\sqrt{\lambda} = \sqrt{\frac{\{V_1 + (k_{opt} - 1)W_2V_2\}\left\{c + c_1W_1 + \frac{c_2W_2}{k_{opt}}\right\}}{C_0}} \quad (5.27)$$

Similarly on substituting the value of λ in (5.25), we get the optimum value of n as

$$n_{opt} = \frac{C_0}{\left\{c + c_1W_1 + \frac{c_2W_2}{k_{opt}}\right\}} \quad (5.28)$$

Substituting the optimum value of n and k, we get the mean square error of $\bar{y}^*$ for fixed cost C_0 given by

$$MSE(\bar{y}^*) = \left[\frac{\{V_1 + (k_{opt} - 1)W_2V_2\}\left\{c + c_1W_1 + \frac{c_2W_2}{k_{opt}}\right\}}{C_0}\right] \quad (5.29)$$

6. Empirical Study

The present data belong to the data on physical growth of upper socio- economic group of 95 school going children of Varanasi under an ICMR study, Department of Pediatrics, BHU during 1983-84 has been taken under study, Khare and Sinha (2007). The first 25% (i.e. 24 children) units have been considered as non-response units. The values of parameters related to the study characters y(weight of children in kg), the auxiliary character x (chest circumference of the children in cm) have been given as follows:

$\bar{Y}_2 = 19.4968$; $\bar{X} = 55.8611$; $\sigma_y = 3.0435$; $\sigma_x = 3.2735$; $\sigma_{y_{(2)}} = 02.3552$; $\sigma_{x_{(2)}} = 2.5137$;

$\sigma_{yx} = 8.428611$; $\sigma_{yx_{(2)}} = 4.315874$.

The problem considered is to estimate the weight of the male children aged 6-7 years using chest circumference as the auxiliary character.

Table 6.1: PRE & MSE under measurement error & non-response

↓ Estimators		$1/k$			
	↓ ME %	1/2	1/3	1/4	1/5
$\bar{y}^*$	0%	100(0.2958)	100(0.3343)	100(0.3729)	100(0.4114)
	1%	99(0.2988)	99(0.3377)	99(0.6766)	99(0.4155)
	5%	95(0.3106)	95(0.3511)	95(0.3915)	95(0.4320)
	10%	91(0.3254)	91(0.3678)	91(0.4102)	91(0.4525)
	15%	87(0.3402)	87(0.3845)	87(0.4288)	87(0.4731)
	20%	83(0.3550)	83(0.4012)	83(0.4474)	83(0.4937)
	↓ ME %	1/2	1/3	1/4	1/5
t_{R1}	0%	193(0.1531)	190(0.1760)	187(0.1990)	185(0.2219)
	1%	189(0.1564)	186(0.1798)	183(0.2032)	182(0.2266)
	5%	174(0.1699)	171(0.1951)	169(0.2202)	168(0.2454)
	10%	158(0.1868)	156(0.2141)	154(0.2415)	153(0.2688)
	15%	145(0.2037)	143(0.2332)	142(0.2627)	141(0.2923)
	20%	134(0.2206)	133(0.2523)	131(0.2840)	130(0.3157)

	↓ ME %	1/2	1/3	1/4	1/5
t_{P1}	0%	56.69(0.5218)	56.99(0.5866)	57.24(0.6514)	57.44(0.7161)
	1%	56.33(0.5252)	56.63(0.5904)	56.87(0.6556)	57.07(0.7208)
	5%	54.92(0.5387)	55.21(0.6054)	55.44(0.6726)	55.62(0.7396)
	10%	53.25(0.5555)	53.52(0.6247)	53.74(0.6939)	53.91(0.7630)
	15%	51.68(0.5724)	51.94(0.6438)	52.14(0.7151)	52.31(0.7865)
	20%	50.20(0.5893)	50.44(0.6628)	50.63(0.7363)	50.79(0.8099)
	↓ ME %	1/2	1/3	1/4	1/5
t_{lr1}	0%	223(0.0916)	304(0.1100)	290(0.1284)	280(0.1468)
	1%	306(0.0966)	289(0.1156)	277(0.1346)	268(0.1536)
	5%	255(0.1161)	243(0.1374)	235(0.1584)	229(0.1800)
	10%	212(0.1398)	204(0.1638)	198(0.1879)	194(0.2120)
	15%	182(0.1626)	177(0.1894)	172(0.2162)	169(0.2430)
	20%	160(0.1848)	156(0.2143)	153(0.2437)	151(0.2732)
	↓ ME %	1/2	1/3	1/4	1/5
t_{R2}	0%	175(0.1687)	161(0.2072)	152(0.2457)	145(0.2842)
	1%	172(0.1720)	159(0.2109)	149(0.2498)	143(0.2887)
	5%	160(0.1853)	148(0.2257)	140(0.2661)	134(0.3066)
	10%	147(0.2019)	137(0.2442)	130(0.2866)	125(0.3290)
	15%	135(0.2185)	127(0.2628)	121(0.3071)	117(0.3514)
	20%	126(0.2351)	119(0.2813)	114(0.3275)	110(0.3737)
	↓ ME %	1/2	1/3	1/4	1/5
t_{P1}	0%	59.70(0.4955)	62.61(0.5340)	65.12(0.5726)	67.32(0.6111)
	1%	59.30(0.4988)	62.18(0.5377)	64.66(0.5766)	66.83(0.6156)
	5%	57.76(0.5121)	60.51(0.5526)	62.88(0.5930)	64.94(0.6335)
	10%	55.95(0.5287)	58.54(0.5711)	60.78(0.6135)	62.73(0.6558)
	15%	54.25(0.5453)	56.70(0.5896)	58.82(0.6339)	60.66(0.6782)
	20%	52.64(0.5619)	54.98(0.6082)	56.98(0.6544)	58.72(0.7006)
	↓ ME %	1/2	1/3	1/4	1/5
t_{lr1}	0%	265(0.1117)	223(0.1502)	198(0.1887)	181(0.2272)
	1%	254(0.1164)	215(0.1554)	192(0.1943)	176(0.2332)
	5%	219(0.1352)	190(0.1757)	173(0.2161)	160(0.2566)
	10%	187(0.1580	167(0.2004)	154(0.2427)	144(0.2851)
	15%	164(0.1801)	149(0.2244)	139(0.2687)	131(0.3130)
	20%	147(0.2015)	135(0.2478)	127(0.2940)	121(0.3402)
	↓ ME %	1/2	1/3	1/4	1/5
t_1	0%	93(0.3165)	98(0.3394)	103(0.3624)	107(0.3853)
	1%	92(0.3199)	97(0.3433)	102(0.3666)	105(0.3900)
	5%	89(0.3334)	93(0.3585)	97(0.3836)	101(0.4088)
	10%	84(0.3502)	89(0.3776)	92(0.4049)	95(0.4322)
	15%	81 (0.3671)	84(0.3966)	87(0.4262)	90(0.4557)
	20%	77(0.3839)	80(0.4157)	83(0.4474)	86(0.4791)
	↓ ME %	1/2	1/3	1/4	1/5
t_2	0%	83(0.3583)	79(0.4231)	76(0.4879)	74(0.5527)
	1%	81 (0.3617)	78(0.4269)	76(0.4922)	74(0.5574)
	5%	79(0.3752)	76(0.4422)	73(0.5092)	71(0.5762)
	10%	75(0.3921)	72(0.4613)	70(0.5304)	69(0.5996)
	15%	72(0.4089)	70(0.4803)	68(0.5517)	66(0.6231)
	20%	69(0.4258)	67(0.4993)	65(0.5729)	64(0.6465)

	↓ ME %	1/2	1/3	1/4	1/5
t_{lr3}	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	↓ ME %	1/2	1/3	1/4	1/5
t_{R4}	0%	301(0.0984)	275(0.1214)	258(0.1443)	246(0.1673)
	1%	288(0.1029)	265(0.1263)	249(0.1497)	238(0.1730)
	5%	245(0.1207)	229(0.1459)	218(0.1710)	210(0.1961)
	10%	207(0.1430)	196(0.1704)	189(0.1977)	183(0.2250)
	15%	179(0.1654)	172(0.1949)	166(0.2244)	162(0.2539)
	20%	158(0.1877)	152(0.2194)	148(0.2511)	145(0.2828)
	↓ ME %	1/2	1/3	1/4	1/5
t_{P4}	0%	37.26(0.7940)	38.93(0.8588)	40.37(0.9236)	41.62(0.9883)
	1%	38.11(0.7985)	39.82(0.8637)	41.29(0.9289)	42.56(0.9941)
	5%	37.27(0.8163)	37.93(0.8833)	40.36(0.9503)	41.60(1.0172)
	10%	36.28(0.8386)	37.88(0.9078)	39.26(0.9770)	40.45(1.0461)
	15%	35.34(0.8609)	36.89(0.9923)	38.21(1.0037)	39.36(1.0750)
	20%	34.45(0.8832)	35.94(0.9568)	37.22(1.0304)	38.33(1.1039)
	↓ ME %	1/2	1/3	1/4	1/5
t_g	0%	324(0.0912)	306(0.1092)	293(0.1273)	283(0.1453)
	1%	308(0.0962)	291(0.1148)	279(0.1335)	270(0.1521)
	5%	256(0.1157)	245(0.1367)	237(0.1576)	230(0.1786)
	10%	212(0.1394)	205(0.1631)	199(0.1869)	195(0.2769)
	15%	182(0.1623)	177(0.1888)	173(0.2153)	170(0.2418)
	20%	160(0.1845)	157(0.2136)	154(0.2428)	151(0.2720)
	↓ ME %	1/2	1/3	1/4	1/5
t_d	0%	324(0.0912)	306(0.1092)	293(0.1273)	283(0.1453)
	1%	308(0.0962)	291(0.1148)	279(0.1335)	270(0.1521)
	5%	256(0.1157)	245(0.1367)	237(0.1576)	230(0.1786)
	10%	212(0.1394)	205(0.1631)	199(0.1869)	195(0.2769)
	15%	182(0.1623)	177(0.1888)	173(0.2153)	170(0.2418)
	20%	160(0.1845)	157(0.2136)	154(0.2428)	151(0.2720)
	↓ ME %	1/2	1/3	1/4	1/5
$\overline{y}_f$	0%	324(0.0912)	306(0.1092)	293(0.1273)	283(0.1453)
	1%	308(0.0962)	291(0.1148)	279(0.1335)	270(0.1521)
	5%	256(0.1157)	245(0.1367)	237(0.1576)	230(0.1786)
	10%	212(0.1394)	205(0.1631)	199(0.1869)	195(0.2769)
	15%	182(0.1623)	177(0.1888)	173(0.2153)	170(0.2418)
	20%	160(0.1845)	157(0.2136)	154(0.2428)	151(0.2720)

Table 6.2 PRE(MSE) with measurement error and without non-response

Estimator	0%	1%	5%	10%	15%	20%
$\overline{y}^*$	100(0.2573)	99(0.2599)	95(0.2702)	91(0.2830)	87(0.2959)	83(0.3088)
t_{R1}	198(0.1301)	193(0.1331)	178(0.1448)	161(0.1595)	148(0.1742)	136(0.1888)
t_{P1}	56(0.4570)	56(0.4599)	55(0.4717)	53(0.4864)	51(0.5010)	50(0.5157)
t_{lr1}	352(0.0732)	332(0.0776)	271(0.0948)	222(0.1157)	189(0.1358)	166(0.1553)
t_{R2}	198(0.1301)	193(0.1331)	178(0.1448)	161(0.1595)	148(0.1742)	136(0.1888)
t_{P2}	56(0.4570)	56(0.4599)	55(0.4717)	53(0.4864)	51(0.5010)	50(0.5157)
t_{lr2}	352(0.0731)	332(0.0775)	271(0.0948)	223(0.1156)	190(0.1358)	166(0.1553)
t_1	100(0.2573)	99(0.2599)	95(0.2702)	91(0.2830)	87(0.2959)	83(0.3087)
t_2	100(0.2573)	99(0.2599)	95(0.2702)	91(0.2830)	87(0.2959)	83(0.3087)
t_{R4}	341(0.0755)	324(0.0795)	269(0.0956)	222(0.1157)	189(0.1358)	165(0.1559)
t_{P4}	35(0.7292)	36(0.7332)	35(0.7493)	34(0.7694)	34(0.7896)	33(0.8097)
t_g	352(0.0731)	332(0.0775)	271(0.0948)	223(0.1156)	190(0.1358)	166(0.1553)
t_d	352(0.0731)	332(0.0775)	271(0.0948)	223(0.1156)	190(0.1358)	166(0.1553)
$\overline{y}_f$	352(0.0731)	332(0.0775)	271(0.0948)	223(0.1156)	190(0.1358)	166(0.1553)

Table 6.3 PRE (MSE) with measurement error for optimum value of *k*

Estimators ↓	MSE(PRE)				
Per cent of ME →	1%	5%	10%	15%	20%
$\overline{y}^*$	99(0.4302)	95(0.4472)	91(0.4685)	87(0.4898)	83(0.5111)
t_{R1}	190(0.2246)	175(0.2441)	159(0.2684)	146(0.2927)	134(0.3170)
t_{P1}	56(0.7562)	55(0.7757)	53(0.7999)	52(0.8243)	50(0.8485)
t_{lr1}	314(0.1358)	259(0.1645)	214(0.1991)	183(0.2324)	161(0.2646)
t_{R2}	180(0.2365)	166(0.2564)	151(0.2812)	139(0.3059)	129(0.3305)
t_{P2}	60(0.7084)	59(0.7278)	57(0.7519)	55(0.7760)	53(0.8001)
t_{lr2}	308(0.1381)	250(0.1705)	205(0.2079)	175(0.2429)	154(0.2763)
t_1	94(0.4527)	90(0.4726)	85(0.4974)	82(0.5222	78(0.5467)
t_2	83(0.5133)	80(0.5330)	76(0.5575)	73(0.5820)	70(0.6065)
t_{R4}	301(0.1413)	253(0.1684)	211(0.2018)	181(0.2349)	159(0.2677)
t_{P4}	37(1.1365)	37(1.1622)	36(1.1943)	35(1.2263)	34(1.2584)
t_g	314(0.1355)	259(0.1642)	214(0.1987)	184(0.2320)	161(0.2642)
t_d	314(0.1355)	259(0.1642)	214(0.1987)	184(0.2320)	161(0.2642)
$\overline{y}_f$	314(0.1355)	259(0.1642)	214(0.1987)	184(0.2320)	161(0.2642)

Table 6.4 PRE(MSE) without measurement error and with non-response error for optimum value of *k*

Estimators	MSE
$\bar{y}^*$	100(0.4259)
t_{R1}	194(0.2197)
t_{P1}	57(0.7514)
t_{lr1}	332(0.1284)
t_{R2}	184(0.2314)
t_{P2}	61(0.7036)
t_{lr2}	329(0.1295)
t_1	95(0.4477)
t_2	84(0.5084)
t_{R4}	317(0.1345)
t_{P4}	38(1.1301)
t_g	332(0.1281)
t_d	332(0.1281)
$\bar{y}_f$	332(0.1281)

Table 6.5 PRE(MSE) without measurement error and with non-response error

Estimators	½	1/3	¼	1/5
$\bar{y}^*$	100(0.2958)	100(0.3343)	100(0.3729)	100(0.4114)
t_{R1}	193(0.1531)	190(0.1760)	187(0.1990)	185(0.2219)
t_{P1}	56.69(0.5218)	56.99(0.5866)	57.24(0.6514)	57.44(0.7161)
t_{lr1}	323(0.0916)	304(0.1100)	290(0.1284)	280(0.1468)
t_{R2}	193(0.1531)	190(0.1860)	187(0.1990)	185(0.2219)
t_{P2}	56.69(0.5218)	56.99(0.5866)	57.24(0.6514)	57.44(0.7161)
t_{lr2}	323(0.0917)	303(0.1102)	290(0.1287)	279(0.1472)
t_1	106(0.2802)	110(0.3032)	114(0.3261)	118(0.3491)
t_2	92(0.3221)	86(0.3869)	83(0.4517)	80(0.5165)
t_{R4}	301(0.0984)	275(0.1214)	258(0.1443)	246(0.1673)
t_{P4}	37(0.7940)	34(0.9884)	33(1.1179)	33(1.2475)
t_g	171(0.1731)	122(0.2730)	100(0.3730)	87(0.4729)
t_d	171(0.1731)	122(0.2730)	100(0.3730)	87(0.4729)
$\bar{y}_f$	171(0.1731)	122(0.2730)	100(0.3730)	87(0.4729)

7. Concluding Remarks

1. It is evident from the expressions (4.11) to (4.24) of MSE's of the estimators that the measurement errors seem to have inflated the MSE of these estimators and thereby decreasing the efficiency.
2. The expressions (4.11) to (4.22) of MSE can be broken into 4 major components owing to non-response and measurement error are given below:

   $MSE = A+B+C+D$

   where A = Component of MSE due to sampling error without measurement error and non-response,

   B = Component of MSE due to sampling error with measurement error and without non-response,

   C = Component of MSE due to sampling error without measurement error and with non-response, and

   D = Component of MSE due to sampling error with measurement error and without non-response.

   For Example: Consider the expression of MSE of $\bar{y}_f$ given by

$$MSE(\bar{y}_f) = \underbrace{\frac{1}{n}\left(\sigma_y^2 + \gamma^2\sigma_x^2 - 2\gamma\sigma_{xy}\right)}_{A} + \underbrace{\frac{1}{n}\left(\sigma_u^2 + \gamma^2\sigma_v^2\right)}_{B} + \underbrace{\frac{W_2(k-1)}{n}\left(\sigma_{y_2}^2 + f_2^2\sigma_{x_2}^2 - 2f_2\sigma_{xy_2}\right)}_{C} + \underbrace{\frac{W_2(k-1)}{n}\left(\sigma_{u_2}^2 + f_2^2\sigma_{v_2}^2\right)}_{D}$$

3. If the measurement error is absent then we get the expression of the MSE of conventional estimators under non-response from the results of this study thereby the present study provides a more general and pragmatic approach for the estimation of population mean. For example: When $u_i = 0 = v_i$, for each i, then $\sigma_u^2 = \sigma_v^2 = \sigma_{u_2}^2 = \sigma_{v_2}^2 = 0$ and we get

$$MSE(\bar{y}_f) = \underbrace{\frac{1}{n}\left(\sigma_y^2 + \gamma^2\sigma_x^2 - 2\gamma\sigma_{xy}\right)}_{A} + \underbrace{\frac{W_2(k-1)}{n}\left(\sigma_{y_2}^2 + f_2^2\sigma_{x_2}^2 - 2f_2\sigma_{xy_2}\right)}_{C}$$

so that only components A and C are left, which is same expression as proposed by Bhushan and Naqvi (2015) while proposing t_d of Singh and Kumar (2008) as a special case of $\overline{y}_f$.

4. If the measurement error is absent then we get the expression of the optimum values of the characterizing scalars/derivatives and minimum MSE of conventional estimators under non-response from the results of this study thereby the present study. For example: When $u_i = 0 = v_i$, for each i, then $\sigma_u^2 = \sigma_v^2 = \sigma_{u_2}^2 = \sigma_{v_2}^2 = 0$ and we get optimum values of f_2 and γ as $f_2 = -\sigma_{xy_2} / \sigma_{x_2}^2$ and $\gamma = \sigma_{xy} / \sigma_x^2$.
and the minimum mean square error of $\overline{y}_f$ as
$$MSE(\overline{y}_f)_{\min} = \frac{1}{n}\left(1-\rho^2\right)\sigma_y^2 + \frac{W_2(k-1)}{n}\left(1-\rho_2^2\right)\sigma_{y_2}^2$$
which is same expression of minimum MSE as proposed by Bhushan and Naqvi (2015) while proposing t_d of Singh and Kumar (2008) as a special case of $\overline{y}_f$.

5. The measurement error seems to have affected all the estimators but the optimal generalized estimator $\overline{y}_f$ and their optimal special cases t_d and t_g perform far better than the remaining estimators where the auxiliary information was not properly utilized. For example: This is w.r.t. the empirical results in table 6.1 where $\overline{y}_f$ utilized the auxiliary information optimally and outperformed all the remaining estimators.

6. The measurement error seems to have affected the better estimators more where the auxiliary information was properly utilized than those estimators where the auxiliary information was not properly utilized. For example: This is w.r.t. the empirical results in table 6.1 where $\overline{y}_f$ utilized the auxiliary information optimally and has lost 132% efficiency with 1/5 sub-sampling fraction which is far more in comparison to t_{P4}, estimator where the auxiliary information was not properly utilized, lost only 3% efficiency with 1/5 sub-sampling fraction or even $\overline{y}^*$ which lost 17% efficiency with 1/5 sub-sampling fraction.

7. The gains in efficiency of various estimators were calculated w. r. t. $\overline{y}^*$ with no non-response error in table 6.2. The best choice, which is in consonance with the theoretical results, is $\overline{y}_f$ at all levels of measurement error.

8. The percent relative efficiency of various estimators were calculated w. r. t. $\overline{y}^*$ with optimum sub-sampling fraction $1/k$ in table 6.3. The best choice, which is in consonance with the theoretical results, is $\overline{y}_f$ at all levels of measurement error.

9. The gains in efficiency of various estimators were calculated w. r. t. $\overline{y}^*$ with no measurement error in table 6.4. The best choice, which is in consonance with the theoretical results, is $\overline{y}_f$ at all levels of measurement error.

10. The percent relative efficiency of various estimators were calculated w. r. t. $\overline{y}^*$ without measurement error and with different non-respondent sub-sampling fraction $1/k$ in table 6.5. The best choice is $\overline{y}_f$ which is in consonance with the theoretical results of Bhushan and Naqvi (2015).

References

1. Hansen, M. H., Hurwitz, W. N. (1946). The problem of non-response in sample surveys. *Journal of American Statistical Association,* 41, 517-529.
2. Cochran, W.G. (1977). Sampling Techniques. 3rd ed., New York : John Wiley and Sons.
3. Rao, P.S.R.S. (1986). Ratio estimation with sub-sampling the non-respondents. *Survey Methodology,* 12(2), 217-230.
4. Khare, B. B., Srivastava, S. (1993): Estimation of population mean using auxiliary character in the presence of non-response. National Academy Science Letters (India), 16(3), 111-114.
5. Khare, B. B., Srivastava, S. (1995). Study of conventional and alternative two phase sampling ratio, product and regression estimators in the presence of non-response. Proceeding National Academy Science Letters (India), 65(A)II, 195-203.
6. Khare, B. B., Srivastava, S. (1997). Transformed ratio type estimators for the population mean in the presence of non-response. *Communication in Statistics - Theory and Methods,* 26(7), 1779-1791.
7. Srivastava, A. K. and Shalabh (2001). Effect of measurement errors on the regression method of estimation in survey sampling. *J. Statist. Res.,* 35(2): 35-44.
8. Singh, H. P., Kumar, S. (2008). A regression approach to the estimation of the finite population mean in the presence of non-response. *Australian and New Zealand Journal of Statistics,* 50(4), 395-408.
9. Bhushan, S. and Naqvi, N. (2015). Generalized efficient classe4s of estimators in presence of non-response using two auxiliary variables.
10. Bhushan, S. & Kumar, A.(2017), On estimation of population mean under measurement error and non response error. *Int.J.Agrucult.Stat.Sci.,*13(1),345-357.

The Impact of Artificial Intelligence on Personalized Learning in Indian Education: Opportunities and Challenges

*Aparna Trivedi, **Dr. Kiran Lata Dangwal

Abstract

The digital age has redefined education, shattering the traditional confines of the classroom. Learning has evolved into a borderless experience, enriched by technology's capacity to deliver knowledge in innovative and engaging ways. Artificial Intelligence (AI) is rapidly reshaping industries worldwide, and education is no exception. This transformative technology offers unprecedented opportunities to enhance teaching, learning, and administrative processes. This paper explores the multifaceted impact of AI on personalized learning within the Indian educational landscape, examining both the opportunities it presents and the challenges it poses. The advent of artificial intelligence (AI) has ushered in a new era of possibilities for education, with personalized learning emerging as a key focus. This essay delves into the profound impact of AI on personalized learning within the Indian education system, exploring both the promising opportunities and formidable challenges. The paper discusses the challenges of AI implementation in India, including the digital divide, lack of teacher training, data privacy concerns, and financial constraints. It emphasizes the need to address these challenges through a multi-faceted approach involving government, educational institutions, technology providers, and policymakers. By examining the potential benefits, addressing the complexities of implementation, and considering the ethical implications, this analysis aims to provide a comprehensive understanding of AI's role in transforming education in India.

Introduction

The debut of Artificial Intelligence (AI) has initiated a paradigm shift in various sectors, including Education. In India, a country characterized by its diverse educational needs and vast population, AI's potential to revolutionize personalized learning is particularly significant. The rise of artificial intelligence (AI) has opened up exciting new possibilities for education, especially in the area of personalized learning. This essay explores the significant impact AI is having on personalized learning in India¡¦s education system. It looks at the promising opportunities AI presents, such as tailored learning experiences and improved educational outcomes, as well as the major challenges, including implementation difficulties and ethical concerns. By examining the benefits, addressing the complexities of integrating AI, and considering the ethical implications, this analysis aims to provide a thorough understanding of how AI is transforming education in India. The goal is to highlight AI's potential to revolutionize personalized learning while also acknowledging and addressing the obstacles that must be overcome to achieve this transformation. India has a huge Education system with millions of students. While there have been some good things happening, like making school free for kids aged 6 to 14, there are still big problems. Many schools in the countryside don't have good buildings or enough good teachers. This means that kids in these areas don't learn as much as kids in cities. Also, many classrooms are too crowded, and students often learn by just memorizing things instead of thinking about them. Another big problem is that not everyone has computers or the internet, especially in poor areas. This makes it hard for students to learn using technology. To make India a better place, we need to fix these problems so that all children can get a good education. The modified of technology has revolutionized every facet of human life, and education is no exception. Once confined to the traditional classroom setting, learning has transcended physical boundaries, embracing the digital realm. The integration of technology into education has opened up new avenues for teaching

* Junior Research Fellow, Department of Education, University of Lucknow.
** Associate Professor, Department of Education, University of Lucknow.

and learning, enhancing the overall educational experience.

One of the most significant impacts of technology in education is the democratization of knowledge. Online platforms and digital resources have made information accessible to learners' worldwide, irrespective of their geographical location or socioeconomic status. Students can now access a vast array of educational materials, from textbooks and research papers to interactive simulations and multimedia content. This abundance of information empowers learners to become independent thinkers and lifelong learners. The paper provides a comprehensive overview of the rapid development and increasing impact of AI in Education (AIEd) research, particularly since 2012. It discusses the growth in research funding, significant conferences, prominent journals, software tools, key institutions, and notable researchers in the field. The analysis shows a strong connection between AIEd research and the fields of education and computer science. It highlights the need for more academic journals focusing specifically on AIEd and emphasizes the importance of integrating AI technologies into various educational contexts and subjects. The article also notes the lack of attention to educational theories in AIEd research and suggests that incorporating these theories could enhance the depth and validity of the studies.

Research Question

How can artificial intelligence be conceptualized as a tool to redefine personalized learning in Indian education, addressing the complexities of a diverse and resource-constrained system?

Research objectives

This study aims to-

- Analyze the potential of AI in bridging the digital divide and providing access to personalized learning in remote areas of India.
- Explore the existing AI-powered tools in personalizing learning experiences for students with diverse learning styles in the Indian context.
- Investigate the potential of AI for early identification of learning difficulties within large Indian classrooms.
- Explore strategies for leveraging AI to reduce teacher workload in India, allowing them to focus on more student-centered interactions.

Related Research

Deeva *et al.* (2021) conducted a review of 109 articles on automated feedback systems and concluded that the applied learning theories or educational frameworks had not been reported in most cases, even though the theories played an important role in understanding the context in which a system was implemented. Since the distinct classes of Educational technologies generally imply different pedagogical perspectives, it is essential to examine the different roles of AI technologies in education by considering the existing educational and learning theories.

Paramythis and Loidl-Reisinger (2003) defined that "a learning environment is considered adaptive if it is capable of: monitoring the activities of its users; interpreting these on the basis of domain-specific models; inferring user requirements and preferences out of the interpreted activities, appropriately representing these in associated models; and, finally, acting upon the available knowledge on its users and the subject matter at hand, to dynamically facilitate the learning process" (p. 239). Brusilovsky and Peylo (2003) argued that adaptive learning systems were built upon the development of adaptive media in the web, and defined adaptive learning as generally referring to how to use computer systems or tools to provide tailored learning materials or activities to cater to personalized learning needs. One important stream of such computer systems is the intelligent tutoring systems, which employ computational algorithms or models to deliver immediate feedback and learning instructions to learners without the intervention of human teachers (Psotka, Massey, & Mutter, 1988).

Personalized Learning: A Conceptual Framework

One of the most promising applications of AI in education lies in personalized learning. By analyzing vast amounts of student data, AI algorithms can identify individual learning styles, strengths, and weaknesses. This information allows educators to tailor instruction to meet the specific needs of each student, maximizing their potential. Intelligent tutoring systems, powered by AI, can provide personalized guidance and feedback, acting as virtual mentors to students. Personalized learning is an Educational approach that tailors instruction to meet the unique needs, interests, and learning styles of each student (Darling-Hammond, Zielecki, & Weiss, 2014). It shifts the focus from a one-size-fits-all model to a learner-centric approach that empowers students to take ownership of their education. AI, with its ability to process vast amounts of data and identify patterns, offers unprecedented opportunities to realize the potential of personalized learning. This method focuses on customized content, flexible pacing, adaptive assessments, learner autonomy, and goal-oriented learning objectives, which align with each student's aspirations, interests, and future career goals.

The Role of AI in Personalized Learning

AI has the potential to revolutionize personalized learning in several ways. Intelligent Tutoring Systems (ITS) can provide students with individualized instruction, adapting to their learning pace and style (Brusilovsky & Peylo, 2005).

Adaptive learning platforms can adjust the difficulty and content of learning materials based on student performance, ensuring optimal engagement (Siemens & Baker, 2012). AI-powered assessment tools can provide real-time feedback, identify knowledge gaps, and inform instructional decisions (Bennett, 2011). Furthermore, AI can create detailed student models that capture individual learning profiles, enabling teachers to provide targeted support (Baker, Corbett, & Koedinger, 2000). Artificial Intelligence (AI) plays a significant role in enhancing personalized learning by providing tools and technologies that can analyze, adapt, and respond to individual learner needs in real time. AI-powered systems assess a student's current knowledge and skills, adjusting the difficulty level and type of content delivered to ensure that instruction is appropriately challenging. AI also analyzes vast amounts of data on student performance to identify patterns, predict outcomes, and provide insights that help teachers understand each student's progress and needs. Intelligent tutoring systems, driven by AI, offer one-on-one tutoring by simulating a human tutor, providing explanations, answering questions, and giving feedback tailored to the student's interactions and progress. AI algorithms recommend resources, activities, and study plans based on individual interests and learning habits, suggesting books, videos, exercises, or collaborative opportunities with peers. Automated assessments and feedback from AI provide immediate responses to students, helping them understand their mistakes and areas for improvement without waiting for manual grading. AI-driven virtual assistants manage students' schedules, remind them of deadlines, and answer routine questions about course material, offering support outside of classroom hours. Natural Language Processing (NLP) allows AI to understand and respond to student queries in natural language, making interactions with educational content and support systems more intuitive. Additionally, AI monitors student engagement levels through various indicators, such as time spent on tasks and interaction patterns, to identify disengagement and intervene with supportive measures.

By integrating AI into personalized learning, educators can create more effective, engaging, and inclusive educational environments that cater to the diverse needs of students, ultimately improving learning outcomes and fostering a lifelong love of learning.

Opportunities of AI in Indian Education

The integration of AI in Indian education offers several promising opportunities. It can bridge the digital divide by providing access to quality education in remote areas through online learning platforms and AI-powered tutors. AI can enhance student engagement and motivation by delivering content in formats that resonate with individual learning styles. It can help identify and address learning difficulties early on, preventing academic setbacks. AI can reduce teacher workload by automating routine tasks, allowing educators to focus on higher-order thinking skills and personalized interactions with students. This increased automation leads to improved efficiency, reducing the need for manual intervention and allowing your IT teams to focus on more strategic tasks. AI can promote equity by providing equal opportunities for all students to reach their full potential. AI observability can be used to strengthen security in cloud computing by identifying potential threats and vulnerabilities more accurately and quickly.

Challenges of AI Implementation

"If I had asked people what they wanted, they would have said faster horses." - Henry Ford

Artificial Intelligence (AI) holds immense potential to revolutionize education, especially in a diverse country like India. However, its implementation is fraught with challenges that require careful consideration and strategic planning. One of the most significant hurdles is the digital divide. While urban areas in India have witnessed rapid digitalization, rural regions continue to grapple with limited internet connectivity and access to digital devices (Sharma & Gupta, 2021). This disparity creates an uneven playing field, hindering the effective integration of AI in education. Without robust digital infrastructure, AI-powered tools and resources remain inaccessible to a large segment of the student population, perpetuating educational inequalities.

Another critical challenge is the lack of teacher training and development. Effective AI implementation necessitates a workforce of educators equipped with the necessary digital literacy and pedagogical skills to leverage AI tools effectively (Mishra & Singh, 2022). Unfortunately, the current teacher training programs in India often fall short of addressing the requirements of the AI-driven educational landscape. A substantial investment in teacher up skilling is imperative to bridge this gap and ensure the successful integration of AI in classrooms. Data privacy and security are paramount concerns in the era of AI. The collection and analysis of student data, essential for AI-powered personalized learning, raise legitimate concerns about data protection and misuse (Singh & Kumar, 2020). India lacks comprehensive data protection regulations, creating vulnerabilities in handling sensitive student information. Establishing robust data governance frameworks and building trust among parents and students are crucial for addressing these concerns. The financial constraints faced by many Indian educational institutions pose another significant challenge. AI technologies and infrastructure can be expensive, making their implementation financially burdensome for schools, especially those in rural and underserved areas (Jain & Sharma, 2023). The government and private sector need to collaborate to develop affordable AI solutions and provide financial support to educational institutions to facilitate wider adoption.

The ethical implications of AI in education demand careful attention. Issues such as algorithmic bias, job displacement for teachers, and the potential for over-reliance on technology require careful deliberation (Velma & Patel, 2021). It is essential to ensure that AI is used ethically and responsibly, without compromising the human element in education.

While AI offers immense promise for transforming education in India, its implementation is fraught with challenges. Addressing the digital divide, investing in teacher training, ensuring data privacy and security, overcoming financial constraints, and navigating ethical dilemmas are crucial steps towards realizing the full potential of AI in Indian education. A multi-faceted approach involving government, educational institutions, technology providers, and policymakers is necessary to overcome these challenges and create an AI-enabled education system that is inclusive, equitable, and effective.

Case Studies: AI in Indian Education

A few successful implementations of AI in Indian education provide valuable insights. For example, BYJU'S, an Ed-tech company, has developed AI-powered learning platforms that offer personalized learning experiences to millions of students. The platform uses adaptive learning algorithms to tailor content based on student performance and provides real-time feedback. Another notable example is the use of AI in assessing student writing skills. Platforms like Grammarly have been integrated into educational settings to provide instant feedback on grammar, style, and clarity.

AI as a Tool, Not a Replacement

It is important to remember that AI is a tool, not a replacement for human interaction. The role of teachers remains irreplaceable in creating a supportive and engaging learning environment. AI should be used to augment teachers' capabilities, not to supplant them. By striking a balance between technology and human expertise, we can create a future where AI empowers both teachers and students to achieve their full potential in India's dynamic educational landscape.

The Way Forward

To fully realize the potential of AI in personalized learning, a multi-faceted approach is required. Investing in digital infrastructure, providing comprehensive teacher training, and establishing robust data privacy regulations are essential steps. Collaborations between government, educational institutions, and technology providers can accelerate AI adoption. Additionally, research and development should focus on developing affordable and accessible AI solutions tailored to the Indian context.

Human interaction is irreplaceable, and AI should be used to complement, not substitute, it.The role of teachers remains indispensable in creating a supportive and engaging learning environment. AI should be used to augment teachers' capabilities, not to replace them. By striking the right balance between technology and human expertise, we can create a future where AI empowers both teachers and students to achieve their full potential. The integration of AI in personalized learning has the potential to transform education in India. By addressing the challenges and capitalizing on the opportunities, we can create a more equitable, efficient, and effective education system. However, it is essential to approach this transformation with caution and foresight, ensuring that AI is used ethically and responsibly. By fostering a collaborative ecosystem and investing in human capital, India can harness the power of AI to build a brighter future for its students.

Conclusion

The potential of AI to revolutionize personalized learning in India is undeniable. By leveraging AI's ability to analyze data, tailor instruction, and provide real-time feedback, educators can move away from a one-size-fits-all approach and create learning experiences that cater to individual needs. However, significant challenges lie ahead, including the digital divide, the need for teacher training, and data privacy concerns.

Addressing these challenges requires a multi-pronged approach. Investing in digital infrastructure to bridge the connectivity gap is vital. Comprehensive teacher training programs that equip educators with the necessary skills to utilize AI tools effectively are essential. Developing robust data governance frameworks and building trust with parents and students is crucial for addressing data privacy concerns. Collaboration between government, educational institutions, technology providers, and policymakers is necessary to overcome financial constraints and develop affordable AI solutions. The human element remains irreplaceable in creating a supportive and engaging learning environment. AI should be used to augment teachers' capabilities, not to supplant them. By striking the right balance between technology and human expertise, we can create a future where AI empowers both teachers and students to achieve their full potential in India's dynamic educational landscape.

References

Baker, R.S.J.D., Corbett, A.T., & Koedinger, K.R. (2000). Cognitive tutors: Lessons learned. *Journal of Artificial Intelligence in Education,* 11(1), 49-77.

Baker, R.S.J.D., Corbett, A.T., & Koedinger, K.R. (2004). Cognitive tutors: Lessons learned. *Journal of Artificial Intelligence Research,* 23, 49-77, 87-119.

Bennett, R. (2011). Formative assessment: Design, implementation, and impact. Routledge.

Brusilovsky, P., & Peylo, C. (2005). Adaptive hypermedia user modeling: An overview. *User Modeling and User-Adapted Interaction,* 15(2-3), 89-129.

Darling-Hammond, L., Zielecki, B., & Weiss, J. (2014). The formative use of assessment to improve student achievement: Keys to success for teachers and leaders. Stanford, CA: Stanford University, Learning Policy Institute.

Fan Ouyang & Pengcheng Jiao. (2021) . Artificial intelligence in education: The three paradigms. https://www.sciencedirect.com/science/article/pii/S2666920X2100014X

H. Xie *et al.* (2019).Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017. https://doi.org/10.1016/j.compedu.2019.103599.

https://thedatascientist.com/the-future-of-ai-in-cloud-computing-opportunities-and-challenges/.

https://quizwizapp.com/blog/the-future-of-ai-in-education-opportunities-and-challenges-ahead

https://www.go-globe.com/kuwaits-technological-growth-and-future-outlook/

https://www.sciencedirect.com/science/article/abs/pii/S0360131519301526

International Journal of Artificial Intelligence in Education/

Jain, S., & Sharma, A. (2023). Challenges and opportunities of AI in Indian education. *International Journal of Educational Technology in Higher Education,* 20(1), 1-15.

Mishra, A., & Singh, R. (2022). Teacher training for AI integration in Indian schools: Challenges and opportunities. *Journal of Educational Technology for Development,* 9(2), 112-128.

P. Brusilovsky *et al.*(2003)Adaptive and intelligent web-based educational systems.

Sharma, R., & Gupta, P. (2021). Digital divide and AI in Indian education: A critical analysis. *International Journal of Educational Technology in Higher Education,* 18(3), 1-12.

Siemens, G., & Baker, R.S.J.D. (2012). Learning analytics and educational big data. *Educational Researcher,* 41(2), 79-85.

Singh, S., & Kumar, A. (2020). Data privacy and security challenges in AI-based education in India. *Journal of Information Privacy and Security,* 16(2), 115-128.

Verma, R., & Patel, M. (2021). Ethical considerations in AI for education: A case study of India. *Journal of Educational Technology & Society,* 24(3), 25-35.

Government of India. (2009). Right to Education Act, 2009.

World Bank. (2018). World Development Report 2018: Learning to Realize the Promise of Education. Washington, DC: World Bank.

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A Qualitative Study of Inservice Teachers towards The Integration of Technology with reference to Education 4.0

*Dr. Qudsia Hafeez

Abstract

National Education Policy (2020) and Education 4.0 India (2022) Report recommends interventions for teacher professional development, upgrading of the infrastructure and pedagogy for incorporating digital technologies. The researcher attempts to qualitatively study two research objectives viz. (i) to find out the availability of ICT resources and infrastructure available in Government Residential Schools of Telangana and (ii) to find out the views of teachers towards the integration of technology in their classroom instruction by understanding the experiences from 20 in-service teachers, surveyed on-line through snowball sampling and their responses analyzed on 10 open-ended questions. For each research objective, a set of five open-ended questions were asked to the in-service teachers. Their responses were analyzed with reference to the features of Education 4.0. Majority of the findings of this study relates to the Students' Learning Enhancement Guidelines (2020) survey report during COVID-19 pandemic, where teachers experienced similar problems and issues with the use of technology. Schools have adequate ICT resources, but do not have the latest technology infrastructure as per the requirements of Education 4.0 for carrying out virtual learning, simulations, gamification, etc. in learning. The use of technology by in-service teachers during pandemic was mostly supported by their co-teachers and authorities. Post-pandemic these in-service teachers appreciate the use of technology in overcoming the learning gaps and are more satisfied with the effectiveness of physical mode of learning than online mode, but their pedagogies do not adhere to the features of Education 4.0. Moreover, in-service teachers felt the need to upgrade their digital skills and competencies for effectively integrating technology into their classrooms. As recommended by Education 4.0 India Report (2022) a holistic teachers' professional development program is urgently needed to keep in-service teachers updated with the latest pedagogies and technical skills that are required for implementing Education 4.0.

Introduction

For decades, Education has been experiencing the changes brought across by different Industrial Revolutions from 1.0 to 4.0 and beyond.The Fourth Revolution of Industry's technological component has affected machinery of Education to create a paradigm shift from traditional classroom-based learning to a more interactive, immersive, effective, personalized, pace-based, flexible, collaborative, & life-long learning experience with its technological innovations like artificial intelligence, digital networks, internet of things, machine learning, augmented and virtual reality, gamification, etc. thereby equipping students to thrive in a rapidly evolving, digital-driven world; by developing higher-order thinking skills (HOTS) like technological, problem-solving, innovative and critical thinking, to meet demands required for the functioning of Industrial Revolution 4.0; which has created an educational model termed Education 4.0 (Education 4.0, 2018).

Education 4.0 is mostly student-centered; the teacher functions asguide, coach, collaborator, & reference. TEI's must develop teachers via professional development trainingsto resonate with the characteristics of Education 4.0 competencies (communication, collaboration, critical thinking, and use of emerging technologies, etc.); learning methods (learning by challenges, experiential, offline, online distance learning, problem-based, blended learning, etc.); technologies (MOOCs, artificial intelligence, learning management organizations, collaborative virtual platforms, machine learning, etc.); infrastructure at classroom and institution level (using cutting-edge furnishings, technology-connected physical facilities, connected rooms, open innovation labs, intelligentlearning settings, etc. (Miranda Jhonattan *et al.,* 2021).

* ICSSR Post-Doctoral Fellowship Scholar (2021-2022), Department of Education,University College of Education, Osmania University

Background of the study

According to Himmetoglu Beyza, Aydug Damla, and Bayrak Coskun (2020) during fourth educational revolution, educators must hone digital, lifelong learning, and guidance skills; students should have digital, learning, communication, and cooperation skills.

Alda Rivika, Boholano Helen, and Dayagbil Filomena (2020) found that faculty members do integrate technological resources into education but they are inefficient in utilizing learning management system and advanced technology, modalities of online classes because of insufficient digital infrastructure, facilities, and virtual laboratories in TEI's. TEI's are found to be unprepared for implementing Education 4.0 with regard to infrastructure, research enterprises, and TPDtraining.

Utami Tritias Rosanita, Roistika Nia, Khoirot Umdatul, and Hanafi Moh, Herminingsih (2020) stressed the need for teachers' professional development and digital literacy to become lifelong learners to face the challenges of Education 4.0.

Students' Learning Enhancement Guidelines (2020) survey report findings from KVS, NVS, and CBSE schools towards online learning during pandemic majorly remained joyful and satisfactory by following their schedules, teachers planned interesting activities, parent participation during teaching-learning process. Students analyzed their weak areas and improved through online resources. Hindrances in learning were due to poor internet connectivity; sharing and use of resources for online classes were difficult through mobile phones; teachers were not well-versed with online methodologies and devices; no textbooks, unaware of the availability of e-textbooks on NCERT and DIKSHA platforms, bleak attitude towards using e-textbooks; lack of orientation on online classes, poor electricity, non-availability of devices, no proper interaction between teacher and taught. Devices used were mobile phones, laptops, least preferable were television and radio. Assessments conducted were on google classroom, WhatsApp, e-mail, other online platforms, through assignment questions, online quizzes, worksheets, Google Forms, and oral questions.

Kin Mei Tai, Omar Kareem Abdull, Musa Khalip, Ghouri Mujahid Arsalan (2022) revealed a strong positive correlation between teacher competenciessuch as technical, teaching-learning, evaluation, self-management, interactive, problem-solving, and mentoring and their changing attitudes during the age of fourth educational revolution.

Kar Sankar (2023) found no distinct differences regarding secondary school teachers' perspectives with respect to online education.

The Education 4.0 India (2022) report describes KINDLE (Knowledge and Information Network for Digital Learning and Education) as having a primary focus on preparing students for careers that will be in demand in the future, in line with Industry 4.0. KINDLE aims to use technological resources to close learning gaps and guarantee that everyone can benefit from education. The research recommends taking action in four areas to improve teachers' professional development, which is crucial for the digital revolution of school instruction.

1. **Development-** Designing and developing a holistic TPD by evaluating the teachers' professional development needs, and competency framework for various roles/scenarios.
2. **Implementation-** Strengthening the trainers by designing curriculum and monitoring delivery mechanisms to ensure quality. Analyzing the training needs of each individual teacher, creating and monitoring physical and digital content, and instilling context-specific capacity building of teachers.
3. **Effectiveness-** Institutionalizing assessment and evaluation of TPD efficiency in classroom pedagogies. Evaluating the impact of TPD on academic results. Decision-making at various levels by using data dashboards.
4. **Career-** Considering TPD as a lifelong path rather than just a course study. Providing on-demand, hybrid, self-paced education that includes methods for developing a career-growth mindset(Education 4.0 India, 2022).

Significance of the study

Teacher Education Institutions must emphasize on the need and training of ongoing professional development courses for in-service teachers along with the prospective teachers in the use of the latest methods in pedagogy and educational technology as envisaged in NEP 2020 (Para 5.24). An attempt was made to understand the Telangana Government Residential Schools teachers' perspectives towards technologyand integration of technology in the classroom practices in line with the Students' Learning Enhancement Guidelines (2020) survey report and to study the teachers' need for professional development in the use of technology with reference to the interventions provided in Education 4.0 India (2022) report.

Research Questions

1. What are the Information and Communication Technologies available in Government Residential Schools?
2. What are the views of teachers towards the integration of technology in their classroom instruction in Government Residential Schools?

Objectives

1. To find out the availability of Information and Communication Technologies in Government Residential Schools.
2. To find out the views of teachers towards the integration of technology in their classroom instruction in Government Residential Schools.

Methodology

A brief qualitative study was undertaken for addressing the research questions formulated. The study is based on asurvey of data collected through non-probability snowball sampling from 20 teachers working in various Government Residential Schools of Telangana. A total of ten open-ended questions were framed, five each for two research questions. The opinions of teachers on tensemi-structured open-ended questions were collected through telephonic interviews and then responses were coded and analyzed under the themes as per the requirement of the objectives of the study.

Open-ended Questions asked pertaining to Research Question 1 are-

1. What ICT resources and infrastructure are available in your school for integrating technology in your classroom instruction?
2. What latest technologies like virtual reality, artificial intelligence, and learning through games and simulations are available in your school?
3. What government initiatives such as Swayam Prabha, DIKSHA, etc. were accessed for classroom instruction?
4. Do you require to upgrade your ICT skills through training in using digital resources?
5. According to you, does the use of technology improve the quality of education?

Open-ended Questions asked pertaining to Research Question 2 are-

6. What problems do you face with the use of technology in your classroom instruction?
7. What kind of support is provided to you for integrating technology in your classroom instruction?
8. How frequently do you use technology in your classroom instruction?
9. What are your experiences of using technology for classroom instruction?
10. What are your experiences of assessing students' performance using technology?

Analysis and Interpretation of data

The qualitative data were descriptively analyzed under the different themes for Objective 1 and the findings are-

1. **Theme- ICT resources and infrastructure:** The available ICT resources for integrating technology are: 1. Television Set, 2. Computers, 3. Overhead Projector, 4. Separate room for a well-equipped Computer Lab, 5. Separate Audio-Visual Room, 6. Accessibility of the Internet, 7. Provision for connecting smartphones to TV.
2. **Theme- Latest Technologies:** There is no such availability of virtual learning but teachers said that- 1. Students are provided Robotics and Engineering Skills training in Laboratories, 2. On-site Demonstrations of drone-based agricultural practices, 3. Students are exposed to the Astronomy club, 4. No availability of virtual labs, games, and simulations technologies, 5. Practical demonstrations are screen shared in online mode.
3. **Theme- Government Initiatives:** Teachers referred to such government initiatives for their classroom instruction- 1. Students were directed by teachers to watch Television Channels like SwayamPrabha, TSAT Channel, DD Saptagiri, 2. Teachers referred to content on e-pathshala, DIKSHA app, and NCERT e-resources and provided instruction to students.
4. **Theme- ICT skills training:** It was found that- 1. Teachers presently have basic computer and internet skills, 2. Teachers can surf and download resources from Internet, 3. Trainingis needed for all teachers' for upgrading their ICT skills with the latest technological resources useful in educational transaction.
5. **Theme- Improve the quality of education:** It was found that teachers agreed on- 1. ICT helps teachers to explain the lesson more effectively, effortlessly in less time, 2. Most of the curriculum resources are easily found on online platforms, 3. ICT helps students better understand the lesson through the use of Smart class, projections, etc.,

4. Students can construct their own answers, 5. Students are also provided training in ICT skills in the computer lab, 6. The use of technology is helping overcome learning gaps post-pandemic.

The qualitative data collected weredescriptively analyzed under different themes for Objective 2 and the findings are-

6. **Theme- Problemswith the use of technology:** During COVID-19 pandemic teachers experienced problems like-1. Not all students had access to mobile learning, but majority of them could attend online classes, 2. Internet connectivity problems, slow internet, no mobile data, no battery power left after extensive usage of mobile, 3. Two teachers were required for conducting classes online, one for teaching and the other for monitoring the class discipline, 4. Syllabus completion by integration of technology is time-consuming and requires more effort, 5. Teachers felt more satisfaction and effectiveness in the physical mode of educational transactions than online mode.

7. **Theme- Support received in integrating technology:** Teachers received support from- 1. Co-teachers in monitoring online classes during the pandemic, 2. Computer Lab Assistant arranged for the technology setup, 3. Principal, Academic Coordinators, Subject Resource Person, Regional Level Coordinator, and higher authorities conducted meetings, clarified teachers' doubts, and solved problems in conducting classes during pandemic and post-pandemic situations.

8. **Theme- Frequency in use of technology:** It was found from the teachers' that- 1. Technology is integrated as per the need of the teaching strategy, 2. Each teacher teaches one period daily by integrating technology, 3. There is no rule/compulsion to use technology in classroom instruction.

9. **Theme- Use of technology for classroom instruction:** Teachers' experienced that- 1. Initially,during the pandemic, teachers felt difficulty in operating technology-based platforms like Zoom, Google Meet, but gradually learned to conduct online classes, 2. The live class was screen shared with students via a camera setup, pictures of important points written on the board were captured and shared with students via WhatsApp, and later classroom teaching video recording was also shared with students, 3. The use of technology makes weak students more attentive in the classroom, 4. Teachers are habituated to integrate technology in classroom instruction to avoid boredom in the class, 5. Teachers use various resources like PowerPoint presentations, YouTube videos, supplementary documents on the topic, and other e-resources to complement their classroom instruction effectively in all subjects, 6. Students learn better and retain knowledge longer with the audio-visual component of technology.

10. **Theme- Use of technology for students' assessment:** It was found from the teachers' that- 1. During the pandemic, teachers shared question papers through WhatsApp and within a stipulated time students' answer script photos were received, and based on their performance teachers did their corrections, 2. Some teachers used Google Forms for assessing students for quiz and objective type of tests, 3. There is no structured system of online mode of assessment, technology is used as a channel for connecting with students and assessing their performance during pandemic, 4. Paper-based assessments are continued as usual post-pandemic.

Findings of the study

Majority of the findings from the qualitative study arein accordance with the Students' Learning Enhancement Guidelines (2020) survey report.

With regard to Objective 1, it was found that there is adequate ICT resources and infrastructure in the schools; students are exposed to some latest technologies through curricular activities;during the pandemic students were encouraged to watch educational television programs. ICT trainingis required for teachers toupgrade their skills as they appreciate the effectiveness of technology in education.

With regard to Objective 2, certain problems were experienced by teachers in the use of technology during COVID-19 pandemic situation, like insufficient devices with students; the reach of internet; and time consumption. Teachers received support from co-teachers and authorities in integrating technology as per their requirements. During pandemic online classes and technology resources were helpful for students' learning and assessments. Teachers viewed technology like a channel for connecting with students during pandemic rather than a structured system of education. However, teachers managed to stride the period of the pandemic to some extent successfully.

Post-pandemic, technology is used only as per the need of the subject and paper-based assessments are continued. Teachers felt more satisfaction and efficacy in the physical style of educational exchanges than online mode. Teachers' require advanced training in the latest technologies in education for effective use of ICT and overcoming learning gaps post-pandemic. With reference to Education 4.0, teachers require awareness and training for developing their technical and pedagogical competencies as per the requirements of Education 4.0.

Conclusion

With regard to the findings of the qualitative study, adequate ICT resources are available in Government Residential Schools of Telangana and in-service teachers have basic technological skills. Education 4.0 requires the use of the latest technologies and 21st century pedagogies to develop future skills among learners. Hence, there is a need to follow the interventions as recommended in Education 4.0 India (2022) report for teachers on teacher professional development by assessing their digital skills, creating a holistic TPD, implementing and measuring its effectiveness with regard to classroom outcomes, and inculcating a career progression mindset among the teachers. As per NEP-2020, it is vital for teachers to deliberately use emerging technologies in the area of education. Further, Education 4.0 promotes leveraging technology, so educators and pupils have to hone digital skills to meet the demands of fourth industrial revolution.

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References

Alda Rivika, Boholano Helen, and Dayagbil Filomena (2020). Teacher Education Institutions in the Philippines towards Education 4.0. *International Journal of Learning, Teaching and Educational Research,* 19(8), 137-154. doi: 10.26803/ijlter.19.8.8

DoSEL, NCERT, MHRD, GOI. (2020). Students' Learning Enhancement Guidelines. Retrieved from https://ncert.nic.in/pdf/announcement/Learning_%20Enhancement_Guidelines.pdf

Himmetoglu Beyza, Aydug Damla, Bayrak Coskun (2020). Education 4.0: Defining the teacher, the student, and the school manager aspects of the revolution. *Turkish Online Journal of Distance Education*- TOJDE21 (Special), 12-28. doi: 10. 17718/tojde.770896 Retrieved from

https://www.researchgate.net/publication/343017706_EDUCATION_40_DEFINING_THE_TEACHER_THE_STUDENT_AND_THE_SCHOOL_MANAGER_ASPECTS_OFTHE_REVOLUTION

Intelitek. (2018). Education 4.0. Retrieved from https://fliphtml5.com/flqg/euqi/basic/

Kar Sankar (2023). Teachers' attitudes towards virtual teaching during COVID Pandemic Lockdown. *Research and Reflections on Education,* 21(1), 24-26. Retrieved from 7.pdf (sxcejournal.com)

Kin Mei Tai, Omar Kareem Abdull, Musa Khalip, Ghouri Mujahid Arsalan (2022). Leading Teaching and Learning in the Era of Education 4.0: The Relationship between Perceived Teacher Competencies and Teacher Attitudes toward Change. *Asian Journal of University Education (AJUE),* 18(1), 65-80. doi: 10.24191/ajue.v18i1.17171 Retrieved from https://myjms.mohe.gov.my/index.php/AJUE/article/view/17171

MHRD, GOI. (2020). National Education Policy. Retrieved from https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Miranda Jhonattan, Navarrete Christelle, Noguez Julieta, Molina-Espinosa Jose Martin, Ramírez-Montoya

María-Soledad, Navarro-Tuch Sergio A., Bustamante-Bello Martín-Rogelio, Rosas-Fernandez Jose-Bernardo, Molina Arturo (2021). The core components of education 4.0 in higher education: Three case studiesin engineering education. Computers and Electrical Engineering 93 Retrieved from https://doi.org/10.1016/j.compeleceng.2021.107278 https://www.sciencedirect.com/science/article/pii/S0045790621002603

Utami TritiasRosanita, Roistika Nia, KhoirotUmdatul, and Hanafi Moh, Herminingsih (2020). Teacher Professional Development in Education 4.0: Awareness of Digital Literacy. ResearchGatedoi: 10.4108/eai.13-2-2019.2286528 Retrieved from https://www.researchgate.net/publication/339177379_Teacher_Professional_Development_in_Education_40_Awareness_of_Digital_Literacy

World Economic Forum. YuWaah! Generation Unlimited (2022). Education 4.0 India Insight Report. Retrieved from https://www3.weforum.org/docs/WEF_Education_4.0_India_Report_2022.pdf

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Transformative Education and Children in Conflict with Law

*Dr. Sanjukta Padhi, **Jashobanta Ranabir

Abstract

The rise of advanced technology and social media platforms has an unfavorable effect on the entire Indian society in addition to the overall growth of children. In a lack of sufficient guidance, adolescents' use of mobile phones, television, and the online world increases tension, enmity, despair, and quick reaction. As reported by the National Crime Record Bureau (NCRB), the number of offenses involving juveniles who are in trouble with the law climbed to 89.28% between 2005 and 2016. According to the NCRB, the number of assaults committed by adolescents grew by 143 percent between 2002 and 2012. Children are physically developing, yet they are unaware of their basic rights, principles, morals, and humanity. In India, there is a pressing requirement to prevent or reduce adolescent criminality. The value of the function of transformational Education, school, and familial circumstances all have an impact on children's healthy growth. The researchers addressed the utilization of transformational education in childcare institutes in this study. Co-curricular programs and transformative education at the elementary and secondary levels foster the development of expressing oneself, confidence in oneself, partnership, and a shared humanity. Additionally, the researchers discussed the elements influencing the growth of the youths. The mass media, peer pressure, social exclusion, exclusion from society as a whole, and family are all important and responsible aspects of the mental, social, and growth in the education of adolescents. The capability of professionals in transformational education is critical for changing children's behavior. The present paper highlights the role of Transformative Education in reducing the children in conflict with law (CICL).

Introduction

The Juvenile Justice (care and protection of children) Act 2015 defines a 'Child In Conflict with Law' (CICL) as a kid who has not reached the age of eighteen on the date of the offence and is accused or proven to have committed an offence. Children are seen as the future's architects. The procedure for transformative Education and the school atmosphere have an impact on the typical growth of children. Today's media and technological advances have an unhealthy effect on the entire Indian community as well as on the general growth of adolescents. Self-motivation, bravery, tolerance and diligence, and social and ethical standards are all quickly disappearing among children in today's culture. The loss of faith in moral values among children will have an unfavorable effect on tomorrow's society's structure, appearance, and social setting.

The assassination of a kid who was innocent in Ryan Public School situated in Gurugram (Haryana), and the murder of the institution's headteacher by an underage learner in Yamuna Nagar (Haryana) are countless instances of value loss among pupils in schools. In 2005, 18939 child abuse reports were received (NCRB 2015). In 2015, there were 33433 cases of children in conflict with the law recorded (NCRB 2017). The total quantity of these instances was 35849 in 2016 (NCRB 2017). As per the 2017 National Crime Record Bureau (NCRB) data, the proportion of crime among young people in legal trouble is growing in India, which means youth crime has grown to be a major problem for the community.

According to the information, the overall percentage of crime-underreported action taken against minors in contradiction with the legal climbed to 89.28 percent between 2005 and 2016. According to National Crime Record Bureau (NCRB) data, the count of rapes committed by adolescents grew by 143 percent between 2002 and 2012. During the same period, the numberof murders perpetrated by youths increased by 87%, while

* Assistant Professor, Head of the Department, School of Psychology, Gangadhar Meher University, Sambalpur
** Research Scholar, School of Psychology, Gangadhar Meher University, Sambalpur

occurrences of women and girls being abducted by children increased by 500 percent.

In India, there is an immediate requirement to prevent or reduce adolescent criminality. In this critical period, the participation of society, schools, and rehabilitation centers is more significant than that of other institutions in reducing adolescent criminality. The information also indicates that society requires transformative educational programs at the school level, along with childcare institutes for children.

The United Nations Guidelines for the Prevention of Juvenile Delinquency (The Riyadh Guidelines) urge that the education framework collaborates with their parents, social organizations, and governments concerned with young people's actions. The framework must care for and give greater focus to children who have been ignored by society. To prevent the aforementioned difficulties, specialized prevention activities, instructional resources, curriculum, techniques, and instruments should be designed and properly utilized. Educators and other experts may be crucial in preventing and dealing with these issues. Schools should give various facilities, such as medical, counseling, and other services, to adolescents who are exposedto abusive words, and a neglected mentality in society and have been proven to be victims and abused most. Curriculum, methods of learning and teaching, approaches, and recruiting and educating skilled instructors should all strive to meet and support the maximum standards for education and professions. It should concentrate on the organization and execution of extracurricular events of curiosity to young people in collaboration with societal organizations.

Review of the Literature

Metasit Meesuaisinta, Wirathep Pathumcharoenwattana, and Pannee Boonprakob (2014) believed that self-esteem was a necessary component of optimal growth. Some research suggests that a lot of juvenile offenders frequently display a high sense of self-worth, but it is likely to be less stable. The ultimate goal would be to cultivate a stable, high sense of self-worth, or authentic self-worth, that included the two components of high ability and high deservingness. Creating and implementing transformative learning is a useful strategy for boosting genuine confidence. This research aimed to generate a transformative method of learning that would improve male aggressive juvenile offenders' real self-worth. This study used a qualitative approach through a systematic review methodology. The findings demonstrated that the disorienting predicament or experience, conversation, critical thought, comprehensive transformation of reasoning and emotion, understanding the context, and responding on a modification or probing premise were all components of the transformative educational process. To sum up, strengthening male violent adolescent offenders' real self-esteem is essential; this may result from a transformative educational process. Understanding the context and taking action on modification should be prioritized in the transformative educational process. As a result, the societal issue of male juvenile offenders will lessen.

According to Ntombizanele Gloria Vandala (2019), the United Nations Announcements, Regulations, and Guidelines serve as the foundation for the obligation to provide correctional instruction for anyone who isdetained. As a result, many nations use custodial education as a component of their rehabilitation efforts to turn criminals into ethical, productive members of society after their release. Nonetheless, there are continuing conversations on the efficacy of correctional education. Elevated rates of reoffending appear to be a worldwide issue. Programs for prisoners' education are seen as having the potential to lower crime and recidivism rates. According to published research, rehabilitative education alters behavior, boosts self-esteem, lowers incarceration rates, and turns criminals into law-abiding citizens after they are released. The study utilized a converging combination of techniques and methodologies to examine the potential transformative impact of penitentiary education. This study was done on ex-offenders who participated in correctional schooling programs while they were detained in South Africa. Comprehensive surveys and interviews were used as data collection tools. In the study area, both qualitative and quantitative information were accorded equal standing. The vast majority of empirical data shows that offenders are transformed by correctional education. Qualitative research demonstrates that education in prison alters behavior, increases self-esteem, and turns criminals into ethical, contributing members of society. According to these results, the study concludes that correctional schooling changes criminals by enhancing their sense of self-worth and self-assurance, revitalizing humanity, raising reading levels, providing skills, and transforming them into ethical, productive citizens upon parole. Improved execution of vocational education curricula is suggested by this study. This element might contribute to a decrease in income disparity, rates of recidivism, and crime. A worldwide study on the impact of prisoner education initiatives on crime rates is also suggested by this study.

Ntombizanele Gloria Pretoria (2017) investigated the transformational impact of education programs and found that education courses encourage the transformation of criminals, lower the rate of recurrence, enhance life quality, raise literacy levels, and show that having a criminal record prevents ex-offenders from getting jobs in their communities. From the data gathered, this study concludes that educational initiatives enhance the standard of living, lower recidivism rates, increase offender transformation, raise literacy rates, and make it more difficult for ex-offenders to find jobs in the community because of their criminal records. The research involved suggests that more research be done on the transformative power of education programs in other areas, that the Department of Correctional Services (DCS) give priority to implementing technical, trades, and entrepreneurship education programs, and that a policy that helps formerly incarcerated people find work should be created to lower the recidivism rate. In conclusion, this research suggests a student transformation model to direct the execution of educational initiatives in the Department of Correctional Services in South Africa.

Objectives

1. To understand the issues that affect juveniles.

2. To comprehend the role of transformative education in childcare institutes for rehabilitation.

The rationale of the Study

Our children are the greatest assets for the future. Youth crime is closely associated with drug and/or alcohol abuse, gang membership, cybercrimes, homicide, and theft. Many of these lead to issues for the community since they create an environment of insecurity and drive government institutions to spend enormous sums of money on police and protection at schools. The impact of transformative education and the school environment on children's usual growth is significant. Transformative education encourages ways of thinking that are based on a unique viewpoint on how knowledge might be produced more effectively and powerfully, particularly in light of present and future societal conditions. The constructive focus of transformative education is on rerouting juvenile misbehavior. Transformative education is the most useful way to reduce youth crime.

Juvenile Delinquents (Children in Conflict with Law)

A young offender is someone less than the age of 18 who violates the legal system. Such acts are known as "delinquent acts," but if committed by an adult, they are deemed crimes. For those illicit behaviors, a kid obtains an outlook and censure. Section 2 (I3) of the Juvenile Justice (Care and Protection of Children) Act, 2015 defines Children in Conflict with Law (CICL) as a young person who has been charged or determined to have committed an offense and is under the legal age of 18 years on the date of committing such an offense. There are two types of delinquent acts. The first sort of deviant act regards children as offenders, especially if they commit major offenses. In these situations, some jurisdictions treat the youngsters as adults. Another kind of deviant act ignores an adult's attempt to occupya criminal due to the circumstances.

Issues that affect juveniles

Media: Numerous investigations have found that teenagers who witness acts of violence are more likely to behave angrily or violently, especially when prompted. This is especially true of boys aged 8 to 16, who are particularly receptive to such effects. TV and news media may play a more beneficial and efficient role in society by providing real and innovative knowledge.

Peer Influence: Another key component in adolescent criminality is the influence of peers. Peer-school programs for juveniles that engage them in constructive self-assessment, coping with conflict, and managing violence are desperately needed. These initiatives also assist youngsters in identifying possibilities for their criminal behavior. These courses should focus on the social and mental growth of juveniles, which is required to avoid conflict and reduce violence.

Exclusion: Juvenile exclusion by a community is also an important contributor to adolescent criminal activity. The symbolic isolation of adolescents who have been involved in even small offenses from the community bears important consequences for the growth of delinquent lifestyles. As stated by the studies, a way of labeling might lead to the self-adoption of an illegal reputation, which leads to delinquent behavior. Society plays a helpful role in lowering adolescent crime rates. The local community, adults, and children should all engage in society's helpful endeavors.

Family: The most important and significant factor in adolescent psychological, social, and learning growth is the family. According to studies, kids who get appropriate parental guidance are less likely to get involved in unlawful activities. Dysfunctional family settings characterized by conflict, insufficient monitoring by parents, weak internal connections and cooperation, and precocious autonomy are strongly linked to adolescent crimes. Frequent parental advice and monitoring are important parts of a juvenile's healthy development.

The role of transformative education in childcare institutes for rehabilitation

Transformative education promotes techniques of thinking grounded in a distinct perspective of how knowledge can be more efficiently and strongly created, especially given current and upcoming social circumstances. Informal school learning has a substantial impact on lowering children's criminal activity rates. It affects the behavior of children through many sorts of extracurricular activities. The school organizes many entertainment programs for children, including athletics, theatre, karate, bowling, climbing, and art. The successful participation and engagement of kids in such events aid in the reduction of juvenile criminality. The participation of juveniles at the grassrootslevel allows them to socialize in a safe social atmosphere. Considering the findings, an excellent education serves as a vital element in lowering adolescent crime rates. Three factors likethe community-based program, excellent education, and co-curricular activities are all beneficial in lowering adolescent crime rates. Vocational education and training provide teenagers who are in legal trouble with links to financial possibilities and skilled employment that can reduce their probability of repeat offenses and improve their prospects of a positive social return to society. Ethical education provides moral, ethical, honest, and virtuous spirituality, and other values. It inculcates in a child's attributes such as humility, power, and sincerity. Ethical education makes excellent national citizens. Students who have strong ethical principles will never defraud others. Such children are trained to collaborate. They brighten their own lives by working difficult to bring happiness to others.

Suggestions

1. Ethics-based education should be emphasized in employee training programs.
2. Social welfare plans ought to be advertised via childcare institutes' co-curricular activities.
3. There is a huge need to increase employees' aptitude for transformative education.
4. A community-based activity should collaborate with a childcare institute.

Conclusion

In India, where juvenile offenders are on the rise, proper execution of transformative education at the childcare institute level is critical. Transformative education provides a constructive emphasis on diverting inappropriate conduct in juveniles. It contributes to the evolution of a collaborative and cohesive community that identifies and attempts to deal with the problems of adolescents. It improves teaching quality, strives for greater child care, makes children tolerable, supportive, and accountable about their goals, and strengthens the employee-child interaction. Participation in extracurricular activities with a moral and socially conscious program fosters the ability of adolescents to express themselves freely, gain self-confidence, and build a sense of shared humanity.

References

Grennan, M. (1957). 'The Role of the School in the Prevention of Juvenile Delinquency', Master's Theses, paper 1393.

http://criminal.findlaw.com/juvenile-justice/juvenile-delinquents.

https://www.impactlaw.com/criminal-law/juveniles/prevention

Mohan, A. (2016). Role of Teachers in Inculcating Values among students, 'National Conference on Values Education', 1(2).

Meesuaisinta, M., Pathumcharoenwattana, W., & Boonprakob, P. (2014). The main elements of a transformative learning process to enhance authentic self-esteem of male violent juvenile delinquents: A systematic review study. *Procedia-Social and Behavioural Sciences,* 152, 925-930.

Priya, S. (2016). Imparting Values Through Co-Curricular Activities, *'National Conference on Values Education',* 1(2). Sathiyamurthy, S. 2017. The Hindu.

UNO. (1990). 'United Nations Guidelines for the Prevention of Juvenile Delinquency, The Riyadh Guidelines.

Vandala, N.G. (2019). The transformative effect of correctional education: A global perspective. *Cogent Social Sciences,* 5(1), 1677122.

Vandala, N.G. (2017). The transformative effect of education programs as perceived by ex-offenders (Doctoral dissertation, University of Pretoria).

World Youth Report, 2003. Juvenile Delinquency, Page No. 195-198

www.huffingtonpost.in/dr-anjali-nigam/)

www.huffingtonpost.in/dr-Anjali-nigam/the-horror-never-

www.ncsl.org/documents/cj/jjguidebook-denquency.pdf

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Status of Health and Hygiene Practices in Lucknow Slum

*Dr. Rajnesh Kumar Yadav, **Dr. Sandhya Yadav

Abstract

India has achieved considerable improvements in human development factors. According to Human Development Report 2011 of UNDP, the HDI for India is 0.547 in 2011 with an overall global ranking of 134 out of the 187 countries. Life expectancy at birth in India was 65.4 years in 2011 as against 55.1 in 1980. Infant Mortality Rate has declined considerably, 71 per 1000 live births in 1997 and reached 47 per 1000 live births in 2010. But the rural and urban differentials are still high. India lives in its 6.5 lakhs villages and if basic health care is not to reach the rural areas, then no matter how much progress achieved in the urban and semi-urban areas, as overall growth as a nation will be retarded. One of the most important things people can do for their health is to engage in regular physical activity. A life that includes exercise is one with less likelihood of serious physical and mental ailments. The benefits are wide-ranging, from stronger bones, greater lung power and a healthier heart to a lower cancer risk, a sharper and a happier spirit. Health Education is a process that informs motivates and helps people to adopt and maintain healthy practices and lifestyle advocates environmental changes as needed to facilitate this goal and conducts professional training and research to the same.

Introduction

Health is a dynamic concept, which every human being desires to achieve. While health refers to positive end of spectrum; sickness and diseases symbolic the negative side of the spectrum. In order to protect, promote, and restore the health of individuals and population, an integrated discipline of public health or community health came into existence. Health encompasses a broader concept than the three components described in WHO definition of health, Pursuit of optimal health includes physical emotional intellectual, spiritual, occupational, financial, social, and environmental dimensions.

Physical Health refers to the state of the body its components, development, functions and maintenance. It is exhibited by individual's optimum physical abilities of all his body parts being intact and working in coordination. It can be attained by eating well, exercising, avoiding harmful habits such as smoking getting enough sleep, recognizing the assigns of diseases, getting regular physical exams, and taking steps to prevent injury.

Emotional Health is a complex dimension of health. Our ability to accept and cope with our own and others feelings is defined as emotional well-being. Emotions contribute to almost all aspects of life, at times, even setting course of actions. An emotionally healthy person has freedom from internal conflicts, a well adjusting mind-set, does not get agitated easily, has a strong self-esteem, knows his limitations and capabilities, is not carried away by unnecessary emotions, and is able to cope with the situation of stress and anxiety.

Intellectual Health encompasses cognitive ability to develop skills and knowledge to enhance one's life. Intellectual health encourages creative, stimulating mental activities. It helps to stimulate our creativity and improve our decision-making ability. Spiritual Health is not included in the definition of health. But it is practiced by most of the people throughout the world for self-realisation and peace of mind. Spiritual health refers to our personal beliefs and values. It is attained by seeking one's values, rights, and responsibilities, ethics, and code of living. Occupational Health recognises personal satisfaction and enrichment in one's life through work. The choice of profession, job satisfaction, career ambitions, and personal performance are all important components of occupational wellness.

Financial Health focuses on one's attitude toward money and a commitment to setting goals for future needs, developing good money habits and effectively using tools to manage financial resources. In order to be financially healthy, one does not need to be wealthy; however, one must sensibly manage money. Social Health encourages contributing to one's environment and community. It emphasizes the interdependence between others and nature. It deals with having a supportive social network, contributing to society, and valuing cultural diversity. It

* Assistant Professor, Department of Social Work, University of Lucknow, Lucknow
** Assistant Professor, Department of Social Work, University of Lucknow, Lucknow

can also be defined as the "quantity and quality of an individual's interpersonal ties and extent of his involvement with the community".

Environmental Health is learning and contributing to the health of the planet and a sustainable lifestyle. The key to human health largely lies in his external environment. Much of human being's ill health can be traced to adverse environmental factors such as water pollution, soil pollution, air pollution, poor housing conditions, presence of animal reservoirs and insect vectors of diseases. Thus, it is pertinent to control all the factors that exert deleterious effect on the health.

Hygiene is a series of practiced performed to preserve health. According to the World health organisation WHO Hygiene refers to the conditions and practices that help to maintain health and prevent the spread of diseases. Personal hygiene refers to maintaining the body cleanliness. Many people equate hygiene with cleanliness, but hygiene is a broad term. It includes such personal habit choices as how frequently to take a shower or bathe, wash hands, trim nails and changes and wash clothes. It also includes attention to keep surfaces in the home and workplace, including bathroom facilities, clean and pathogens free. Personal hygiene involves those practices performed by an individual to care for one's cleanliness. Motivation for personal hygiene practice include reduction of personal illness, healing from personal illness, optimal health and sense of well-being. Social-acceptance and prevention of spread of illness to others. Practices that are generally considered proper hygiene include showering or bathing regularly, washing hands regularly and especially before handling food, washing scalp hair, wearing clean clothes, brushing teeth, cutting finger nails, besides other practices.

According to World Health Organisation, around 1.1 billion people globally do not have access to improved water supply sources whereas 2.4 billion people do not have access to any type of improved sanitation facility. About 2 million people die every year due to diarrhoeal diseases, most of them are children less than 5 years of age. The most affected are the population in developing countries, living in extreme conditions of poverty, normally peri-urban dwellers or rural inhabitants. Maintaining personal hygiene is essential for more than one reason; social, health, personal, psychological or just as a way of life. Maintaining a good standard of hygiene helps keep infections, illness and bad odours at bay. The importance of hygiene should be taught from an early age to help cultivate good habits. Personal hygiene can be defined as an act of maintaining cleanliness and grooming of the external body. Maintaining good personal hygiene consists of bathing, washing your hands, brushing teeth and sporting clean clothing. Additionally, it is also about making safe and hygienic decisions.

Review of Literature

Komal *et al.* (2016) conducted a study entitled "Morbidity Pattern and its Association with Personal Hygiene among School Going Children (11 to 15 years of age group) in Surendranagar, Gujarat, India. A Cross sectional study was conducted in both private and government schools selected by simple random Sampling. They found that the awareness regarding personal hygiene practices was maximum for daily Bath (84%), 49.8% of students had knowledge regarding health related problems and about 24.4% Children had health related problems. Ashish *et al.* (2015) performed a study on "Personal Hygiene of School Going and Non-School Going Children in Ahmedabad District, Gujarat". Majority of non-school going urban children have poor Personal hygiene when compared to school going children of urban and rural area. Statistical difference For poor personal hygiene among school going and non-school going children of urban area was highly Significant. They concluded that there was huge difference on overall occurrence of personal hygiene and It was found almost double among non-school going children when compared to school children. Non-School children were the most vulnerable group. Hala *et al.* (2016) conducted a study on Knowledge, Attitude and Practice Regarding Personal Hygiene Among Preschool Children in Tanta city, Gharbia Governorate, Egypt. They found that there was a Moderate positive correlation between knowledge score with both the attitude and practice scores. Male And older children had a significant better knowledge, attitude and practice than female and younger ones. Residence had no significant effect on children knowledge, attitude and practice. They concluded that the Preschool children knowledge, attitudes, and practices about personal hygiene were deficient in some Aspects. Mohammed *et al.* (2016) conducted a study on "Knowledge, attitude, and practice (KAP) of food Hygiene among schools students' in Majmaah city, Saudi Arabia". Results show that knowledge levels Was less in primary school students compared to high school students. Attitude level was high in primary School students compared to intermediate school students. Pranjal Sonowal and Kaushik Talukdar (2019) conducted a cross sectional study on Menstrual Hygiene Knowledge and Practices amongst Adolescent Girls in Urban Slums of Dibrugarh Town. Half of the girls were not aware of menstruation before menarche. Many girls Were not aware of the cause of menstruation and source of menstrual bleeding. The conclusion Was awareness regarding the need for the information about healthy menstrual practices is very Important. It is essential to design a mechanism to address and gain the access of hygienic Menstrual practices for adolescent girls. Dr. Deshpande TN *et al.* (2018) were conducted a study on Menstrual hygiene among Adolescent school girls from urban slum. They stated that multiple restrictions were practiced. They reported that menstrual hygiene was unsatisfactory among adolescent girls. Therefore, girls Should be educated about the facts of menstruation and proper hygienic practices.

Research Methodology

Need of the Study:

Health is the level Health is the level of functional or metabolic efficiency of a living organism. In humans it is the ability of individual or communities to adapt and self-manage when facing physical, mental or social changes the world health organization (WHO) defined health in its broader sense in its 1948 constitution as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Objectives of the Study:

- To prepare profile of the respondents.
- To explore the health and hygienic practices of slum.
- To assess the knowledge of the people with regard to diseases, illness associated with health

Research Design:

Research design is the framework of research methods and techniques chosen by a researcher to conduct a study. The design allows researchers to sharpen the research methods suitable for the subject matter and set up their studies for success. In this study, Descriptive research design had been used by the researcher.

Universe:

Universe is the total number of units out of which a sample of the study is selected. In this study universe are people of Lallu Mall Ghat slum. So the total sum of universe in this study is 288.

Sampling:

Systematic sampling Systematic sampling is a probability sampling method where the researcher chooses elements from a target population by selecting a random starting point and selecting sample members after a fixed 'sampling interval.'

Analysis and Interpretation

Sex Ratio:

The fieldwork was conducted on 58 households which constituted a population of 288 residents. The data was collected from 144 respondents through stratified sampling. Out of these,67 were males and 77 were females. There were 76 children who were less than 15 years in age. Among these children, the males and females were 47 and 29 respectively.

Food and Drink:

The people of Lallu Mal Ghat Slums of Daliganj Area slum area are both vegetarians and non-vegetarians which includes meat, fish and eggs. Their staple food consists rice, wheat and they consume pulses like Gram, Tur and Urad. They also consume green vegetables but less fruit. The habit of chewing paan and tobacco and smoking beedi is also persistent.

- 42.25% of households are vegetarians
- 57.75% of households are non-vegetarians
- 72.73% of the total 220 people have drinking habits.
- 40% of the people only chew betel leaf
- 30% of the people chew both betel leaf and tobacco

Religion:

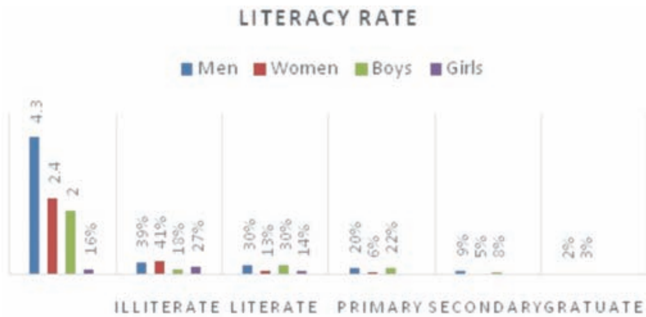
In Daliganj slum area, both the Hindu and Muslim (6 house) recides. In Hindus the sub-caste residing there are Rajput, Brahmans, Shilpkar, Gupta, Kewat, Saxena, Shah, Valmiki, Kashyap. They also believe in witchcraft and evil eye. They worship various Hindu gods and goddess. They also visit 'Majar'.

Marriage:

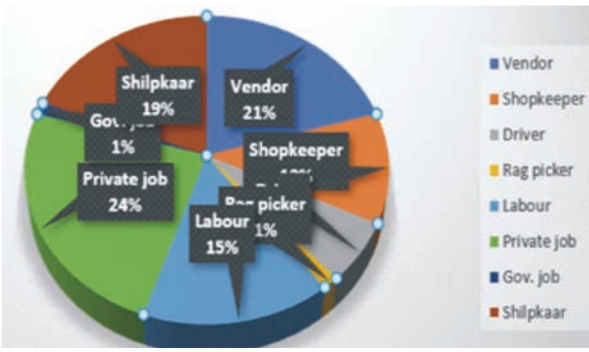
Marriage age of girls in the community is 15-20 yrs old and that of boys is 18-25. 57.8% of the women living currently in Lallu Mal Ghat Slums were subjugated to child marriage.

The families in Daliganj slum area are patrilineal in nature. The rules governing with the inheritance of the property and residence after marriage are based on patrilineal form of descent and patrilocal residence.

Three types of family found residing there. Common was nuclear family where a mother, a father and their children live together. Few number of joint family also resides there. Under the impact of growing individualistic outlook of younger people and changing economic and social conditions the working capacity of joint family system is gradually breaking down.



Occupational status



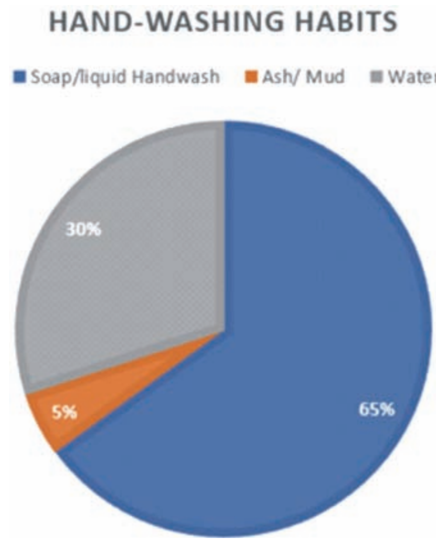
Status of Health and Hygienic Practices

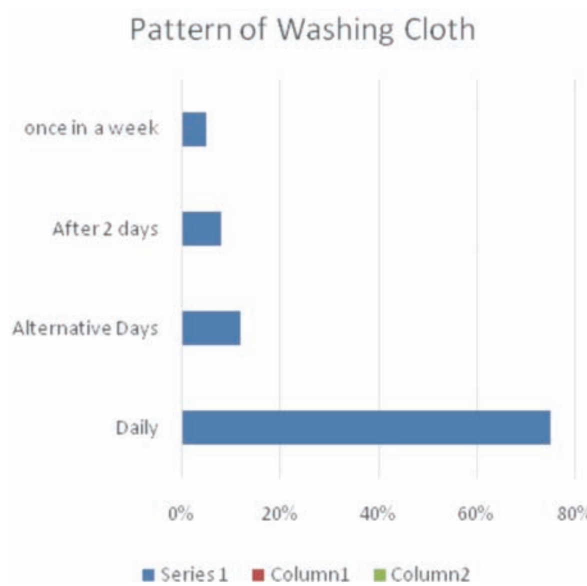
The Slums lack toilet or any kind of lavatories, so they find themselves defecating in open grounds. The people mostly use *sulabh sauchalaya* for defecation. The respondents indicated that adequate facilities for human waste disposal, are missing from their environment. Consequently, they resort to alternative means of human waste disposal. For example they allow their children to defecate in the grounds near Gomti River. Adults relieve themselves behind the bushes, they dug up hole to use it as toilet and cover it with mud.

- Out of the total household only 7% were having toilet in their household rest majority of population use sulabhsauchalaya, open defecation or both.
- Major population opt open defecation near Gomti river while 30% of the household use the facility of *sulabh sauchalaya* and some use both *sulabh sauchalaya* and open defecation for sanitation.
- From the above pie chart it is observed that majority of the population throw garbage at a open ground at the shore of Gomti River 27% were throwing garbage at a covered place while 12% were in a habit of disposing trash near there place.

Oral hygiene

Variables	Frequency	Percentage
Brushing Twice Daily	28	19.4%
Brushing once	81	56.2%
Rarely Brushing	35	24.3%
	Total	100%





For oral hygiene, data of 144 individuals were taken. In the Table, it has been represented that the people are aware about the oral hygiene and the consequence associated if the teeth are not maintained properly. The majority of the population brush at least once a day with the percentage of 56.2. School going children and females of satisfactory educational status were found brushing twice. There were also people who resort to brushing rarely only if they feel the need or had bad breath. The respondents had poor knowledge about dental floss and its techniques, periodontal diseases and carries. When askedabout liquid mouthwash, most of them were unaware and the rest of them considered it expensive and out of the budget.

Awareness of diseases and illness

Disease:

Overcrowded, substandard housing facilitates lead to the spread of infectious diseases, such as Cholera, dengue, Diarrhoea and fever. Poor sanitation and lack of access to safe food and water contribute to high prevalence of diarrhoea within the overcrowded housing.

● According to the table the prevalence of disease among these people of slums shows that, most of the people suffer from viral fever that is 25%, whereas the percentage of people suffering from diarrhoea is 20%. 5% of the people suffer from Cholera. Majority of population i.e. 50% maintain their hygiene so they are not much prone to diseases.

● Vaccination of children for hepatitis-A and B, BCG, tetanus etc., are provided by the government hospital. Vaccination card were available for most of the children and for the remaining, it was relied upon the parent's recall memory. 95% of the respondents were benefitted by the vaccination scheme programmes. These children were vaccinated at a Balrampur Hospital where as 5% were non-vaccinated.

● 83% of people believe in medical-assistance while the remaining 17% practices medico-religious activities.

Nutrition:

Nutrition is one of the major factors responsible for maintenance of health and physical fitness. The people are both vegetarian and non-vegetarian. They consume meat, eggs and fish (Magur). The vegetarian diet constitute rice, wheat and pulses like gram, tur and are very fond of soyabean. This study shows a relatively high consumption of fish and meat in the transit labour camp. It can be noticed from the above pie chart, that most of the population i.e., 58% had mixed food habit 42% were vegetarian.

Conclusion

On the basis of statistical analyses it was found that low livelihood due to illiteracwas significantly affecting the health and well-being of slum dwellers. A kind of significant relationship was observed between poor drinking water quality and health status. All these situations, including poor structural condition of sewerage system and unhygienic practices were affecting health and well-being of dwellers. There is a dire need for strategic planning of such underprivileged areas ss which should focus on the provision of basic amenities.

The study reported the status and conditions of health among the Slums of Daliganj area which was determined below average due to their low socio-economic conditions. The residents were aware about their personal hygiene as they spoke about taking bath, washing hands after defecation and before meal, brushing teeth and house cleanliness but they usually throw their household trash outside their homes which made it vulnerable to disease. The study reported on the water facility, which was provided by a water tank installed by Shalimar Company, is used for bathing, drinking and all household purposes but the water contains numerous dirt and microorganism. People even bath near the community tank and the tank is not cleaned regularly and the people have no other option than using the same source for drinking and cooking which result in many water borne diseases. As they were aware about health and hygiene but still they first used to cook food and clean their rooms. After that they were in a habit of taking bath.

References

Kothari, C.R.(2008). Research Methodology, method and Techniques. New Age International Publisher: New Delhi

Pandey, G. (2018). Anthropological Research Methodology: Theory and Practices. Concept Publishing Company

Muralidhar, K. (2006). Biology textbook for class XII: National Council of Educational Research and Training: Human Health and Disease.

Banerjee, D. (1982). Poverty, class and health culture in India. Prachi Publishing: New Delhi

Village sanitation and child health: Effects and external validity in a randomized field experiment in rural India(2016), Jeffrey Hammer/Dean Spears.

Wagh, S.R.(2015). Public health and hygiene. Success Publications.

Roday, S.(2017). Food Hygiene and Sanitation. McGraw-Hill Education publishers.

https://en.Wikipedia.Org/wiki/Health retrieved on 19 May 2023

https://en.Wikipedia.Org/wiki/Hygiene retrieved on 21 May 2023

www.WaterAidAmerica.in/_Hygiene retrieved on 23 June 2023

www.WaterAidIndia.in/_Hygiene retrieved on 23 June 2023

https://www.academia.edu/13167014/A_ retrieved on 31 June 2023

http://vikaspedia.in/health/sanitation retrieved on 19 July 2023

https://www.open.edu retrieved on 19 July 2023

https://www.healthissuesindia.com retrieved on 3 August 2023

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Nuances of Steam Education based in a Multidisciplinary Approach within The Framework of National Education Policy 2020

[*] Garima Singh, [**] Dr. Dinesh Kumar

Abstract

Education plays a very crucial role in long term prosperity, stability and sustainability of a nation. The school education system plays a pivotal role in strengthening the foundational platform in all round development of children. The introduction of a multidisciplinary approach under the overall umbrella of STEAM governed by the National Education Policy 2020 in school education aims towards a complete transformation through enhancement of life skills and creativity. The integration of STEAM based multidisciplinary approach from an early stage till secondary school stage will enhance learning outcomes by engaging students with hands on learning, fostering scientific temperament and other essential skills required to meet the demands of rapidly rising digital era. Introduction of Coding, Artificial Intelligence (AI) and Robotics into the curriculum is a complete transformation of traditional classroom into smart classroom where imparting knowledge will be more enjoyable, experiential, inquiry driven, self-directed, scientific and democratic in terms of values and nature. One of the key benefits of this educational framework is that it promotes awareness and sensitivity contributing to a more inclusive and diverse learning environment. It also directs students to identify their unique capabilities which they can further pursue in higher education. This paper attempts to explore the potential benefits of implementing the STEAM (Science, Technology, Engineering, Arts and Mathematics) framework and its implications towards the holistic development in school education.

"Ultimately, knowledge is a deep-seated treasure and education helps in manifestation as the perfection which is already within an individual."

NEP-2020

Introduction

In this rapidly transforming digital and technological era, education system needs to be enriched and equipped with 21st century skills such as creativity, collaboration, problem solving ability, scientific and digital literacy. A radical shift towards STEAM Education through multidisciplinary approach forms a transdisciplinary system that utilizes technologies such as Internet of Things (IoT), Artificial Intelligence, big data analytics, cloud computing and advanced robotics which can lead to development of a new education system (Tandon, 2020). To meet all the requirements of such a new education framework, NEP 2020 incorporates STEAM disciplines and multidisciplinary approach at various levels of education which involves academic, non-academics and vocational subjects under single umbrella. Students through STEAM based multidisciplinary approach will be able to enjoy learning process and develop contemporary knowledge and its application, critical thinking, problem solving skills, discovery and inquiry-based learning experiences.

All the aspects of the curriculum and pedagogy is identified, reoriented and revamped to acquire specific set of skills across the various domains at each stage of development (NEP, 2020). NEP-2020 envisions a holistic development through multidisciplinary in order to ensure unity and integrity of all knowledge equipped with 21st century skills.

Through a revolutionary change in current education system the National Education Policy 2020 aims to achieve all the developmental futuristic necessities of children based on creative and holistic development which advocates that education must develop higher order cognitive capacities with social, ethical, and moral dispositions.

* Junior Research Fellow, Department of Education, University of Lucknow, Uttar Pradesh, India

** Professor, Head and Dean, Department of Education, University of Lucknow, Uttar Pradesh, India

Objectives of Study

This study aims to:

1. Understand the nuances of STEAM Education.
2. Analyse various aspects of multidisciplinary approach in education within the framework of NEP-2020.
3. Study the benefits of STEAM based multidisciplinary learning approach.

Methodology

The methodology involves a conceptual study of STEAM based multidisciplinary education adopted by National Education Policy-2020.The secondary data sources are collected from various journals, internet and websites.

Factual Analysis

There are several studies on STEAM (Science, Technology, Engineering, Arts and Mathematics) education. The implementation of STEAM elements are conducted in many countries: The USA, Australia, South Korea, Canada, Thailand and Japan etc. Many of these studies have been published in academic journals, conference proceedings and various educational platforms. A study on STEAM education analysed experimentally that teachers can create a 'transdisciplinary space' in their own STEAM lessons by designing assignments that engage with multiple disciplines and thereby nourishing student ability to transfer learning in different fields of studies (Liao, 2016).

A study published in journal of Social Studies Education Research 2019 analysed the implementation of STEM and STEAM education by experimental project work carried out with school children, which resulted in use of 'creative space' and suggested that 'Art' in STEAM allows students to form skills and competencies required for 21st century (O Shatunova, 2019).

A case study was undertaken at Oxford Brooks University in June 2019 wherein a total of 19 participants took part in a workshop (4 teachers and 15 students). Students between age group of 14 to 17 years demonstrated active learning through Augmented Reality for STEAM education. This approach to classroom shows high potential for academic gains for students in their technical and artistic skill development (J Jesionkowska, 2020).

Another study examining the use of STEAM education in pre-school education in North America, both in in school: out of school context reveals that engaging children with STEAM concepts are transferable and useful in formation of basic skills for maths, science and it is also efficient in incubating valuable skills for learning any subject by enhancing scientific temperament and problem solving ability (Spyropoulou, 2020).

Under the National Education policy (NEP 2020) India, there is a strong emphasis on STEAM education to enhance creativity, critical thinking and multi-disciplinary learning leading to holistic development of students. It also prepares students for the challenges and opportunities of the future work force and foster a culture of innovation and excellence in education.

Nuances of STEAM Education

"We now live in a world where; you can't understand Science without Technology, which couches most of its research and development in Engineering, which you can't create without an understanding of the Arts and Mathematics".

Georgette Yakman

STEAM Education is an approach to learning that integrates science, technology, engineering, and mathematics that is learning across the disciplines. The STEAM disciplines cover following areas(Yakman, 2010).

a. Science subject covers Biology, Biochemistry, Chemistry, Geosciences, Physics and Space Biotechnology and Biomedicals areas.

b. Technology covers Agricultural, Construction, Communication, Information, Manufacturing, Medical, Power & Energy, Production and Transportation areas.

c. Engineering subject encapsulates Aerospace, Agricultural, Architectural, Chemical, Civil, Computer, Electrical, Environmental, Fluid, Industrial & Systems, Materials, Mechanical, Naval and Ocean engineering areas.

d. Mathematics includes Algebra, Calculus, Communication, Data Analysis & Probability, Geometry, Numbers & Operations, Problem Solving, Reason & Proof, Theory and Trigonometry.

e. Arts covers Fine Arts, Language & Liberal, Motor and Physical including; Education, History, Philosophy, Politics, Psychology, Sociology, Theology & other disciplines related to Humanities and Social Sciences.

Traditional STEM (science, technology, engineering and mathematics) only dealt with technical skills but adding 'A' acronym that is various Art disciplines in STEM bridges the gap between art and science subjects by educating the "whole child" (Connelly, 2012). Introduction of Art into the STEAM is an essential part to inculcate values and ethics by developing 4Cs-collaboration ,creativity, critical thinking and communication among students (V.Devulkar, 2021).

The Art integration in STEAM framework emphasizes on the importance of creativity and design learning process. The Art into STEAM can be accomplished by several ways:

- Incorporating Visual Arts such as drawing, painting, sculpture, and digital art into Science and Engineering projects.
- Emphasizing on the principles of Design-Thinking in problem-solving activities across all the STEAM Disciplines. It is not just brainstorming ideas but also a collaborative human centred problem-solving approach based on empathy, creativity, and iterative prototyping.
- Allowing students to express their understanding of scientific and mathematical concepts through creative projects such as musical composition, dance, theatre or multimedia presentations.
- Encouraging Cross-Disciplinary collaboration that is cooperation and partnership among students and experts from different academic or professional fields. This kind of collaborative approach will lead to innovative solutions and a comprehensive understanding of the issues at hand.

STEAM is an art integrated educational approach from interdisciplinary to transdisciplinary that cannot be defined in reference to any traditional sense of discrete disciplines (Liao, 2016). Multidisciplinary, interdisciplinary and transdisciplinary approaches in education are different ways of integrating knowledge and perspective from various disciplines to address complex issues and topics. A brief overview of each approach is as follows:

a. **Multidisciplinary Approach:** This involves studying a topic from perspective of different disciplines without necessarily integrating them. Each discipline provides its own perspective on the topic, but there is limited interaction or collaboration among the disciplines. For example this approach can enable students to learn the concept of 'Air Pollution' through different viewpoints of various disciplines such as Science, Mathematics, Social Science, Hindi, English and Art with more objectivity and comprehensive understanding of the topic.

b. **Interdisciplinary Approach:** Interdisciplinary approach involves the integration of two or more disciplines to create a unified and coherent program of study. It aims to explore the connections between different disciplines, allowing students to see how knowledge from one field can inform and enrich understanding in another. This approach also encourages collaboration and communication between the disciplines to address the complex issues.

c. **Transdisciplinary Approach:** The transdisciplinary approach goes across interdisciplinary collaboration by seeking to create new frameworks and perspectives. It forms an integrated diverse perspectives and knowledge systems, including those from outside of traditional academic disciplines, to address complex real-world problems. Transdisciplinary approach in education helps students to think holistically by engaging them with issues that require a broad range of expertise and insights.

In a study it was found that the model of STEAM provides an opportunity to the students to carry out authentic tasks which are based on real world settings. This kind of approach will lead to practical understanding and resolution of a problem at hand (Namukasa, 2020).

The STEAM Educational approach involves experiential learning through hands on learning methods such as activity and discovery-based self-directed learning which gives in depth knowledge of the concept and can be of great help in cultivating ingenious talents and boosting creativity (Kim, 2022).

In reference of STEAM Education NEP 2020 declares STEAM a cross disciplinary pedagogical approach that forms foundation for a multifaceted learning concept. It also emphasizes on experiential learning, art integrated education for creating joyful classroom learning and strengthen the linkage between education and culture (NEP, 2020) .

Multidisciplinary Approach and its Dimensions

Multidisciplinary approach is an active learning process in which any topic or concept is studied from dimensions of different disciplines with diverse perspective. Understanding of concept of pollution through multidisciplinary method can be one example. A multidisciplinary approach in education is a pragmatic way of learning which gives flexibility in defining and understanding any concept or phenomenon through the lens of multiple subjects with diverse perspective.

School curriculum and pedagogy is restructured by a 5+3+3+4 align with the developmental stages of children to promote an integrated and a holistic approach to education (NEP, 2020). There is a complete shift from conventional to comprehensive learning across the disciplines in order to recognize, identify, and foster the unique capabilities and interest of each student (NEP 2020, Section 4).

The various reforms at school stages announced by the policy are listed in table1 along with their objectives and expected outcomes.

Table 1: Stages and Expected Learning Outcomes specified by National Education Policy-2020

Stages	Learning outcomes
Foundational stage (5 years) Pre-school to class 2	Five years of flexible education for children between 3 to 8 years of age based on play way, activity, discovery-based learning with development of language skills.
Preparatory stage (3 years) Class 3 to 5	Three years of education for children between 8 to 11 years of age based on play way, activity, discovery method development of literacy and numeracy skills.
Middle stage (3 years) Class 6 to 8	Three years of middle stage education for children between 11 to 14 years of age incorporating all the disciplines along with introduction of coding to enhance experiential learning, critical thinking.
Secondary school stage (4 years) Class 9 to 12	A complete four years of multidisciplinary study with flexibility of choice of subjects to develop greater critical thinking, problem solving ability and vocational skills through project and collaborative learning.

NEP 2020 also states to reduce curriculum content to its core essential to make learning more holistic through emphasizing on the scientific temperament, innovations, creativity and life skills. The aim of introduction of 4 years of multidisciplinary education from class 9th to class 12th within school education system is to identify distinctive abilities and foster at least one set of vocational skills by the time students graduate secondary school which they can further pursue in higher education (Kumar, 2021).

This amalgamation of different disciplines in single curriculum is a comprehensive framework that provides a wide range of learning experiences. The various dimensions of Multidisciplinary approach are:

- To develop learning competencies such as critical thinking, collaboration, communication and creativity through active learning process. This kind of learning involves hands on learning where children stay focussed with high energy and enjoy achievement.
- To develop an integrated knowledge, attitude and value- based learning which includes intellectual, scientific and ethical dispositions.
- To develop multidisciplinary digital competencies which includes handling, security, application of digital devices.
- Empowering student through augmented and virtual reality learning environment.
- To develop creative problem-solving ability and computational thinking which encompasses scientific inquiry, computer programming and engineering technologies.
- To make learning transdisciplinary with varied expertise working together to address a concept, phenomenon or idea under a shared framework beyond the disciplinary boundaries.
- To develop interest and motivation to discover individual unique potential among students for lifelong learning with social and emotional wellbeing.

Benefits and Rationale of STEAM based Multidisciplinary Learning Approach

The continuous changing dynamics of the 21st century with scientific and technological innovations has led to Fourth Industrial Revolution also known as Industry 4.0 which refers to the ongoing transformation of traditional manufacturing and industrial practices through the integration of digital technologies, automation, data exchange, and advanced manufacturing techniques. In alignment with industry 4.0, education is key component in formation of a transdisciplinary system that utilizes technologies such as Internet of Things (IoT), Artificial Intelligence, Big data analytics, cloud computing and advanced robotics leading to development of Education 4.0. In order to acquire skills, knowledge and mindset necessary for this era an early intervention in school curriculum and pedagogy based on STEAM Educational approach can be a boon (Ganira, 2022). The essential components of 21st century skills are:

Figure: 21st Century Skills

STEAM Education with multidisciplinary aspects adds on human experiences by enabling students to explore variety of academic areas from science to arts and literature.

STEAM based learning is an integrated journey of education from multidisciplinary learning to inter-disciplinary then to transdisciplinary insights developing higher order cognitive abilities. This kind of pedagogical approach not only enhances the abilities of genius students but also assist every student to find freedom, happiness, satisfaction in formal educational set up.

Conclusion

The integration of STEAM based multidisciplinary approach into the school education system as outlined in National Education Policy (NEP) 2020 presents a blueprint for phenomenal reforms in teaching learning process. This educational framework has the potential to nurture an all-round development of individuals with a comprehensive skill set required to meet demands of 21st century. Furthermore, this approach implications by will not only enhances academic outcomes but also promotes social and emotional growth, there by preparing students to become self-aware, responsible and adaptable citizens. STEAM educational framework follows a stepwise purposeful strategy to gain attention and interest of students towards a knowledgeable, goal oriented meaningful learning that generates new opportunities for creativity and innovations. It will help in identifying and addressing unique capabilities within the individuals by developing 3Hs that is head(intellect), hand(skills) and heart(passion) leading to holistic development.

References

Aithal, P.S. & Aithal, Shubhrajyotsna, Importance of Arts & Design in Liberal Education STEAM Model of Higher Education (July 10, 2020). Applied Arts Science In IT Age, Edited by Dr. P.K. Paul, New Delhi Publishers, New Delhi, India. Chapter I, pp. 1-24. ISBN: 978-93-88879-90-3. (2020), Available at SSRN: https://ssrn.com/abstract=3651246

Bertrand, M.G., & Namukasa, I.K. (2020). STEAM education: student learning and transferable skills. *Journal of Research in Innovative Teaching & Learning,* 13(1), 43-56.

Ellis, J. (2016). From STEM to STEAM. *Science Education News,* 65(3), 14-18.

Government of India (2020). National Education Policy: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Government of India (2020). National Curriculum Framework for School Education: https://www.education.gov.in/sites/upload_files/mhrd/files/NCF-School-Education-Pre-Draft.pdf

Ganira, K.L., & Odundo, P.A. (2023). Experiential Learning Style Models on Implementation of Pre-Primary School Social Studies Curriculum: Systematic Review of Related Literature. *Asian Journal of Education and Social Studies,* 42(1), 9-20.

IENCE, A. (2023). Hacking hearts. LEONARDO, 56(1), 103-108.

Jesionkowska, J., Wild, F., & Deval, Y. (2020). Active learning augmented reality for STEAM education–A case study. *Education Sciences,* 10(8), 198.

Kim, S.W., & Lee, Y. (2022). Developing students' attitudes toward convergence and creative problem solving through multidisciplinary education in Korea. *Sustainability,* 14(16), 9929.

Kumar, A. (2021). New education policy (NEP) 2020: A roadmap for India 2.0. *University of South Florida M3 Center Publishing,* 3(2021), 36.

Lary, M.J., Lavigne, S.E., Muma, R.D., Jones, S.E., & Hoeft, H.J. (1997). Breaking Down Barriers: Multidisciplinary Education Model. *Journal of Allied Health,* 26(2), 63-69. http://www.jstor.org/stable/45442078

Singh, M. (2021). Acquisition of 21st century skills through STEAM education. *Academia Letters,* 2, 712.

Liao, C. (2016). From interdisciplinary to transdisciplinary: An arts-integrated approach to STEAM education. *Art Education,* 69(6), 44-49.

Shatunova, O., Anisimova, T., Sabirova, F., & Kalimullina, O. (2019). STEAM as an innovative educational technology. *Journal of Social Studies Education Research,* 10(2), 131-144.

Shi, S.T.K., & Foen, N.S. (2022). Arts Element in STEAM Education: A Systematic Review. INSANIAH: *Online Journal of Language, Communication, and Humanities.*

Spyropoulou, C., Wallace, M., Vassilakis, C., & Poulopoulos, V. (2020). Examining the use of STEAM Education in Preschool Education. *European Journal of Engineering and Technology Research.*

SSRN: https://ssrn.com/abstract=3863 Devulkar, Chittaranjandas V., Inculcating Values and Ethics among Students through Steam Education (2021). *International Journal of Multidisciplinary Research and Explorer* (IJMRE) May-2021, Available at 010

Tandon, R., & Tandon, S. (2020). Education 4.0: A new paradigm in transforming the future of education in India. *International Journal of Innovative Science, Engineering & Technology,* 7(2), 32-54.

Yakman, G. (2010). What is the point of STE@ M?–A Brief Overview. Steam: A Framework for Teaching Across the Disciplines. *STEAM Education,* 7(9), 1-9.

Yakman, G. (2012). Recognizing the A in STEM Education. *Middle Ground,* 16(1), 15.

Yakman, G. (2010). What is the Point of STEAM? *A Brief Overview of STEAM Education,* 2016-05-12]. https://www. academia. edu/8113832/What_is_the_Point_of_STEAM_A_Brief_Overview_of_STEAM_Education.[ll] JOLLY A. STEM vs. STEAM: do the Arts belong, 201612-11.

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Weaving Threads of Culture: Sustainability Challenges and Innovations among Banarasi Saree Artisans of Banaras

*Dr. Indira Srivastava, **Nirmalika Singh

Abstract

The Banarasi saree, a symbol of timeless elegance and cultural heritage, stands as a testament to the artistry of the weavers in the holy city of Varanasi, India. This ancient craft has been passed down through generations, intertwining threads of culture, tradition, and sustainability. However, the Banarasi saree industry faces formidable sustainability challenges in the 21st century. Rapid urbanization, the influx of power looms, and changing consumer preferences have threatened the livelihoods of traditional artisans. In response to these challenges, Banarasi saree artisans are weaving innovative solutions into their craft. The fusion of tradition and innovation is not only preserving the rich cultural heritage of Banaras but also ensuring the survival of the Banarasi saree industry in a rapidly changing world. This study explores the intricate tapestry of culture and sustainability within the traditional craft of Banarasi saree weaving in the historic city of Banaras, India. Through in-depth ethnographic research, it sheds light on the unique challenges faced by the artisans in preserving their cultural heritage while navigating contemporary sustainability concerns. The study is based on primary data collected through extensive fieldwork and interviews conducted in Banaras. The findings of this research shed light on the intricate interplay between tradition, culture, sustainability, and innovation in the context of one of India's most iconic textile traditions.

Introduction

Weaving threads of culture among Banarasi saree artisans implies the preservation and promotion of the rich cultural heritage, traditions, and craftsmanship within the community of Banarasi saree weavers. It emphasizes the importance of passing down traditional techniques, designs, and values from one generation of artisans to the next, ensuring the continuation of this unique and culturally significant art form. India's heritage city is Varanasi. Varanasi is renowned for its art, handicrafts, handloom weaving, particularly the Banarasi and Zari brocades, Tanchui, Munga, and other silk items. The demand for products made from banarasi silk is rising steadily around the world and is particularly well known in India. The handloom business is constantly the center of attention for everyone, including the print and electronic media as well as political leaders. After agriculture, the textile industry was crucial to Uttar Pradesh's economy. Both the textile industry itself and its supporting manufacturing facilities offer plenty of job possibilities. The state's development can be greatly aided by the labor-intensive textile sector. It is an acknowledged fact that Uttar Pradesh provides an extremely high percentage of skilled, semi-skilled and unskilled workers to textile units across the country. Despite strong competition from mill made textiles, the hand loom products are still in demand to a great extent. Weavers are the strong pillar of hand weaving but they are facing lots of problem (Khanna, 1989). According to 4th All India Handloom Census 2019-2020, total number of handloom worker households is 31,44,839. However number of handloom worker households as per 3rd Handloom Census of India 2009-2010 was 27,83,271. As per 3rd handloom census: Average earning of Handloom Households (Rs/Annum, 2009-10): Rs. 36498 (i.e. Rs. 3042 per Month). According to the 3rd Handloom Census it was estimated that 99% of all weaver households earned less then Rs 5000 per month, but as per 4th handloom census more than 67.1% weavers earning less than 5000 in a month, 26.2% weavers earning between 5000-10000 in a month , 4.5% weavers earning between 10000-15000 per month and 2.2% weavers earning more than 20000 per months. Further, to promote handloom sector, the Office of the Development Commissioner for Handlooms, Ministry of

* Associate Professor, Department of Sociology, Ishwar Sharan Degree College, University of Allahabad
* Research Scholar, Department of Sociology, Ishwar Sharan Degree College, University of Allahabad.

Textiles, is implementing the following schemes across the country:- National Handloom Development Programme (NHDP), Comprehensive Handloom Cluster Development Scheme (CHCDS), Handloom Weavers' Comprehensive Welfare Scheme (HWCWS), Yarn Supply Scheme (YSS). (3rd & 4th all India handloom census)

The Banarasi saree is a quintessential symbol of Indian culture and craftsmanship, renowned for its opulence, intricate designs, and timeless elegance. These sarees originate from the city of Varanasi, formerly known as Banaras, in the northern state of Uttar Pradesh, India. They hold immense historical, cultural, and economic significance. Dating back to ancient times, Banarasi sarees have been a part of Indian attire for over 2000 years. They are deeply intertwined with the rich heritage and traditions of Varanasi, a city revered as the spiritual and cultural heart of India. The art of weaving Banarasi sarees has been passed down through generations, making it an integral part of the region's socio-economic fabric (Harnetty, 1991). The Banarasi saree is renowned for its craftsmanship, characterized by intricate zari work, intricate motifs, and luxurious fabrics like silk and brocade. These sarees are often adorned with motifs inspired by Mughal architecture, nature, and historical themes. The zari threads used in Banarasi sarees are made of pure gold or silver, adding to their exclusivity and value. Weavers, often referred to as "karigars," are the artisans behind these exquisite creations. They play a pivotal role in preserving and perpetuating the Banarasi tradition. The painstaking process of weaving a Banarasi saree involves meticulous attention to detail, with each saree taking weeks, if not months, to complete. The skills required for this craft are handed down through families, and weavers take great pride in their work, considering it a matter of heritage and identity. The Banarasi saree industry is not just a cultural treasure but also a vital economic lifeline for Varanasi. Thousands of families depend on the production of these sarees for their livelihood. However, the industry has faced challenges in recent years due to changing consumer preferences and competition from mass-produced textiles. Efforts are being made to revitalize the Banarasi saree tradition, promote ethical practices, and ensure fair wages for the weavers (Singh, 2018). The Banarasi saree industry, deeply rooted in the heritage of Varanasi (Banaras), faces a range of sustainability challenges. Firstly, environmental concerns arise due to the extensive use of natural resources like water and electricity in the production process. Dyeing and weaving processes, in particular, contribute to water pollution. Another challenge is the exploitation of labor. Many artisans work in subpar conditions, receiving inadequate compensation for their skilled craftsmanship. This leads to both social and economic sustainability issues within the community. However, there are promising innovations and initiatives aimed at addressing these challenges. The adoption of eco-friendly dyeing techniques using natural dyes is gaining momentum, reducing the environmental impact. Moreover, some organizations are advocating for fair wages and improved working conditions for the artisans. Furthermore, digital platforms and e-commerce have opened up new markets for Banarasi sarees, increasing artisans' access to a global customer base (Tanusree, 2015). This not only enhances economic sustainability but also helps preserve the traditional art form. Therefore, the Banarasi saree is more than just a piece of clothing; it is a symbol of India's rich cultural heritage, a testament to the skilland dedication of its weavers, and a source of livelihood for many. Preserving this tradition is not only essential for its historical and cultural value but also for the well-being of the artisans who bring these exquisite creations to life. while sustainability challenges persist in the Banarasi saree industry, innovations in eco-friendly practices, fair labor initiatives, and digital market access are steps gin the right direction. These efforts not only help protect the environment but also ensure the well-being and longevity of this cherished cultural heritage (Srinivasulu, 1994).

Historical Background

Weavers in Varanasi were initially employed in the production of cotton sarees. But Varanasi first encountered silk in the early seventeenth century, when traders from Murshidabad (now in West Bengal) arrived (Malley, 1997). The royal gown, blanket, and other silk items were particularly popular with these traders. Varanasi weavers begin creating silk sarees instead of cotton ones to meet the demand of traders. As they weave many Banarasi sarees like the Banarasi jangla dupatta, Banarasi meena, and Banarasi cali, weavers in Varanasi are referred to as Bunkar or Karigars. They are also well known for being the handloom weavers of legend. The place where they weave sarees is called as Karkhana (Roy, 2002). Around fifty years ago, the term "weaver" in Varanasi only applied to Muslim weavers. Today, however, the definition of a weaver has changed to include both Hindu and Muslim weavers. Muslim weavers teach all different kinds of weaving techniques to Hindu weavers who are from the underprivileged classes, scheduled castes, and scheduled tribes. The majority of Varanasi's handlooms are found there. Hindu bunkars typically commute everyday from their homes to where they weave in the morning and back in the evening. Muslim weavers didn't commute like Hindu weavers because they lived near to where they worked. The ratio of Muslim and Hindu weavers in Varanasi is 75:25 (Niranjana, 2004).

Literature Review

Many academics have expressed interest in learning more about the issues the handloom sector is facing in light of the handloom industry's current state of decline. The handloom industry's problem was explored by Narsaiah and Krishna (1999). According to this report, the handloom business has a difficulty with inadequate financial resources and inconsistent yarn supply. As a result, the cost of raw materials rises annually, and handloom cloth is now more expensive than power loom cloth. The primary issues, according to Gurumoorthy and Rengachary (2002), are the lack of input, inadequate working capital, handloom product price, the buildup of enormous stock, and the marketing of handloom goods. In his study, Roy (2002) made an effort to address the issues of productivity and competition facing the handloom sector. According to the study's conclusion, the handloom sector can only remain viable if two conditions are met: first, there must be a market for traditional goods, and second, there must be favorable government policies for handlooms. The weavers in the Ramanathapuram District, according to Mathiraj and Rajkumar (2008), are dealing with production-related issues like a lack of competent workforce and instability in yarn price. He also made solution that innovative pattern of production, moderate cost, sales design and modernization of handloom can be solved the crisis situation of the handloom weavers. The deplorable conditions of weavers and their shortcomings brought on by their lack of education, financial restraints, marketing bottlenecks, and government support. Shailaja and Amrita Singh (2009). Due of the dire socioeconomic situations, the handloom weavers in Banaras, who have inherited this profession, are in a pitiful state. The majority of them are wage weavers who put in more than ten hours a day of labour for minimum pay. Nearly 50% of the residents belonged to the middle income category and worked as master weavers or in cooperative societies (Singh, 2014). The handloom weavers of Varanasi have lost their prestigious traditional industry. It has occurred due to the industrialization in all over India. The handloom is being phased out by capitalist manufacturing, the development of the power loom, rising yarn prices, poor salaries, and labor issues. One particular business class, the Gaddidar or master weaver, controls the industrial chain to a large extent (Tanusree 2015). Over the years, there has been a continuous deterioration in the handloom sector and the industry as a whole. Despite a very illustrious background and enormous potential for job creation, this business currently faces a wide range of issues. The crisis is caused by inadequate project implementation and growing unfair competition from the power loom and mill sectors (Rao and Kumar, 2018). In light of the aforementioned, the investigator had the idea to thoroughly look into the current circumstances of the hand loom weavers. According to Rao and srinivash (2019), in Varanasi, it is estimated that 20% of weavers are still working on handlooms, compared to 80% who are employed by powerlooms.

Research Methodology

One of the largest handloom centers, the Varanasi district in Uttar Pradesh, is where the current study was carried out. This study employed a descriptive research design. Purposive random sampling was used to choose the samples for this study. For the study, a total of 120 respondents were chosen. The respondents ranged in age from 16 to 68. The Varanasi district's Bajardiya and Lallapura (renowned for weaving) localities were chosen for the responders of both sexes. To gather data for the study, the questionnaire was created with both closed- and open-ended questions. Direct interviews with respondents served as the primary data sources for the current study. Information was gathered via a questionnaire. Data were translated into tabular form after data collection. The information gathered through the use of a questionnaire was categorized, collated, and subjected to proper statistical methods of analysis. The questionnaire's responses were sorted and categorised in accordance with various research questions. To evaluate the tabulated data, frequency, percentage, and X2 approaches were employed. The main objective of this research is to find out Sustainability Challenges and Innovations among Banarasi Saree Artisans of Banaras.

Results and Discussion

Demographic profile of the respondent

Table-1: Demographic profile of the respondents

Titles	S No.	Category	Number	Total	Percentage	Total
Age	1.	Below 18	22	120	18.33%	100%
	2.	18-30 age	43		35.83%	
	3.	Above 30	55		45.83%	
Sex	1.	Male	89	120	74.16%	100%
	2.	Female	31		25.83%	
Religion	1.	Hindu	45	120	37.55%	100%
	2.	Muslim	75		62.5%	
Caste	1.	General	16	120	13.33%	100%
	2.	Obc	67		55.83%	
	3.	Sc	37		30.83%	
Marital Status	1.	Married	62	120	51.66%	100%
	2.	Unmarried	47		39.16%	
	3.	Divorced/ Widow/Widower	11		9.16%	

Demographic profile of the respondent is shown in Table 1, it was found that, the 74.16% weavers were male whereas 25.83% of the weavers were female. A large proportion of male weavers are engaged in handloom weaving. The marital status of the weavers was studied and it was found that, 9.16% of the weavers were widow/widower or divorced and 51.66% of the weavers were married whereas 39.16% were still un-married. Table 1 also shows the Age gape betweet weavers. The range is between 16 to 63 years, but maximum respondent is above 30 age group, 45.83%, 35.83% was under 18-30 age group and 18.33% was below 18 age respondent. Among 120 respondent 62.5% respondent is muslim and only 37.55% are hindu. So as we can say mostly weavers are from muslim community as it is for caste category maximum respondent are from OBC category, 55.83% and 30.83% are from SC community and only 13.33% respondents are from general category. So that we can say maximum weavers are from lower caste.

Type of family and house of respondent

Table-2: Types of family and house of respondent

Titles	S.No.	Category	Number	Total	Percentage	Total
Types of family	1.	Joint	72	120	60%	100%
	2.	Nuclear	48		40%	
Family Size	1.	2-4 member	13	120	10.83%	100%
	2.	4-6 member	43		35.83%	
	3.	Above 6 member	64		53.33%	
Types of house	1.	Kachha makan	16	120	13.33%	100%
	2.	Pakka makan	49		40.83%	
	3.	Mix of both	55		45.83%	
Ownership of house	1.	Own	73	120	60.83%	100%
	2.	Rented	47		39.16%	

The type of family and family size and house and house ownership type of respondents was presented in table 2. Table shows that majority of respondents (60%) had joined family, 40% respondents had nuclear family. Than Table shows that 53.33% respondents has above 6 members in their family, 35.83% respondents had 4-6 members in their family and only 10.83% respondents had 2-4 members in their family. So we say maximum family of weavers had joint family. This table also shows that majority of respondents (45.83%) were living in Kachha-Pakka mix house, 40.83% respondents had Pakka house and 13.33% respondents had kachha house. It also revealsthat majority of respondents (60.83%) were the owner of their house and rest of them (39.16%) were living in rented house.

Monthly income and socio-economic status of the respondent

Table -3: Monthly income and socio-economic status of the respondent

Titles	S.No.	Category	Number	Total	Percentage	Total
Monthly Income	1.	Below 5000	33	120	27.5%	100%
	2.	Between 5000-15000	53		44.16%	
	3.	Between 15000-25000	20		16.66%	
	4.	Above 25000	14		11.66%	
Socio-economic status	1.	Lower	76	120	63.33%	100%
	2.	Middle	44		36.66%	
	3.	Upper	-		-	

The table 3 shows monthly income and socio-economic status of the respondent. Its represent that majority of respondents (44.16%) had 5000 to 15000 monthly income while 16.66% respondents had monthly income between 15000 to 20000. 11.6% respondents had monthly income between 10001 to 20000, only 11.66% respondents had more than 25000 monthly income and 27.5% respondent had below 5000 monthly income, which is very worrying. On this basis futher the table shows socio-economic status of respondents, that shows majority of respondents 63.33% had lower socio-economic status. 36.66% had middle socio-economic status and no one respondent had upper socio-economic status, which shows that weaver is living a very miserable life.

Religion wise distribution of respondents on the basis of their educational status

Table-4: Religion wise distribution of respondents on the basis of their educational status

Educational Status	Religion					
	Hindu		Muslim		Total	
	Number	Percentage	Number	Percentage	Number	Percentag
Illiterate	16	35.55%	21	28%	37	63.55%
Primery	18	40%	43	57.33%	61	97.33%
Inter and Above	11	24.44%	11	14.66%	22	39.1%
Total	45	37.5%	75	62.5%	120	100%

X2 value calculated= 3.52 df=2 significance level=0.9

Table no. 4 shows that religion wise distribution of the respondents. The table shows that among the 37.5% of Hindu respondents 24.44% were having educational qualification of inter and above followed by 40% of Hindu respondents were having primary to high school while 35.55% of Hindu respondents were illiterate. The table also shows that among the 62.5% of Muslim 63.55% were illiterate. 57.33% of Muslim respondents were having educational qualification of primary to high school while 14.66% ofrespondents were having educational qualification of inter and above. X2 value calculated is 3.52 and X2 tabular value is 0.211 for the significance level= 0.9 and if df= 2 than the statistical test X2 shows that there was significant differance among educational status and religion.

Problem faced in weaving

Table-5: Problem faced in weaving by the respondents

Problem faced in weaving	Number	Percentage
Electricity	4	3.33%
Marketing and Selling	7	5.83%
Low Wages	12	10%
Competition with power loom	6	5%
Financial and loan problem	5	4.16%
Health problems	4	3.33%
All of above	82	68.33%
Total	120	100%

Table 5 shows the problem faced by handloom weavers during weaving. It was found that the weavers had multiple problems like 3.33% respondent had electricity problem, 5.83% respondent had marketing and selling problem, 10% respondents had low wages problem, 5% respondent fill competition with power loom, 4.16% had financial and loan related problems, 4% weavers had health related many problems like low eye power, weakness etc. along with that maximum respondent had all of above problem combinedly, 68.33%.

New Innovation in weaving

Table-6: New Innovation in weaving by the respondent

New Innovation in Weaving	Number	Percentage
Helped by government yojna	23	19.16%
Loan/Financial support	29	24.16%
Online Markting	37	30.83%
New weaving machine	15	12.5%
All of above	16	13.33%
Total	120	100%

Table-6 shows new innovation in weaving those helped the respondent. It was found that 30.83% respondent helped by online mareting, through which they sell their sarees and other products themselves and earn profit. 24.16% respondent have received financial help, get loan easily from bank. 19.16% respondent helped by government yojna like MGBBY, NHDP etc and 12.5% respondent found helped with new weaving machine and 12.33% respondent helped by all of above. From which we come to know that the condition of weavers is improve a little but there is still more work to be done to improve it.

Findings

1. The findings of present study reveals that majority of respondents (45.83%) above 30 age group.
2. Majority of respondents are male, 74.16%.
3. Majority of respondent are belongs to muslims community, 62.5%.
4. Majority of respondent are belongs to lower caste category, 55.83% were obc and 30.83% are sc.
5. Majority of respondent are married, 51.66%.
6. The study shows that 60% respondent lived in joint family, with more than 6 members (53.33%).
7. Majority of respondent have kachha-pakka mix makan, 45.83%, this is there ancestral home, 60.83%.
8. The study shows that maximum of respondent monthly income in between 5000-15000 (44.16%) and 27.5% respondent had below 5000 monthly income. That's why the belongs lower socio-economic ststus, 63.3%. only 36.66% of respondents are belong to middle class and no one is belong to upper class.
9. The findings of present study reveals the educational status of hindu and muslim respondent. 24.44% of hindu respondents had inter level educated, while 40% primary level and 35.55% are illiterate, the other side only 14.66% muslim respondent are inter level educated and 57.33% are primery and 28% are still illiterate. The statistical test X2 shows that that there was a significant difference among educational status and religion.
10. The study shows that respondent faced many problems in weaving like 3.33% in electricity, 5.83% in marketing and selling, 10% in low wages, 5% in competition with power loom, 4.16% in financial problem, 3.33% in health issue and 68.33% faced all of above problems.
11. The study finds that respondent uses new innovation in the weaving, from which they are getting help, like 19.16% respondent helpd by government yojna, 25.16% finf financial support, 30.83% had online marketing, 12.5% helped in new weaving machine and 13.33% helped by all of above.

Suggestions

There are some suggestions for improving lifestyles and promoting innovation in the weaving community in Banaras:

- **Skill Enhancement Programs:** Organize training and skill development programs to enhance the weaving techniques and craftsmanship of the weavers.
- **Access to Modern Tools:** Provide weavers with access to modern weaving tools and machinery to increase efficiency and productivity.
- **Design Workshops:** Organize design workshops to encourage weavers to experiment with new patterns, colors, and designs to meet contemporary market demands.
- **Market Access:** Create avenues for direct market access, including online platforms, to help weavers sell their products directly to consumers, reducing middlemen's influence.
- **Financial Support:** Establish micro-credit facilities and financial support systems to help weavers invest in better equipment and materials.
- **Quality Control:** Implement quality control measures to ensure that Banarasi products maintain their reputation for excellence.
- **Promotion of Sustainable Practices:** Encourage eco-friendly weaving practices to meet the increasing global demand for sustainable textiles.
- **Collaboration with Designers:** Foster collaboration between weavers and fashion designers to create contemporary designs that appeal to a wider audience.
- **Heritage Tourism:** Promote Banaras as a cultural and weaving heritage tourism destination, attracting tourists interested in witnessing the weaving process.
- **Health and Welfare:** Provide healthcare and welfare programs for weavers and their families to improve their overall quality of life.

By implementing these suggestions, the Banaras weaving community can not only preserve its rich tradition but also thrive in the modern world by embracing innovation and sustainable practices.

Conculsion

In conclusion, the research paper "Weaving Threads of Culture: Sustainability Challenges and Innovations Among Banarasi Saree Artisans of Banaras" sheds light on the intricate tapestry of challenges and innovative solutions faced by the skilled artisans of Banaras. These weavers, who have been preserving and propagating the centuries-old tradition of Banarasi saree weaving, are confronted with multifaceted sustainability challenges that have profound implications for their craft, livelihoods, and cultural heritage. Throughout the paper, we have examined the environmental, economic, and socio-cultural dimensions of sustainability within the context of Banarasi saree production. Environmental concerns, such as the depletion of natural resources and the ecological footprint of traditional dyeing processes, underscore the urgent need for sustainable practices. Moreover, economic vulnerabilities, including fluctuating market demand and financial instability, have left these artisans in precarious situations. The social dimension of sustainability highlights the importance of preserving the unique cultural heritage of Banaras, which is intricately interwoven with the art of saree weaving.

Despite these challenges, the paper also highlights the remarkable spirit of innovation and resilience exhibited by Banarasi saree artisans. From adopting eco-friendly dyeing techniques to diversifying their product range to cater to contemporary tastes, these artisans are actively seeking solutions to sustain their craft and communities. The paper showcases various initiatives and partnerships that have contributed to their empowerment and socio-economic development. As we conclude, it is evident that the sustainability of Banarasi saree weaving is not only a local issue but also a global concern. Preserving this art form is not just about safeguarding a cultural treasure but also about addressing broader sustainability challenges that resonate with our interconnected world. The case of Banaras serves as an inspiring example of how tradition and innovation can coexist, offering valuable lessons for similar artisan communities worldwide.In essence, "Weaving Threads of Culture" underscores the urgency of supporting and safeguarding the cultural and economic legacy of Banarasi saree artisans. It calls for collaborative efforts between government bodies, non-governmental organizations, and the global community to ensure the sustainability of this ancient craft. By weaving together threads of tradition and innovation, we can hope to create a future where Banarasi saree artisans thrive, and their invaluable heritage endures for generations to come.

References

Annual Report of Ministry of Textile. (2010-11) Retrieved from http://texmin.nic.in/annualrep/ar_10_11_english.pdf.

Census of India, (2011), http://www.censusindia.gov.in/2011census/PCA/PCA Highlights_file/India/Chapter-1.pdf.

Goswami O., (1990) Sickness and Growth of India's Textile Industry: Analysis and Policy Option, *Economic and Political Weekly,* 25(44), 2429-2439

Gurumoorthy T.R. & Rengachary R.T. (2002), Problems of Handloom Sector, In Soundarapandian. M (Eds.), Small Scale Industries: Problems. New Delhi: *Concept Publishing House,* 1, 168-178

Haynes E.D., (2001) Artisan Cloth-Producers and the Emergence of Powerloom Manufactur in Western India 1920 -1950, Past and Present. Published by: *Oxford University Press on behalf of The Past and Present Society,* 172, 170-198

Harnetty P. (1991), Deindustrialization' Revisited: The Handloom Weavers of the Central Provinces of India, 1800-1947. *Modern Asian Studies,* Cambridge University Press, 25(3), 455-510

Khanna S. (1989), Technical Change and Competitiveness in Indian Textile Industry, *Economic and Political Weekly,* 24 (34), M103-M111

Mathiraj S.P. & Raj Kumar P. (2008), Analytical study on Handloom products production and marketing, *Tamilnadu Journal of Cooperation,* 69-73

Mizuno K. (1996), Rural Industrialization in Indonesia: A Case Study of Community-based Weaving Industry in West Java, Occasional Paper Series, Tokyo: *Institute of Development Economies,* 31, 114

Mukund K. (1992), Indian Textile Industry in 17th and 18th Centuries: Structure, Organisation and Responses, *Economic and Political Weekly,* 27(38), 2057-2065

Narasaiah L. & Krishna T. (1999), Crisis of Handloom Industry. New Delhi: Discovery Publishing House.

Niranjana S. (2004), Thinking with Handlooms: Perspectives from Andhra Pradesh, *Economic and Political Weekly,* 39(6), 553-563

Roy T. (2002), Acceptance of Innovations in Early Twentieth-Century Indian Weaving, *The Economic History Review New Series,* 55(3), 507-532.

-----------(2002)., Development or Distortion? Powerlooms in India 1950-97, *Economic and Political Weekly,* 33(16).

----------- (1999), Growth and Recession in Small-Scale Industry: A Study of Tamil Nadu Powerlooms, *Economic and Political Weekly,* 34(44), 3137-3145.

Srinivasulu K. (1994), Handloom Weavers' Struggle for Survival, *Economic and Political Weekly,* 29(36), 2331-2333.

Singh, S. (2018). Handloom Entrepreneurship and Government Intervention- A Case Study of Varanasi. *Pacific Business Review Internat.,* 10 (9): 125-133.

Shaw Tanusree (2015). A Study of the Present Situation of the Traditional Handloom Weavers of Varanasi, Uttar Pradesh, India. *International Research Journal of Social Sciences,* Vol. 4(3), 48-53

Singh, A & Naik I.S.D.(2009). Status of Banaras weavers: A profile. *Karnataka Journal of Agricuiture Science,* 408-411. Available at: http://www.i3s.net.in/uploads/pdf/Resources/Status of Banaras weavers: A profile.pdf.

Singh S.N. *et al.* (2011). Fading Colours of a glorious Past: A Discourse on the socio-economic dimensions of marginalized Banarasi sari weaving community. *Socio-economic Voice,* 1-13. Available at: http://www.indiastat.com article/38/singh/fulltext.pdf

Saraswati, B. (1978). Sacred complexes in Indian cultural Traditions. *Eastern Anthropologist,* 80-95.

Singh S.N. *et al.* (2011). Fading Colours of a Glorious Past: A Discourse on the Socio-economic dimensions of marginalized Banarasi sari weaving community. *Socio-economic Voices,* 1-13. Available at: http://www.indiastat.com/article/38/singh/fulltext.pdf (Accessed on 20 Oct., 2014)

Singh S.N. *et al.* (2011). Fading Colours of a Glorious Past: A Discourse on the Socio-economic dimensions of marginalized Banarasi sari weaving community. *Socio-economic Voices,* 1-13. Available at: http://www.indiastat.com/article/38/singh/fulltext.pdf (Accessed on 20 Oct., 2014)

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Identification of Educational Problems of Secondary School Students during Covid-19 Pandemic

*Mukesh Kumar, **Dr. Sesadeba Pany

Abstract

The purpose of this research work was to identify the educational problems faced by secondary school students in rural areas during the COVID-19 pandemic. All the male and female secondary school students in Ghudda village of Bathinda district of Punjab constituted the population of the study. The sample of this study was made up of a total 200 male and female secondary school students of Ghudda village who were selected through a volunteer sampling technique. The study was of a descriptive type, and a self-developed questionnaire was used for data collection. Data were collected through personal visits. Then it was organized, tabulated, and analyzed. The result of the study shows that the majority of secondary school students (88%) are facing educational problems during the COVID-19 pandemic. The study also revealed that there is a number of problems that affect the education of secondary school students during the COVID-19 pandemic. These are: (a) Admission related problem, (b) Fee-related problem, (c) Online class-related problem, (d) teaching methods-related problem, (e) Internet connectivity problem, (f) Device unavailability problem, (g) Health-related (Headache and eye pain) problem, (h) Money problem for data pack recharge and (i) Problem in learning due to work of the home. Based on the findings, it was recommended that school management remains in touch with parents and children in order to provide necessary information on time. To overcome the problems of device availability, the government should take the initiative to provide learning devices such as mobile phones, tablets and laptops etc.

Introduction

The whole world is witnessing a very tough time in fighting with an invisible enemy, the novel coronavirus (COVID-19). The coronavirus disease originated from China in December 2019 and is spreading rapidly across the globe. On January 8th, 2020, this virus was officially declared as the causative pathogen of COVID-19 by China's Centers for Disease Control and Prevention (Li & Meng, 2020). With its continuous pandemic in numerous nations and territories, it has created a worldwide health concern (Rodriguez *et al.,* 2020; Phelan *et al.,* 2020).

The Novel coronavirus has spread all over the world. It made it necessary for human society to preserve social distance. It has a universal impact on teaching and learning around the world, from primary to higher education, technical and vocational education and training institutions, universities, and skills development institutions. The coronavirus has impacted negatively on the education system, which is a key determinant of a country's economic development and progress. The global education system has drastically changed during the last ten months of the year 2020, and now it is an emergent focus of debate worldwide. In March 2020, many countries enforced a lockdown to control the spread of this deadly virus. It affected National and International education negatively. School closures were endorsed in most countries in diverse settings. As a result of this, classes were halted and all school, college, and university examinations, including entrance exams, were postponed indefinitely. Some institutions are in favour and some are against it, leading to fear and confusion among the student community. Thus, the lockdown destroyed the schedules of every student. Educational institution closures restrict the provision of essential services to children, families and communities, including access to nutritious food, affect the ability of many parents to work and increase the risk of violence against women and girls. It also put young girls and women at risk of child marriage, early pregnancy, and gender-based violence, all of which reduce their chances of continuing their education (GPE, 2020). Most educational institutions around the world moved to remote

* PhD Research Scholar, Department of Education, Central University of Punjab, Bathinda, Punjab, India-151401
** Assistant Professor, Department of Education, Central University of Punjab

learning and teaching in March 2020 in an attempt to control the spread of coronavirus. The home confinement and social distancing measures have completely changed the educational setting from traditional methods to virtual methods of teaching and learning.

Review of Related Literature

During the COVID-19 epidemic, online teaching has enabled many students to continue teaching and learning without interruption. This epidemic crisis is the cause of widespread use in online education globally. During the closure of schools, disparities related to various socio-economic conditions have also increased. These disparities have increased mainly for the following reasons: (i) a lack of resources, such as access to educational technology and the Internet; and (ii) a lack of physical places to conduct home-based learning among low-income families who lack the fundamental skills to help their children, particularly in secondary school (Bol, 2020; Thomas & Rogers, 2020; Doyle, 2020). There is some evidence that school closures might result in considerable educational losses, particularly for rural children (Eyles, *et al.,* 2020). Such discrepancies are even more obvious in underdeveloped nations because the majority of pupils do not have access to the Internet or suitable learning settings (Owusu-Fordjour, Koomson, & Hanson, 2020). India has also experienced similar problems. Yusuf (2020) proposes that universities provide more suitable e-learning platforms to boost Internet access and build an interactive learning strategy to solve these challenges. Furthermore, seminars or training for instructors and students to improve their technological and pedagogical skills in online learning is required. When it comes to emergency remote education, the issue of inclusiveness is crucial.

The benefits and drawbacks of adopting online learning in Pakistani medical and dentistry institutions have been examined (Mukhtar, 2020). This study reveals that online teaching learning was a flexible and effective resource that allows learners to become self-directed learners, although there were also drawbacks connected to the incapacity to teach and learn practical and clinical work. Another point of contention was the absence of rapid feedback for pupils. In response, the authors suggested that faculty be trained and that lesson plans be developed with less cognitive load and more interactivity. According to Verawardina *et al.* (2020), clear steps in implementing online learning must be taken, including preparing facilities, offering updated technological training, giving directions to instructors and students, providing interactive multimedia resources matched with the current curriculum, and guaranteeing an evaluation system with a question bank.

This epidemic may accelerate some modifications in educational models depending on the benefits and drawbacks of learning technologies. According to Thomas and Rogers (2020), school-provided IT systems are typically excessively costly, inconvenient, and soon go out of date. They advocate for the use of personal gadgets in classrooms. They also suggest that politicians promote and incentivize firms to create interesting and impactful educational games and learning environments. Gamification of education will increase children's interest and curiosity. Eder (2020) also proposes utilizing television or radio to reach learners who do not have access to the Internet. However, this takes time to develop and produce content. Furthermore, to avoid the problem of the digital divide during the present crisis, some nations have used various modalities for online learning. New Zealand, for example, has taken a hybrid approach, delivering instructional information via two television channels, as well as an Internet distribution and a hard-copy curriculum resource. Due to inadequate Internet access in Queensland (Australia), television has been utilized to engage parents so that they may aid their children in learning. Due to a collaboration between schools and post office services in Portugal, hard-copy teaching resources have been sent to children's homes in a reasonable timeframe (Hodges *et al.,* 2020). Punjab Government has also distributed smartphones to Class 12 students of government schools who cannot afford to attend online classes during the coronavirus lockdown. The initiative to distribute mobile phones to students of Class 12 was introduced to facilitate seamless e-learning during the COVID-19 pandemic (India Today, August 6, 2020).

Rationale of the Study

The pandemic situation forced the country to close all schools and colleges for an uncertain period of time. For that reason, the working of the whole education system of the country has been stopped. To overcome the above limitations, every educational institution shifted its teaching-learning process from traditional mode to online mode. Closed schools have affected 94 percent of the world's students, with percentages as high as 99 percent in low- and lower-middle-income countries. School closures have impacted 94 percent of the world's student population, with rates as high as 99 percent in low- and lower-middle-income nations. The closure of schools and universities has also made education uncertain at all levels (Sahi *et al.,* 2014). Such a lockdown has been reported to have affected India's poor and migrant class far more disproportionately than others.

Due to the Covid-19 outbreak, classroom teaching and learning activities have been halted. Online teaching learning platforms have given a new road to normalcy for both students and teachers. It's encouraging to note that, in order to prevent the academic loss, not only metropolitan educational institutions but also government schools in rural regions have gone digital and turned to online classes. Although not every village and town in India has the infrastructure to support online education, it is heartening to see many rural schools and institutions fully embrace e-learning in recent times. Furthermore, a multilingual platform is being developed by a number of low-cost and low-bandwidth e-learning solutions in rural India to make online learning sessions easier and more pleasant. During the pandemic, the country's educational system underwent a paradigm change in favour of online learning. This dramatic and rapid shift from a traditional classroom to a virtual learning environment has created difficulty for rural students who want to learn online. By mid-April, the epidemic had touched 1.58 billion children and youth in 200 nations, ranging from pre-primary to higher education (UNESCO, 2020). Thus, the worldwide lockdown has had a very bad effect on student's life.

The scale of the Coronavirus pandemic's impact on the education system and the learning and well-being of children and teenagers is improving on a daily basis (INEF, 2020). The disturbances caused by the coronavirus to everyday life is that over 40 million children around the world have been denied access to early childhood education during their crucial preschool years (UNICEF, 2020). This virus has made the students remain isolated. Due to isolation, the use of technology has been considered the most appropriate alternative to keep the educational system functioning in many parts of the world, including India, during this period.

Traditional learning involves face-to-face interaction, which stimulates students to study, improves student-teacher interconnection, and, most importantly, fosters a sense of community in learning and exchanging ideas (Adnan, 2020). Some of these features are missing in online learning. According to a recent UNICEF (2020) report, 'The COVID-19 epidemic has revealed significant disparities in access to technology between and within countries, such as between rich and poor, rural and urban, girls and boys. There have been numerous types of research undertaken to determine the impact of this deadly virus on the educational system. But a smaller number of researchhas been done to identify the problem faced by Village school students during this pandemic. Therefore, the researcher is interested in taking this study.

Statement of the Problem

The investigator intends to identify the educational problems among the secondary school students of Ghudda village, which is in the Bathinda district of Punjab near the Central University of Punjab, Bathinda. So, the present study is entitled "Identification of Educational Problems of Secondary School Students During Covid-19 Pandemic".

Operational Definitions

Educational Problems: In the present study, educational problems refer to the problems faced by secondary school students while getting aneducation at home during the COVID-19 pandemic. These problems especially refer to admission, school fees, examinations, classes, Teaching Methods, Internet connectivity, and resource availability.

Secondary School Students: Secondary school students are those students of Ghudda Village who are studying in classes 9^{th} to 12^{th} of different private and government secondary schools.

COVID-19 Pandemic: The Coronavirus pandemic is an ongoing pandemic of coronavirus disease 2019 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

The Objective of the Study

To explore the educational problems of secondary school students of Ghudda Village during the COVID-19 pandemic.

Research Question

What are the different types of educational problems of secondary school students of Ghudda Village during the COVID-19 pandemic?

Methodology

The survey method of descriptive research was used for this study. When the aim of the study is to identify characteristics, problems, trends, frequencies and categories, descriptive research is the appropriate option for study. The investigator personally visited the village and interacted with the secondary school students of Ghudda village to collect data. Data were collected from 200 secondary school students of Ghudda village of Bathinda district of Punjab. This study applies a volunteer sampling technique as a sampling method. Volunteer sampling is a non-probability sampling strategy in which individuals are self-selected to participate in research work by volunteering when requested.

For the purpose of collecting the data from the secondary school students of Ghudda village, the investigator uses the self-prepared questionnaire. A questionnaire was developed after the review of related literature and considering the objective of the present study. The questionnaire consists of 6 types of educational problems and 15 questions. These six types of educational problems are Admission related problem, Fee-related problem, Online class-related problem, Classroom teaching learning-related problem, Internet connectivity problem and device availability problems.

The researcher with his friends visited the Ghudda village to conduct the survey. Data was collected from secondary school students. The researcher spent considerable time with the adolescents to establish rapport with them. After establishing rapport, the questionnaire was administered individually, and instructions were given i.e., to report the educational problems they actually have. Students who would cooperate answered the questionnaire with great interest, involvement and commitment.

Data Analysis

Table 01: Percentage of Male and Female Secondary School Students

Gender	No.	Percentage (%)
Male	98	49
Female	102	51
Total	200	100

The above table shows that 49% male and 51% female secondary school students of Ghudda village were taken in the study.

Q1. Are you facing educational problems due to school closure during COVID-19?

Table 02: Educational Problems during the COVID-19 Pandemic

Response	No.	Percentage (%)
Yes	176	88
No	24	12
Total	200	100

This table shows that a large number of secondary school students (88%) are facing educational problems during the COVID-19 pandemic, and only 12% of secondary school students are not facing educational problems. This data can be shown in pictorial form as a pi-diagram below:

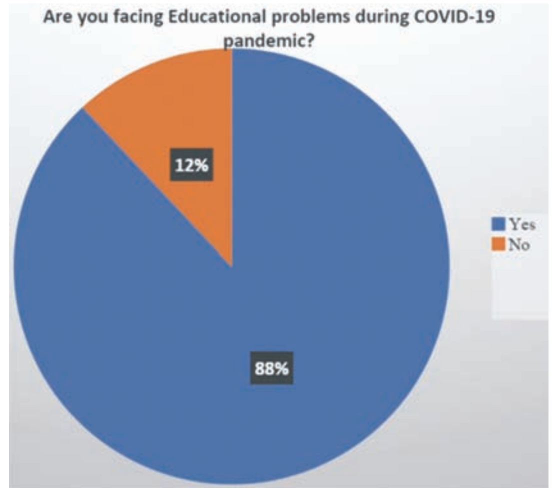

Figure 1. Pi-Diagram on Educational Problems during COVID-19

I. Admission Related Problem

Q6. Had you faced problems while taking admission during covid-19?

Table 03: Percentage of Students Who Face the Admission-Related Problem

Response	No.	Percentage (%)
Yes	64	32
No	136	68
Total	200	100

Table 03 shows that 32% of students had faced problems in taking admission during the COVID-19 pandemic and 68% of students had not faced any problem related to admission. It means that the majority of the respondents had not faced any problems related to education.

II. Fee Related Problems

Q2. Were your parents being able to pay the school fee on time during Covid-19?

Table 04: Problem in Paying the School/College Fee

Response	No.	Percentage (%)
Yes	98	49
No	102	51
Total	200	100

This table shows that only 49% of parents of secondary school students are able to pay the school fee on time during the COVID-19 pandemic and the remaining 51% of parents are not able to pay their children school fee on time.

III. Online class-related problems

Q10. Do you get a peaceful home environment for online learning?

Table 05: Peaceful home environment

Response	No.	Percentage (%)
Yes	80	40
No	120	60
Total	200	100

The result presented in the table indicates that among the surveyed students, a majority (60%) of them are experiencing difficulties in online learning due to noisy home environments. This suggests that the current home environment of the students is a significant hindrance to their online learning experience. On the other hand, 40% of students have reported that they are not facing such problems, which suggests that they are able to focus and learn effectively in their home environment.

Q11. Is online learning stressful for you during the COVID-19 pandemic?

Table 06: Stressfulness of Online Learning

Response	No.	Percentage (%)
Yes	156	78
No	44	22
Total	200	100

Table No. 06 revealed that 78 % of students reported yes means online is stressful for them whereas 22% of students reported no which means online learning is not stressful for them. Hence, it can be concluded that the majority of students (78%) reported that online learning is stressful for them.

Q12. Do you get the opportunity to discuss your doubts with teachers in your online class?

Table 07: Opportunity to Discuss Doubts with Teachers

Response	No.	Percentage (%)
Yes	136	68
No	64	32
Total	200	100

Table 06 shows that 68 % of the respondents get opportunities to discuss their doubts and 32% of students do not get the opportunity to discuss their doubts with their teacher in an online class during the COVID-19 pandemic.

Q14. Do you enjoy online learning?

Table 08: Online Learning Enjoyment

Response	No.	Percentage (%)
Yes	96	48
No	104	52
Total	200	100

Table No. 07 shows that 52% of the students enjoy online learning and 48% of them do not enjoy online learning.

IV. Examination Related Problems

Q8. Do you like the examination pattern used by your school?

Table 09: Likeliness of Examination Pattern Used by School

Response	No.	Percentage (%)
Yes	186	93
No	14	07
Total	200	100

This table shows that most of the students (93%) like the examination pattern used by their school and only 7% of students do not like the examination pattern. Therefore, it can be concluded that approximately all students like the examination pattern used by their school.

V. Teaching Methods Related Problems

Q9. Are you satisfied with the teaching methods used by your school teacher while taking online classes?

Table 10: Satisfaction with the Teaching Methods Used by Teacher

Response	No.	Percentage (%)
Yes	170	85
No	30	15
Total	200	100

Table No. 10 revealed that 85 % of students reported "yes" which means they are satisfied with the teaching methods used by their school teachers whereas 15% of students reported "no" which means they are not satisfied with the teaching methods used by their school teachers. Hence, it can be concluded that the majority of students (58%) reported that the teaching methods used by their school teachers are satisfactory for them.

Q5. Are you satisfied with the technology you are using for online learning?

Table 11: Satisfaction with Technology

Response	No.	Percentage (%)
Yes	82	41
No	118	59
Total	200	100

This table shows that 59% of students are not satisfied with the technology used for online learning, and 41% of students are satisfied with that technology.

Q7. Which types of learning problems are you facing during online classes?

Table 12: Learning Problems of Students during Online Class

Sr. No.	Problems	No. of Students	% of students
1.	In concept understanding	28	14
2.	In interaction with teacher	20	10
3.	In discussion with friends	10	05
4.	In asking questions	16	08
5.	All above	88	44
6.	No problem	38	19

Table 12 shows that 44% of students reported that they arefacing learning problems in concept understanding, interaction with teachers, and discussion with friends and asking questions with teachers during online class. Moreover, 19% of students have no problem in learning during online classes, 14% have problem in concept understanding, 10% of students have problem in interacting with the teacher, 8% of students have problem asking questions to the teacher, and only 5% of students have faced problem in interaction with friends. Hence, the data depicts that the maximum number of students (44%) are facing all problems mentioned above. The following bar graph better explains the percentage of students who are facing learning problems during their online classes.

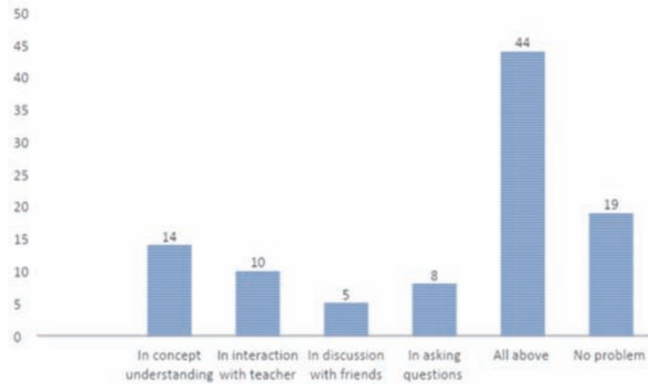

Figure 2. Bar graph on Learning Problems of Students during Online Class

V. Network-Related Problems

Q4. Do you have enough internet speed to take online classes?

Table 13: Enough Internet Speed during Online Class

Response	No.	Percentage(%)
Yes	34	17
No	38	19
Yes, but disconnected many times	128	64
Total	200	100

Table 15 shows that most of the respondents (64%) have adequate internet speed but it is frequently disconnecting during online classes. 19% of the students do not have sufficient internet speed for online class. Only 17% of the students have sufficient internet speed and are able to do online classes without disconnection. This means that most students have sufficient internet speed but are disconnected many times during online classes. This result can be visualized by the following pi-diagram:

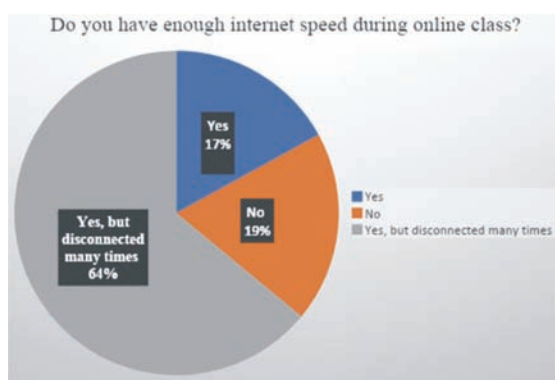

Figure 3. Pi-Chart on Enough Internet Speed during Online Class

VI. Resources Availability Problem

Q2. Do you have a device for online learning?

Table 14: Device availability for online class

Response	No.	Percentage(%)
Yes	104	57
No	28	14
Yes, but it doesn't work well	36	18
No, I share with others	22	11
Total	200	100

This table shows that 57% of students have a proper device for online learning, 14% of students have no device for online learning, 18% students have devices but not work properly, and 11% students share other devices for online learning. This data reveals that the non-availability of online learning devices is one problem for some students in their online learning. The following bar graph can better explain the percentage of students having device availability for their online classes.

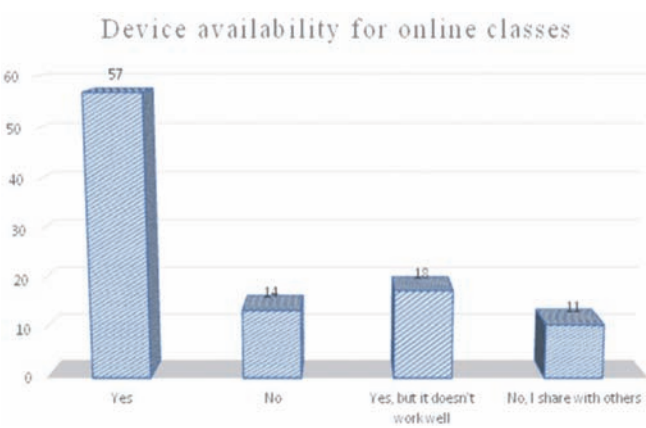

Figure 4. Device availability for online class

Q3. Which device do you use for online learning?

Table 15: Types of devices for online learning

Response	No.	Percentage (%)
Laptop	00	00
Desktop	00	00
Tablets	00	00
Smartphone	200	100
Total	200	100

The result presented in the table suggests that all secondary school students surveyed are exclusively using smartphones for online learning during the COVID-19 pandemic. This implies that these students do not have access to other electronic devices, such as laptops or tablets, that are commonly used for online learning. It also suggests that these students may face challenges related to the small screen size of smartphones and limited functionality compared to other electronic devices, which could potentially affect their ability to learn effectively. This information may be useful for educators and policymakers in identifying the needs of students and providing the necessary resources and support for effective online learning.

VII. Other Problems (Open-Ended Question)

Q15. Are you facing any other educational problems? Please mention it.

Table 16: Some other educational problems of secondary school students

Sr. No.	Educational Problems	Number of Students	Percentage(%) of Students
1.	Voice Breaking	38	19
2.	Causes Headache	24	12
3.	Eye burning/pain	18	09
4.	Works of Home	20	10
5.	Money problem for data pack	12	06
6.	No other problem	88	44
	Total	200	100

This table shows that some other problems of secondary school students are :

(1) Voice breaking, (2) Headache, (3) Eye burning/ pain, (4) working from home, and (5) Money problem for data pack. 15% of students responded that voice breaking is a problem during online class, 12% of students said that online classes cause headaches, 09% of students responded that eye burning is also a problem in online learning, and 10% of students are facing problem in online learning due to work of home, and 6% students are facing money problem for data pack.

Findings of the Study

The following were the conclusions of this study, based on data analysis:

1. The majority of secondary school students (88%) are facing educational problems during the COVID-19 pandemic.
2. The study revealed that there are a number of problems that affect the education of secondary

school students. These are: (a) Admission related problem, (b) Fee-related problem, (c) Online class-related problem, (d) teaching methods-related problem, (e) Internet connectivity problem, (f) Device unavailability problem, (g) Health-related (Headache and eye pain) problem, and (h) Problem in learning due to work of the home.

3. Majority of the respondents (78%) reported that online learning is stressful and causes headaches.
4. Approximately all the students (93%) liked the examination pattern used by their school to conduct the examination.
5. Maximum students (85%) are satisfied with the teaching methods used by his/her school teachers.
6. The internet connectivity problem is a major problem in online learning for students. A total of 64% of students faced poor internet connectivity problems.
7. Only 57% of studentshave a proper device for online learning.

Conclusion

The coronavirus has significantly disrupted the education sector, which is a critical determining factor in a country's economic growth and development. The global education system has drastically changed during the last ten months. Lockdown and social distancing measures have led to the closures of schools, training institutes, and higher education institutions in most countries. To tackle this problem every educational institution shifted their teaching-learning process from traditional mode to online mode. But during the pandemic, various types of problems are faced by the students. The present study reveals that the majority of secondary school students had faced internet and device availability problems for online learning. Problems related to technology also created chaos among the students. For taking regular classes students had to spend a long time on the mobile screen, which caused stress, headache and eye pain for students. Moreover, an unpeaceful home environment and fewer opportunities to interact with teachers and friends are also learning problems for students. But there were no other options available; we have to go hand in hand with these problems.

Although basic necessities play a vital and critical role in the strengthening of an organization or institution, our institutions, unfortunately, lack these basic facilities. As a result, it is strongly suggested that these essential educational facilities be given on an emergency basis to each school. For example, furniture, transportation, bathroom facilities, instructional materials, and so forth. Teachers' autocratic and harsh attitudes toward students have a negative impact on student's performance, thus it is vitally suggested that teachers be democratically minded. Teachers should adopt the principle of equity in their teaching-learning process. Extra or over workload desperately affects the performance of students and therefore it is recommended that educational work should be given according to student's abilities so that they may perform their tasks in an excellent and enjoyable way.

It is suggested that school management remains in touch with parents and children in order to provide necessary information on time. Fee concessions should also be given to the students in the corona period. The schools' teachers should use the online interactive method of teaching so that the students can feel free and clarify their doubts. To overcome the problems of device availability, the government should take the initiative to provide learning devices such as mobile phones, tablets and laptops etc. It is also suggested that this type of study should be conducted to know and identify the problems of students at the school and college levels. Such a type of study may also be conducted on a large sample size.

References

Adnan, M. & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: students' perspectives. *Journal of Pedagogical Sociology and Psychology.* 2(1), 45-51. http://www.doi.org/10.33902/JPSP. 2020261309

Bernard, R.M., Abrami, P.C., Borokhovski, E., Wade, C.A., Tamim, R.M., Surkes, M.A., & Bethel, E.C. (2009). A Meta-Analysis of Three Types of Interaction Treatments in Distance Education. *Review of Educational Research,* 79(3), 1243-1289. https://doi.org/10.3102/0034654309333844

Bol, T. (2020, April 30). Inequality in home schooling during the Corona crisis in the Netherlands. *First results from the LISS Panel.* https://doi.org/10.31235/osf.io/hf32q

Doyle, O. (2020). COVID-19: Exacerbating Educational Inequalities? Retrieved from http://publicpolicy.ie/papers/covid-19-exacerbating-educational-inequalities/ on 30 December 2020.

Drane, C., Vernon, L., O'Shea, S. (2020. The Impact of 'Learning at Home' on the Educational Outcomes of Vulnerable Children in Australia during the COVID-19 Pandemic; Literature Review Prepared by the National Centre for Student Equity in Higher

Education; Curtin University: Bentley, Australia, 2020. Retrieved from https://www.ncsehe.edu.au/wp-content/uploads/2020/04/NCSEHE_V2_Final_literaturereview-learningathome-covid19-final_30042020.pdf on 30 December 2020.

Eder, R. (2020). The Remoteness of Remote Learning: A Policy Lesson from COVID19. *Journal of Interdisciplinary Studies in Education,* 9(1), 168-171. https://doi.org/10.32674/jise.v9i1.2172

Eyles, A., Gibbons, S., Montebruno, P. (2020). Covid-19 school shutdowns: What will they do to our children's education? A CEP Covid-19 analysis Briefing note No. 001. Retrieved from http://cep.lse.ac.uk/pubs/ download/cepcovid-19-001.pdf on 30 December 2020.

Global Partnership for Education (GPE) (2020). 'Opinion: Don't let girls' education be another casualty of the coronavirus. Retrieved from: https://www.globalpartnership.org/news/opinion-dont-let-girls-education-be-another-casualtycoronavirus

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. Educause Review. Retrieved from https://er.educause.edu/articles/2020/3/the-differencebetween-emergency-remote-teaching-and-online-learning on 01 January 2020.

Li, Z.Y., & Meng, L.Y. (2020). Prevention and control of new coronavirus infection in department of stomatology. *Chinese Journal of Stomatology,* 55(0), E001. Advance online publication. https://doi.org/10.3760/cma.j.issn.1002-0098.2020.0001

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, Limitations and Recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences,* 36 (COVID-19-S4). https://doi.org/10.12669/pjms.36.COVID19-S4.2785

Owusu-Fordjour, C., Koomson, C., & Hanson, D. (2020). The Impact of COVID-19 on Learning - The Perspective of The Ghanaian Student. *European Journal of Education Studies,* 7(3), 88-101. http://dx.doi.org/10.46827/ejes.v0i0.3000

Phelan, A.L., Katz, R., & Gostin, L. O. (2020). The Novel Coronavirus Originating in Wuhan, China: Challenges for Global Health Governance. *JAMA,* 323(8), 709-710. https://doi.org/10.1001/jama.2020.1097

Punjab govt to distribute smartphones to needy class 12 students amid coronavirus lockdown. (2020, August 6). India Today. https://www.indiatoday.in/education-today/news/story/punjab-govt-to-distribute-smart phones-to-needy-class-12-students-amid-corona virus-lockdown-1708326-2020-08-06

Rodriguez-Morales, A.J., Bonilla-Aldana, D.K., Balbin-Ramon, G.J., Rabaan, A.A., Sah, R., Paniz-Mondolfi, A., Pagliano, P., & Esposito, S. (2020). History is repeating itself: Probable zoonotic spillover as the cause of the 2019 novel Coronavirus Epidemic. *Le infezioni in medicina,* 28(1), 3-5.

Sahi, P.K., Mishra, D., & Singh, T. (2020). Medical Education Amid the COVID-19 Pandemic. *Indian pediatrics,* 57(7), 652-657. https://doi.org/10.1007/s13312-020-1894-7

Thomas, M.S.C. & Rogers, C. (2020). Education, the science of learning, and the COVID-19 crisis. *Prospects,* 49, 87-90. https://doi.org/10.1007/s11125-020-09468-z

UNESCO UIS, Times Higher Education. (2020). The Impact of the Coronavirus on Global Higher Education. Retrieved from QS website qs.com/portfolio-items/the-impact-of-the-coronavirus-on-global-higher-education

UNESCO, (2020). From disruption to recovery. Retrieved from: https://en.unesco.org/covid19/education response

UNICEF, Childcare in a global crisis: the impact of COVID-19 on work and family life, available at https://www.unicef-irc.org/article/2027-40-million-children-miss-out-on-early-education-in-critical-pre-school-year-dueto.html

Verawardina, U., Asnur, L., Lubis, A.L., Hendriyani, Y., Ramadhani, D., Dewi, I.P., & Sriwahyuni, T. (2020). Reviewing online learning facing the Covid-19 outbreak. *Journal of Talent Development and Excellence,* 12(3), 385-392. Retrieved from http://iratde.com/index.php/jtde/article/view/281 on 30 December 2020.

Yusuf, B.N. (2020). Are we prepared enough? A case study of challenges in online learning in a private higher learning institution during the Covid-19 outbreaks. *Advances in Social Sciences Research Journal,* 7(5), 205-212. https://doi.org/10.14738/assrj.75.2020

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Enhancing Self-esteem of Elementary Students of Different Personality Types through Cooperative Learning Strategy

*Dr. Deepa Awasthi, **Prof. Reena Agarwal

सारांश

विद्यालय जो कभी सहयोगात्मक शिक्षा के गढ़ थे, वर्तमान में तीव्र प्रतिस्पर्धा के क्षेत्र में विकसित हो गए हैं, जहां शैक्षणिक कौशल और पाठ्येतर उपलब्धियों के बीच कड़ी प्रतिस्पर्धा होती है। ग्रेड और मान्यता के लिए वैयक्तिक प्रयासों की विशेषता वाला यह प्रतिस्पर्धी माहौल अक्सर महत्वपूर्ण सोच और शैक्षणिक प्रगति को बाधित करता है। छात्रों के बीच बातचीत में सहयोग के बजाय प्रतिस्पर्धा हावी है, जो गहन शिक्षा और विकास में बाधा बन रही है। सहयोगात्मक अधिगम पद्धतियाँ इस परिदृश्य में एक संभावित समाधान प्रदान कर सकती हैं। छात्रों के आत्म-सम्मान पर सहयोगात्मक अधिगम पद्धति के प्रभाव का पता लगाने का प्रयास इस अध्ययन में किया गया है। इस अध्ययन का मुख्य उद्देश्य जिग्सॉ सहयोगात्मक अधिगम पद्धति का उपयोग करते हुए अंतर्मुखी और बहिर्मुखी छात्रों के आत्म-सम्मान पर इसके प्रभावों को समझना था। अध्ययन में प्रयोगात्मक अनुसंधान के अंतर्गत पूर्व एवं पश्च परीक्षण डिजाइन का प्रयोग किया गया। आत्म सम्मान के मापन हेतु कूपरस्मिथ सेल्फ एस्टीम इन्वेंटरी का प्रयोग किया गया। परिणामों से स्पष्ट हुआ कि सहयोगात्मक अधिगम पद्धति ने अंतर्मुखी और बहिर्मुखी दोनों प्रकार के छात्रों के आत्म-सम्मान पर सकारात्मक प्रभाव डाला। निष्कर्षों से पता चलता है कि सहयोगात्मक शिक्षा एक ऐसा वातावरण बनाती है जहां विभिन्न प्रकार के व्यक्तित्व वाले छात्र आगे बढ़ सकते हैं, जिससे अपनेपन और क्षमता की भावना को बढ़ावा मिलता है। यह अध्ययन शैक्षिक परिदृश्य में सहयोगात्मक शिक्षा को शामिल करने के महत्व को रेखांकित करता है।

Introduction

School functions as a microcosm of society, where individuals initially encounter values in a theoretical context. However, it is through applying these values in real-life situations that they truly comprehend their significance. While schools are pivotal in educating young minds, there is a noticeable shift in focus. Nowadays, schools have become arenas of intense competition, where students vie not only for academic accolades but also for recognition in extracurricular activities. Meritocracy reigns supreme in classrooms and school administrations. Despite the expectation that schools, being preparatory grounds for adult life, would emphasize cooperation, the reality is quite different. Cooperative activities are largely overshadowed by individualistic pursuits, with students often competing for grades, praise, and attention. This competitive environment stifles critical thinking and academic progress among students. Interactions among students typically revolve around competition rather than cooperation, despite the latter being conducive to deeper learning and development. Cooperative learning methods offer a potential solution to these challenges, fostering peer interaction and collaboration to working with positive self concept and confidence.

Objective

To study the impact of cooperative learning on self esteem of students of different personality types.

Hypothesis

H1: There will be no significant difference in pre test mean scores of self esteemof Introvert and Extrovert students.

H2: There will be no significant difference in post test mean scores of self esteem of Introvert and Extrovert students.

H3: There will be no significant difference in pre test and post test mean scores of self esteem of Introvert students.

H4: There will be no significant difference in pre test and post test mean scores of self esteem of Extrovert students.

* Assistant Professor, A.N.D. Teachers Training P.G. College, Sitapur, U.P.

** Professor, Department of Education, University of Lucknow, U.P.

Research Methodology

Experimental method, Pre test-Post test design.

O1	X	O2

Phases	Procedure
Pre test (O1)	Coopersmith self-esteem inventory (1967)
Treatment (X)	Teaching social science lesson plans through Jigsaw cooperative learning method
Post test (O2)	Coopersmith self-esteem inventory (1967)

Sample:

An elementary level school was chosen at random from a comprehensive list of schools. Upon obtaining permission from the school's principal, a personality inventory was administered to eighth-grade students. The class consisted of 44 students. Following the manual's guidelines, students were classified as either introverts or extroverts based on their responses. Coincidentally, among the 44 students, there were 15 extroverts and 15 introverts. The remaining 14 students did not fall into either category and were excluded from the study. Consequently, the sample for the study comprised all 30 students.

Tools:

Following tools have been used in present study :

- Personality inventory by Yashvir Singh and Harmohan Singh (1971) to identify personality types.
- Coopersmith self-esteem inventory (1967) as a pre test and post test.
- Intervention programme (lesson plan based on cooperative learning using jigsaw) prepared by researchers.

Procedure of data collection

Intervention procedure was comprised of following stages-

1 Stage I: Administration of pre test:

At the stage I pre test has been administered on the selected thirty students. The investigators interacted with the students to establish the rapport with them. This stage involved administration of Coopersmith self-esteem inventory. Coopersmith self-esteem inventory was provided to the students to note down their responses. Investigators took proper care regarding instructions. Time given to students for this purpose was 40 minutes. After completion of inventory all sheets have been collected by the investigators.

3.7.2 Stage II: Conduction of intervention programme:

Stage II involved conduction of intervention programme. The intervention has been given in the form of teacher directed instructions followed by the cooperative learning settings. The instructional intervention was given for about twenty two days which included three lessons taught through jigsaw method of cooperative learning.

Stage III: Administration of post test:

Coopersmith self esteem inventory has been conducted as post test. The students were given the inventory to note down their responses. Proper instructions were given by the researcher to the students. Total time assigned for this task was 40 minutes as in pre test. After completion the sheets were properly collected by the researcher.

Results

Mean and SD have been calculated. t-test has been used to calculate the significance of difference between the self esteem of both groups i.e. introvert and extrovert. Results are as follows:

Table-1: Showing't' value for difference in the pre test mean scores on self esteem of Introvert students (I) and Extrovert students (E)

Groups	N	M	SD	't'-value	Significance
Introvert students(I)	15	32	4.38	0.52	Not significant at 0.05 level
Extrovert students(E)	15	32.86	4.67		

The table 1 depicts that 't'-value is 0.52 which is not significant at 0.05 level. It means there is no significant difference in self esteem of introvert and extrovert students at pre test. At pre test stage the Introvert students has a mean score of 32 and the Extrovert students has a mean score of 32.86 with standard deviations of 4.38 and 4.67 respectively. Thus the hypothesis H1 i.e. there will be no significant difference in pre test mean scores of self esteem of Introvert and Extrovert students has been retained.

Table-2: Showing 't' value for difference in the post test mean scores on self esteem of introvert students (I) and extrovert students (E)

Groups	N	M	SD	't'-value	Significance
Introvert students(I) Extrovert students(E)	15 15	39 38.66	3.61 3.43	0.26	Not significant at 0.05 level

It is clear from the above table that 't'-value is 0.26 which is not significant at 0.05 level. There is no significant difference in self esteem of introvert and extrovert students at post test stage. At post test stage the Introvert students has a mean score of 39 and the Extrovert students has a mean score of 38.66 with standard deviations of 3.61 and 3.43 respectively. Thus the hypothesis H2 i.e. there will be no significant difference in post test mean scores of self esteem of Introvert and Extrovert students has been retained.

Table-3 : Showing 't' value for difference in the mean scores on self esteem of introvert students (I) at pre test and post test

Groups	N	M	SD	't'-value	Significance
Introvert students(I) (Pre test) Introvert students(E) (Post test)	15 15	32 39	4.38 3.61	4.77	Significant at 0.05 level

The table shows that 't'-value is 4.77 which is significant at 0.05 level. Thus it is clear that there is significant difference between mean scores of Introvert students in self esteem at pre and post test. At pre test level Introvert students has 32 mean score with 4.38 SD. In post test the Introvert students has 39 mean score with 3.61 SD. Thus the hypothesis H3 i.e. there will be no significant difference in pre test and post test mean scores of self esteem of Introvert students has not been retained.

Table-4: Showing 't' value for difference in the mean scores on self esteem of extrovert students (I) at pre test and post test

Groups	N	M	SD	't'-value	Significance
Extrovert students(I) (Pre test) Extrovert students(E) (Post test)	15 15	32.86 38.66	4.67 3.43	3.87	Significant at 0.05 level

It is evident from the table 4 that 't'-value is 3.87 which is significant at 0.05 level showing significant difference between mean scores of extrovert students in self esteem at pre and post test. In pre test mean score and SD were 32.86 and 4.67 respectively while in post test mean score and SD were 38.66 and 3.43 respectively. Thus hypothesis H4 i.e. there will be no significant difference in pre test and post test mean scores of self esteem of Extrovert students has not been retained.

Conclusion and Discussion

Conclusion:

● There is positive impact of cooperative learning on self esteem of introvert as well as extrovert students.

Discussion:

Previous researches have also found that cooperative learning has positive impact on self concept of students. Bonaparte (1990) investigated the effects of cooperative learning on self esteem of students and found that cooperative learning has significant impact on self esteem. Glassman (1989) also supported the above finding in his research. Scott (1990) studied the effect of cooperative learning on self esteem of handicapped students and found positive effect of cooperative learning. Adams (1995) discussed about positive impact of cooperative learning onself esteem. Bertucci *et al.* (2010) compared the effect of cooperative learning and individualistic learning on self esteem and found that students working in pairs developed a higher level of social self esteem than that student's learning in other conditions. Kalaiyarasan and Krishnaraj (2004) studied the impact of cooperative learning on self esteem in Indian context. They concluded that cooperative learning has positive impact on self esteem.The results of the present study are in congruence with the above mentioned studies.

Cooperative learning is based on the firm belief that affective aspects of education are equal in importance to cognitive aspects. Much of an individual's self-esteem is shaped by social interactions. Feeling valued and significant often stems from belonging to social circles where one is appreciated. Children who perceive themselves as having a meaningful role within their school, family, peer groups, community, and cultural contexts are likely to experience positive feelings about their self-worth.

Educational Implications

- The study suggests that teachers can use cooperative learning activities to provide students with opportunities to improve their self esteem.

- The study has important implications for teacher education. Given the current wide-spread use of cooperative learning at various levels, it is imperative that pre-service teachers understand how to structure and monitor meaningful learning experiences for students.
- Traditionally, teachers have been accustomed to serving as the primary providers of information to passive learners. However, in the context of cooperative learning, teachers must transit into facilitators who actively promote mutual assistance and peer learning and active involvement in discussions.

References

Adams, E.T. (1995). The effects of cooperative learning on the achievement and self esteem levels of students in the inclusive classroom. *Dissertation Abstracts International,* 56/ 05, P. 1741

Bonaparte, E.C. (1990). The effects of cooperative versus competitive classroom organization for mastery learning on the mathematical achievement and self esteem of urban second-grade pupils (Doctoral dissertation, Morgan State University, 1989). *Dissertation Abstracts International,* 50/07, 1911-A.

Bertucci, A., Conte, S., Johnson D.W., & Johnson, R.T. (2010). The impact of size of cooperative group on achievement, social support, and self-esteem. *Journal of General Psychology,* July-Sep., 137(3), 256-72.

Glassman, P. (1989). A study of cooperative learning in mathematics, writing, and reading in the intermediate grades: focus upon achievement, attitudes and self-esteem by gender, race and ability group. Unpublished doctoral dissertation, Rostra University

Johnson, D.W. & Johnson, R.T. (1989). Cooperation and competition: theory and research. Edina, MN: Interaction Book Company.

Kalaiyarasan, G., & Krishnaraj, R. (2004). Cooperative leaning: Enhancing self esteem of learners. *Edutracks,* 4(1), 31-34.

Scott, T.J. (1990). The effects of cooperative learning team vs. Traditional classroom/resource room instruction on handicapped student self esteem and academic achievement (Doctoral Dissertation, Boston College, 1989). *Dissertation Abstracts International,* 50/10, 3145-A.

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समसामयिक गतिविधियाँ / Current Events

1. दिनांक 05 फरवरी, 2024 को भारतीय शिक्षा शोध संस्थान के प्रथम तल पर स्थित श्री लज्जाराम तोमर सभागार में **''संचालन समिति''** की बैठक का आयोजन किया गया।

2. दिनांक 17 फरवरी, 2024 को भारतीय शिक्षा शोध संस्थान के शोध मनोवैज्ञानिक डॉ. भानु प्रताप यादव द्वारा सरस्वती विद्या मन्दिर अलीगंज में विद्यार्थियों को Career सम्बन्धित परामर्श दिया गया।

3. दिनांक 27 फरवरी से 29 फरवरी, 2024 तक Construction of Psychological Tools विषय पर एक त्रिदिवसीय कार्यशाला का आयोजन किया गया जिसमें लखनऊ विश्वविद्यालय के शिक्षाशास्त्र विभाग एवं सम्बद्ध महाविद्यालयों के शिक्षकों, शोध विद्यार्थियों एवं स्नात्कोत्तर कक्षा स्तर के विद्यार्थियों ने प्रतिभाग किया।

4. दिनांक 12 अप्रैल से 18 अप्रैल, 2024 तक "Advanced Statistical Analysis using SPSS Software" विषय पर सात दिवसीय ओरियन्टेशन कार्यक्रम का आयोजन किया गया, जिसमें 15 छात्र-छात्राओं ने भाग लिया।

5. दिनांक 23 व 24 अप्रैल, 2024 को **राष्ट्रीय शिक्षा नीति 2020 और उच्च शिक्षा** विषय पर एक द्विदिवसीय राष्ट्रीय संगोष्ठी का आयोजन किया गया।

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श्रद्धांजलि

हमें अत्यन्त दुख है कि **'भारतीय शिक्षा शोध संस्थान'** के यशस्वी अध्यक्ष, माननीय कृष्ण मोहन त्रिपाठी आत्मज स्व. श्याम सुन्दर त्रिपाठी, 75 वर्ष की आयु पूर्ण कर अपने निवास स्थान कानपुर में रविवार 02 जून, 2024 को प्रातः 8 बजे की दिव्य वेला में स्वर्ग सिधार गए। उनका अन्तिम संस्कार कानपुर गंगा तट पर स्थित भैरव घाट पर 03 जून, 2024 को किया गया। उनका पार्थिव शरीर पंचतत्व में विलीन हो गया।

विद्या भारती परिवार के अधिकारियों, कर्मचारियों की एक संयुक्त सभा में दिनांक 5 जून, 2024 के मध्याह्न 11 बजे दिवंगत आत्मा को श्रद्धांजलि अर्पित की गई तथा उनके शोकाकुल परिवार को इस असहनीय दुख को सहन करने की शक्ति प्रदान करने के लिए परम पिता परमात्मा से प्रार्थना की गई।

ॐ पूर्णमदः पूर्णमिदं पूर्णात् पूर्णमुदच्यते। पूर्णस्य पूर्णमादाय पूर्णमेवावशिष्यते।।
ॐ शान्तिः शान्तिः शान्तिः।।

भारतीय शिक्षा शोध संस्थान
सरस्वती कुंज, निराला नगर, लखनऊ

शोध आलेख प्रकाशनार्थ भेजने के पत्र का प्रारूप

प्रेषक : ....

....

....

सेवा में, दिनांक : ....

मुख्य सम्पादक,
भारतीय शिक्षा शोध पत्रिका,
भारतीय शिक्षा शोध संस्थान,
सरस्वती कुंज, निरालानगर,
लखनऊ - 226020 (उ.प्र.)

विषय : शोध पत्रिका में प्रकाशनार्थ शोध आलेख का प्रेषण।

महोदय,

मैं/हम आपकी शोध पत्रिका में प्रकाशनार्थ शोध आलेख प्रेषित कर रहा/रहे हैं। इस सम्बन्ध में आवश्यक विवरण निम्नवत् हैं-

1. शोध आलेख का शीर्षक ....

....

2. लेखक/लेखकों के नाम, पद, पत्राचार का पता, फोन, ई-मेल पता -

नाम	पद	पत्राचार का पता	फोन/मो.	ई-मेल
....	....	....	....	....
....	....	....	....	....
....	....	....	....	....

3. शोध आलेख शोध पत्रिका के नवीनतम अंक में प्रकाशित **'लेखकों के सूचनार्थ'** के दिशा-निर्देशों के आधार पर तैयार किया गया है। शोध आलेख के सम्बन्ध में यदि कोई स्पष्टीकरण वांछित है तो लेखक से उसकी जानकारी ली जा सकती है। इसके लिए लेखक सदैव तैयार है।
4. यह शोध आलेख हमारे अपने अनुसंधान कार्य पर आधारित है। इसमें व्यक्त विचार, निष्कर्ष आदि हमारे हैं। ये भारतीय शिक्षा शोध संस्थान अथवा विद्या भारती की नीतियों के परिचायक नहीं हैं। यदि हमारे शोध आलेख में प्रकाशित किसी सामग्री से कापीराइट नियम का उल्लंघन होता है तो इसके लिए हम स्वयं उत्तरदायी होंगे। प्रकाशक अथवा सम्पादक मण्डल इसके लिए किसी भी प्रकार से उत्तरदायी नहीं होगा।
5. इस शोध आलेख का अन्यत्र प्रकाशन नहीं कराया गया है और न ही इसे कहीं अन्यत्र प्रकाशनार्थ भेजा गया है।
6. इस पत्र के साथ शोध आलेख की टंकित पाण्डुलिपि (दूसरी भाषा में सारांश, केवल शोध पत्र का) की एक प्रति उसकी सीडी, शोध पत्र में प्रयुक्त उपकरणों की छाया प्रतियाँ प्रेषित हैं।
7. इस शोध आलेख की एक प्रति हमारे पास सुरक्षित है।

   आशा है आप इस शोध आलेख को अपनी शोध पत्रिका में प्रकाशनार्थ स्वीकार करेंगे।
8. प्रकाशन पूर्व आलेख के प्रस्तुतीकरण के समय रु. 1000/- आलेख के साथ तथा आलेख में किसी तरह की कोई साहित्यिक चोरी नहीं हुई है, एतदर्थ प्रमाण पत्र (Plagiarism Certificate) प्रेषित कर रहा हूँ/रही हूँ।
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सधन्यवाद,

भवदीय,

(लेखक/लेखकों के नाम व हस्ताक्षर)

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1. भारतीय शिक्षा शोध पत्रिका का प्रमुख उद्देश्य शिक्षा के विभिन्न आधारों से सम्बन्धित भारतीय संस्कृति संदर्भ में किये गये सैद्धांतिक एवं प्रयोगात्मक अध्ययनों को प्रकाशित करना है। इसमें विद्याभारती पर किये गये तथा विद्यालयी शिक्षा को उन्नत बनाने वाले अध्ययनों को वरीयता दी जाती है।
2. शोध पत्रिका में हिन्दी एवं अंग्रेजी, दोनों भाषाओं में शोधपत्र प्रकाशित किये जाते हैं। इसमें एक भाषा में प्रकाशित शोधपत्र का सारांश दूसरी भाषा में भी प्रकाशित किया जाता है।
3. सामान्यतया शोधपत्र अनुसंधान आधारित (Research based), पुनरीक्षण लेख (Review Articles), सैद्धांतिक विषयों पर आधारित निबन्ध (Essays based on theoretical issues) आदि हो सकते हैं। इसके लेखन में यथा आवश्यकता अग्रांकित शीर्षकों का प्रयोग किया जाना चाहिए- भूमिका (Introduction), उद्देश्य (Objectives), प्रक्कल्पना (Hypothesis), शोध पद्धति (Method), शोध का अभिकल्प (Design), प्रतिदर्श (Sample), प्रयुक्त उपकरण (Tools used), सांख्यिकीय प्रविधि (Statistical Techniques), प्रदत्त-विश्लेषण (Data Analysis), परिणाम (Result), प्राक्कल्पनाओं का सत्यापन सहित विवेचन (Discussion), अध्ययन का निहितार्थ (Implications of the Study), सन्दर्भ (References)। शीर्षकों में आवश्यकतानुसार उपशीर्षक भी बनाये जा सकते हैं।
4. शोधपत्र सामान्यतया 2500-3000 शब्दों से अधिक का नहीं होना चाहिए। इसके साथ एक संक्षिप्त सारांश दूसरी भाषा में लगभग 250-300 शब्दों में संलग्न किया जाना चाहिए।
5. सभी चित्रों (Figures), तालिकाओं (Tables) को अलग कागज पर तैयार करें। इन पर पाण्डुलिपि में प्रदर्शन के क्रम से चित्र-1 / तालिका-1 आदि से प्रदर्शित कर दें। प्रत्येक चित्र / तालिका पर उसका अपना शीर्षक (Caption) अवश्य अंकित किया जाना चाहिए। तालिका में खड़ी लाइनों का प्रयोग न करें।
6. सन्दर्भ शीर्षक के अन्तर्गत केवल आलेश में प्रस्तुत सन्दर्भों का ही उल्लेख करें। इसके लिए लेखकों की रचनाओं, प्रकाशन वर्ष, प्रकाश आदि के विवरण सहित, लेखकों के नामों को वर्णानुक्रम (Alphabetically) में प्रस्तुत करें। आलेख की पाण्डुलिपि में इसे उचित स्थान पर अग्रांकित रूप में दें, जैसे (वर्मा, 1990, पृ. 40)।

पुस्तक (Books)

* श्रीवास्तव, (डॉ.) शंकर शरण एवं राय, (डॉ.) कमला, (1991-92), **शिक्षण के मूल तत्व,** वाराणसी : श्रीराम प्रकाशन
* वही पृ.-98
* श्रीवास्तव एवं राय (1991-92), पूर्व चर्चित पृ.-102

सम्पादित पुस्तक (Edited Book)

* तोमर, (डॉ.), जगतपाल सिंह, (2006), **शिक्षक होने का तात्पर्य,** एस.एस. श्रीवास्तव एवं अन्य द्वारा सम्पादित, **शिक्षक सशक्तिकरण में,** लखनऊ : भारतीय शिक्षा शोध संस्थान

जर्नल (Journal)

* गुप्ता, आर.पी. (2007), **सेक्स एजुकेशन : ह्वाई (Why)? ह्वेन एण्ड हाऊ (When and How)?**, भारतीय शिक्षा शोध पत्रिका, 26(2), पृ. 23-29

अप्रकाशित शोध प्रबन्ध / अन्य (Unpublished Thesis/ Others)

* दत्त, (डॉ.), विभा, (1981), **ए क्रिटिकल स्टडी ऑफ एसेन्डेन्स-सबमिशन ऑफ इण्टरमीडिएट स्टूडेन्ट्स (ब्वायज एण्ड गर्ल्स),** अप्रकाशित पीएच.डी. शोध प्रबन्ध, लखनऊ विश्वविद्यालय।

  श्रीवास्तव, (डॉ.), कान्ति मोहन, (1991), **परीक्षा परिणाम का प्रभावी प्रस्तुतीकरण,** आलेख प्रस्तुत, भारतीय शिक्षा शोध संस्थान द्वारा आयोजित अखिल भारतीय शोध गोष्ठी (तृतीय), नई दिल्ली में।

* **राम-सा सत्य है राम का अस्तित्व** शीर्षक समाचार, दैनिक जागरण (नगर सं.), लखनऊ, 14.09.2007

7. तैयार शोधपत्र की पाण्डुलिपि डबल स्पेस देकर (कोटेशन, फुटनोट, सन्दर्भ एवं सारांश सहित) ए-4 साइज के सफेद कागज पर एक ओर पर्याप्त हाशिया देकर टंकित होना चाहिए। पाण्डुलिपि के प्रथम पृष्ठ पर शोधपत्र का मुख्य शीर्षक तथा लेखक-लेखकों के नाम के पश्चात् विभिन्न-शीर्षकों में आलेख की विषयवस्तु प्रस्तुत की जानी चाहिए।

8. शोधपत्र के मुख्य शीर्षक के साथ अन्य शीर्षक एवं उसके अन्तर्गत उपशीर्षक दर्शाने के लिए टंकित पाण्डुलिपि के हाशिए में पेंसिल से मु.हे. (M.H.) तथा उप.हे. (S.H.) अंकित कर दें। इसका क्रमांक भी अंकित कर दें। किसी शीर्षक को रेखांकित न करें।

9. शोधपत्र एवं सारांश की टंकित पाण्डुलिपि की एक प्रति एवं उसकी सीडी, शोधपत्र में प्रयुक्त उपकरणों की छाया प्रतियाँ इस प्रमाण पत्र के साथ भेजी जानी चाहिए कि यह शोधपत्र कहीं अन्यत्र प्रकाशित नहीं है।

10. शोध टिप्पणी के अन्तर्गत शोध संस्थान के विभिन्न प्रकोष्ठों एवं अन्य शोधकर्ताओं द्वारा किये गये शोधों का सारांश प्रकाशित किया जाता है। इसके लिए किये शोध सारांश हिन्दी अथवा अंग्रेजी में अधिकतम लगभग 1500 शब्दों में भेजा जा सकता है। इसकी पाण्डुलिपि शोधपत्र की भांति तैयार की जानी चाहिए, किन्तु इसमें शोध टिप्पणी के मुख्य शीर्षक के अतिरिक्त अन्य शीर्षक, चित्र, तालिका, सन्दर्भ आदि देने की आवश्यकता नहीं है।

11. शोधपत्र/शोध टिप्पणी के प्रकाशनार्थ प्राप्त होने के सामान्यतया चार माह के भीतर उसके प्रकाशन हेतु स्वीकृति की सूचना लेखक को प्रेषित कर दी जाती है। यदि शोधपत्र/शोध टिप्पणी के सम्बन्ध में कोई सूचना इतनी अवधि में न मिले तो इसका तात्पर्य है कि रचना प्रकाशन हेतु स्वीकृत नहीं की गई है।

    शोध पत्रिका में प्रकाशनार्थ प्रेषित शोधपत्र/शोध टिप्प्णी की एक प्रति लेखक बन्धु अपने पास अवश्य सुरक्षित रख लें। अस्वीकृत होने पर इसके वापस भेजे जाने की व्यवस्था नहीं है।

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14. शोधपत्र/शोध टिप्पणी प्रकाशनार्थ विचार करने एवं पुस्तकें समीक्षा हेतु निम्नांकित पते पर भेजें-

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References should be cited alphabetically and set out as follows:

Royall, R.M. (1970). On finite population sampling theory under certain linear regression models. *Biometrika,* 57: 377-389.

Sharma, K.K. & Rana, R.S. (1991). Robustness of sequential Gamma life testing procedure. *Microelection Reliab,* 30: 1145-1153.

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Chief Editor, Bharatiya Shiksha Shodh Patrika, Saraswati Kunj, Nirala Nagar, Lucknow-226020 (U.P.)
Email: sansthanshodh@gmail.com

भारतीय शिक्षा शोध संस्थान के प्रकाशन

I. साहित्य

1. **परम्परागत भारतीय शिक्षा व्यवस्था एवं प्रबंधन**—पृष्ठ सं. 510, मूल्य 500 रु. मात्र, आजीवन सदस्यों हेतु मूल्य 350 रु. मात्र।
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9. **सरस्वती शिशु मंदिर, पक्कीबाग, गोरखपुर : बीजारोपण, अंकुरण एवं विकास**—पृष्ठ सं. 182, मूल्य 250 रु. मात्र, आजीवन सदस्यों हेतु मूल्य 125 रु. मात्र।

II. मानकीकृत मनोवैज्ञानिक परीक्षण

क्र.सं.	परीक्षण का नाम	पूरा सेट**
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पत्र प्रेषण का पता-
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सरस्वती कुंज, निराला नगर, लखनऊ-226020
फोन नं.: 0522-2787816 ई-मेलः sansthanshodh@gmail.com

सचिव
भारतीय शिक्षा शोध संस्थान

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