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EFFECT OF CREATIVE THINKING PROGRAMME ON THE DIMENSIONS OF CREATIVITY AMONG STUDENTS

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ABSTRACT

Background:

J.P. Guilford identified convergent and divergent thinking as the two main aspects of thinking. Divergent thinking is concerned with widening the perception of an individual and generating as many ideas as possible and has three main dimensions namely fluency, flexibility, and originality, while convergent thinking is a narrow concept and concentrates only on finding one correct answer. It is observed that a person with greater divergent thinking skills demonstrates a higher degree of creativity. Therefore, divergent thinking tests are widely used as a means to assess creativity of an individual.

Objectives:

1. *To compare adjusted mean score of fluency of Experimental Group and Lecture Method Group by taking pre-fluency as covariate.*

2. *To compare adjusted mean score of flexibility of Experimental Group and Lecture Method Group by taking pre-flexibility as covariate.*

3. *To compare adjusted mean score of originality of Experimental Group and Lecture Method Group by taking pre-originality as covariate.*

Methods:

The present study was experimental and opted for a non-equivalent control group method. The Cognitive Research Trust (CoRT) treatment was administered to the experimental group for a predetermined period of time. The Passi Test of Creativity was used to assess the pre- and post-experiment scores of creativity.

Results: The CoRT programme was found to have a significant effect on the creative development of students for all constructs of creativity

Conclusions: The CoRT programme could be employed in classrooms to enhance the creativity of students.

Keywords: CoRT Programme, Creativity, Experiment, Flexibility, Fluency, and Originality

INTRODUCTION

Thinking is the basic characteristic of all human beings (Abdi, 2012). Thought is the mother of everything that is ever conceived. There are two branches of thinking, namely convergent thinking and divergent thinking (Guilford, 1954). Divergent thinking seeks to produce as many solutions as possible to the current challenge, while convergent thinking concentrates on identifying one correct answer. The majority of educational efforts today are primely focused on convergent thinking and very little freedom is given to students to show their creativity (Parnes, 1970; Craft, 1999; Kaila, 2005; Runco, 2014). However, the uncertainties and turmoil of the modern world have brought about the realisation that convergent thinking can serve only short-term objectives, and society needs divergent, aka creative, thinkers to produce creative solutions to deal with present and future unprecedented remonstrances. The observations of social scientists (like J.P. Guilford) supported by the results of the empirical studies have established creativity as a skill that could be developed and refined with purposeful practices. Over the years, many thinking training programmes have been developed, either to facilitate subject-specific thinking or general thinking skills. Embodied and reflective are the two branches of a creativity training programme (Byrgea & Tang, 2015). Embodied creativity training programmes focus on developing general creative ability, while reflective creativity training programmes focus on understanding theories, processes, or techniques through workshops, seminars, lectures, etc. (Byrgea & Tang, 2015). One such embodied creativity training programme is de Bono's Cognitive Research Trust (CoRT), which targets stimulating general thinking skills among people. The majority of studies carried out to examine the effectiveness of the CoRT programme on creativity have reported a significant effect, while some studies (e.g., Osman et al., 2000) do not report any significant improvement in students. The studies that are conducted in

India have produced results in support of the CoRT programme (Gupta, 2015; Pahuja, 2017; Singh, 2001). However, the scope of these studies remained confined to analysing the effect of the CoRT programme on the overall creativity of participants. The goal of the current study is to examine how the CoRT programme affects each aspect of creativity (namely fluency, flexibility, and originality) separately when compared with the traditional lecture method. By analysing the effect of the CoRT programme on each dimension, a better insight could be drawn into the kind of thinking tool that affects a particular dimension of thinking (more than the others) and how the existing programmes could be modified or the new training programmes could be formulated to target a particular domain of thinking (or creativity). Furthermore, the results of the substantial number of studies in this domain could be compared to shed light on a) which cognitive skill (amongst the three) is easiest to develop, b) if any difference lies in the embodied and reflective creativity training programme in developing the dimensions of creativity, and c) which training programme (general or specific) is more effective in developing the cognitive skills of students.

LITERATURE REVIEW

CREATIVITY AND DIMENSIONS OF CREATIVITY

Creativity is a complex cognitive activity (Feldhusen & Goh, 1995), and a multidimensional concept (Sternberg, 2005). Over the years, many researchers explored different scopes of creativity, but novelty and appropriateness remained its central features (Amabile, 1987; Lubart, 1994; MacKinnon, 1962). In the beginning, creativity was seen as an inborn quality that could not be taught and was confused with intelligence. It was researchers like Barron & Harrington (1981), Feldhusen & Goh (1995), and Kaufman (2015) who identified that creativity is not only restricted to intellectual functioning; rather, it is a mix of personality, motivation, and environmental factors. Whereas, researchers like de Bono, Feuerstein, and Nigel Blagg acknowledged creativity as a skill that could be developed through regular training (McGregor, 2007). Creativity is the "natural human process" of becoming aware of issues, propagating theories to address the deficiencies, and coming up with solutions after testing and retesting the theories (Torrance, 1965). Even after more than seventy years of scientific study, creativity is still a developing field. Thus, simply put, creativity is the cognitive function of investigating the various options that could be applied in a given situation.

The two main aspects of thinking are divergent and convergent thinking. Hargreaves (1927) was the first to elaborate on divergent thinking (as cited by Antink-Meyer & Lederman, 2015). Later, Guilford proposed that divergent and convergent thinking are two different categories of thought. Convergent thinking comes into play when an individual aims to come up with only one practicable option. It leads thinking to the right, conventional, or most agreeable answer (Bentley, 1966) while divergent thinking leads to thinking in many directions, i.e., searching. Divergent thinking deals with open-ended questions, whereas convergent thinking is concerned with closed-ended questions. Runco (2011) defined divergent thinking as "cognition that leads in various directions." Divergent thinking is parallel to creativity. Similar to creativity, divergent thinking is concerned with exploring as many alternatives as possible before selecting the best course of action. Furthermore, divergent thinking is more complex than convergent thinking (Antink-Meyer & Lederman, 2015; Basadur, Graen, & Green, 1982; Runco & Vega, 1990) and it is a dependable prognosticator of creativity (Kim, 2011; Milbrandt & Milbrandt, 2011; Runco & Acar, 2012; Sternberg, 2006). Many theories of creative thinking are connected with divergent thinking and its associatory methods (Runco, 2014). Torrance (1970) expanded on Guilford's concept of divergent thinking and established four sub-categories—fluency, flexibility, originality, and elaboration—which he later applied to shape the Torrance Tests of Creative Thinking (TTCT), a divergent thinking assessment of creativity. Divergent thinking tests are frequently used in research to measure creativity and the sum of the scores for fluency, flexibility, and originality is the score for divergent thinking.

The capacity to produce as many thoughts as possible is referred to as fluency, whereas flexibility is the ability to produce responses that span several categories, while statistically unique responses fall into the category of originality. Flexibility is frequently regarded as being crucial to the process of producing creative effects (Russ, 2002). The awareness of fluency enables a person to consciously look in as many directions as possible. Wilson et al. (1954) identified flexibility as essential for the generation of ideas, hence creativity. Flexibility is described as the ability to adapt to changing instruction while breaking through the inertia of thoughts; on the other hand, originality is the cleverness to produce remote, unusual, and unconventional associations (Wilson et al., 1954). When compared to other creative variables, the originality of an idea has the highest economic value.

THINKING PROGRAMME AND COGNITIVE RESEARCH TRUST (CORT) PROGRAMME

de Bono (1995) and Gupta (2015) have identified escape and provocation as the two basic principles of creativity training. Escape is the stepping stone to creativity. Escape happens when people dissociate themselves from the usual pattern of thoughts and try to look for alternative ways to reach the same end. Whereas

provocation is the moving force of creativity, Provocation is an experiment within the mind (Gupta, 2015). Provocation is a technique for generating ideas by navigating through alternatives (de Bono, 1983). Many programmes have been created over the years to improve people's cognitive capacities through intentional interventions. Some thinking programmes were developed to enhance subject knowledge, while others were developed to develop the general thinking skills of a person. Domain-specific (or reflective creativity training) programmes are mainly based on learning theories and remain confined to the development of subject-explicit knowledge. While general thinking programmes (or embodied creativity training programmes) cover a wide range of situations in which they can be applied. The current study opted for the CoRT programme, which was pronounced by Edward de Bono in Cambridge, England. The CoRT programme is a general thinking programme that uses a general operation approach to enhance creativity through techniques that are designed for open-ended questions. This thinking programme can be applied to individuals belonging to different ages, having diverse academic backgrounds, and belonging to various hierarchy of knowledge. De Bono (1995) defined creativity as the mental process of breaking the habitual pattern of perceiving things and widening the perspective to generate new ideas. Through the CoRT programme, de Bono stressed finding alternatives other than the obvious course of action. It provides techniques and tools that can be applied to different thinking situations, therefore redeeming pupils from content-based learning. The greatest advantage of the CoRT programme is that it does not require formal teacher training (McGregor, 2007). The CoRT programme replace the "you are wrong, therefore I am right" approach with a more inclusive approach where all the opinions get equal weightage. Learning outcomes from the CoRT programme are simply transferable from one type of problem to another since the emphasis is on the method (via the use of thinking tools) and not on content (de Bono, 1985).

METHOD

RESEARCH HYPOTHESES
The study seeks to test the below mentioned hypotheses:

H_{01}: There is no significant difference in adjusted mean score of fluency of Experimental Group and Lecture Method Group by taking pre-fluency as covariate.

H_{02}: There is no significant difference in adjusted mean score of flexibility of Experimental Group and Lecture Method Group by taking pre-flexibility as covariate.

H_{03}: There is no significant difference in adjusted mean score of originality of Experimental Group and Lecture Method Group by taking pre-originality as covariate.

EXPERIMENT

EXPERIMENTAL DESIGN AND PROCEDURE
The study was formed using a quasi-experimental approach. It used a non-equivalent control group design to examine the effect of thinking techniques on the creativity dimensions of students. The study used the pre-post test method to draw a comparison between the results of the dimensions of creativity corresponding to thinking strategy. The thinking strategy had two levels, namely the CoRT programme and Lecture Method, while the dimensions of creativity assessed in the study were fluency, flexibility, and originality. Only the Experimental Group, was given the treatment at the rate of one period per working day for three months. The treatment was a CoRT programme that comprised techniques like PMI – Plus, Minus and Interesting, EBS – Examine Both Sides, AGO – Aims Goals and Objectives, etc. that were employed in the study. These techniques could be laboured through open-ended questions or exercises. The experiment comprised three stages: assessment of the prior level of fluency, flexibility, and originality, treatment, and post-experiment assessment of fluency, flexibility, and originality. The experiment started with the formal introduction of the CoRT programme along with an outline of the experimental process for the participants. Then the experimental group was given lessons in the CoRT thinking tools and techniques through the exercises developed for class interaction by the researchers. Before the start of each technique, participants were given instructions and explained the purpose of the technique. Participants worked in self-organised groups and wrote down their responses within the stipulated time, which was followed by the class discussion where the representative of each group reported the thinking and responses of its group members. During this time, the control group continued with normal school activities and was taught through the traditional lecture method. In the post-experiment phase, participants completed the same creativity test within the restricted time. It represented the final stage of the experiment.

PARTICIPANTS
The participants were twelfth-grade commerce students (n=83) belonging to government-aided schools located in the Gurugram and Faridabad districts of Haryana. The school located in Gurugram was randomly chosen as the experimental group (n=43) while the school located in Faridabad was chosen as the lecture method group (n=40). The mean age of group members was 16.77 years, with a 0.75-year standard deviation. The schools were similar in all aspects of academics, giving students a homogenous learning background. The participants in both groups were never subjected to the CoRT programme before.

TESTING INSTRUMENTS
The Passi Test of Creativity (PTC) by B.K. Passi, was adopted to assess the variables of creativity and to determine whether the thinking strategy can have an effect on the fluency, flexibility, and originality of participants. The test was divided into three sections that assessed only the verbal creativity of participants. The first section was the Seeing Problems Test, which assessed fluency only. The second section was the Unusual Uses Test, which assessed fluency, flexibility, and originality. The last section, i.e., the Consequences Test, assessed the fluency and originality of ideas. Each part was completed within the stipulated time. The scores were summated from across the sections to get the total pre-post scores of fluency, flexibility, and originality. Many researchers, including Borchetia & Kalita (2018), Pahuja (2017), and Ponnusamy (2019), have used PTC to assess creativity in their research.

RESULTS

DATA ANALYSIS
SPSS Statistics V25 was used to analyse the data. Before running the statistical test, the dependent variables, i.e., fluency, flexibility, and originality scores, were checked for a normal distribution. Kolmogorov-Smirnov tests indicated that the significance level of all the variables in both groups was above 0.05, indicating a normal distribution except for the for the flexibility of the lecture method group. However, the F test is robust to the normal distribution (Broota, 1989/2014). Thus, for greater precision and to eliminate the individual disparities in the fluency, flexibility, and originality scores of participants, the researchers decided to conduct a one-way ANCOVA to compare the adjusted mean scores of fluency, flexibility, and originality (separately) of students belonging to the experimental group and the lecture method group by taking pre-fluency, pre-flexibility, and pre-originality as the covariates, respectively.

RESULTS AND INTERPRETATION
The first objective was to analyse the effect of thinking strategy on the fluency of students by comparing the adjusted mean score of fluency of students belonging to the experimental group and the lecture method group by considering pre-fluency as the covariate. The results are given in Table 1.

Table 1: One-Way ANCOVA of fluency of Students by taking pre-fluency as covariate

Source of Variance	df	SSy.x	MSy.x	Fy.x	Remark
Thinking Strategy	1	15164.39	15164.39	132.3	p<0.01
Error	80	9169.57	114.62		
Total	83				

The adjusted F-value was significant at F (1, 80) = 132.30, p<0.01 (Vide Table 1). It indicates that thinking strategy had a substantial effect on the fluency of students when their pre-fluency was taken as the covariate, with an effect size (ηp^2) of 0.62. Hence, the conjecture that there is no significant difference in the adjusted mean scores of fluency of students belonging to the experimental group and lecture method group by taking their pre-fluency as a covariate is rejected. The experimental Group's adjusted mean fluency score was 65.70, which was significantly higher than that of the lecture method group's adjusted mean score of 38.40.

The second objective was to analyse the effect of thinking strategy on the flexibility of students by comparing the adjusted mean score of the flexibility of students belonging to the experimental group and the lecture method group by considering pre-flexibility as the covariate. The results of one-way ANCOVA are depicted in Table 2.

Table 2: One-Way ANCOVA of flexibility of Students by taking pre-flexibility as covariate

Source of Variance	df	SSy.x	MSy.x	Fy.x	Remark
Thinking Strategy	1	153.06	153.06	38.56	p<0.01
Error	80	317.53	3.97		
Total	83				

The adjusted F-value was significant at F (1, 80) = 38.56, p<0.01 (Vide Table 2). It indicates that thinking strategy had an effect on the flexibility of students when pre-flexibility was considered as the covariate and had a moderate effect size (ηp^2) of 0.33. Hence, the conjecture that there is no significant difference in adjusted mean scores of the flexibility of students belonging to the experimental group and the lecture method group by taking their pre-flexibility as a covariate is rejected. Furthermore, the adjusted mean flexibility score (M_{adj} = 5.64) of the lecture method group was significantly lower than the adjusted mean flexibility score (M_{adj} = 8.46) of the experimental group.

The third objective was to compare the adjusted mean score of originality of students belonging to the experimental group and the lecture method group by considering pre-originality as the covariate. The results of one-way ANCOVA are depicted in Table 3.

Table 3: One-Way ANCOVA of originality of Students by taking pre-originality as covariate

Source of Variance	df	SSy.x	MSy.x	Fy.x	Remark
Thinking Strategy	1	2454.17	2454.17	30.52	p<0.01
Error	80	6432.62	80.41		
Total	83				

The adjusted F-value is significant at F (1, 80) = 30.52, p<0.01 (Vide Table 1). It indicates that thinking strategy had a substantial effect on the originality of students when their pre-originality was taken as the covariate, with an effect size (ηp^2) of 0.33. Hence, the conjecture that there is no significant difference in the adjusted mean scores of originality of students belonging to the experimental group and the lecture method group by taking their pre-originality as a covariate is rejected. The adjusted mean score of originality in the experimental group (M_{adj} = 28.60) was considerably higher than the adjusted mean score of the lecture method group (M_{adj} = 17.24).

DISCUSSION

The results of the experiment showed that students who were given training in the CoRT thinking lessons showed significant improvement in the fluency, flexibility, and originality aspects of creative thinking when compared with the students who continued with the conventional lecture method. Thus, it could be said that the CoRT programme served as an effective thinking tool. These findings are in line with the results of previous studies, which have shown that the CoRT programme has a significant effect on students' creativity (Barak & Doppelt, 1999; Gupta, 2015; Pahuja, 2017). A general thinking programme like the CoRT programme can play a substantial role in developing the overall creativity of an individual. The post-experiment results of the current study have shown that the CoRT programme has a significant effect on all the dimensions of creativity. The CoRT programme has a flexible structure and it does not follow any defined sequence of tools and techniques to be applied (however, it is recommended that out of six parts, trainers should start with CoRT 1). It is also liberal in its application to different content and thinking circumstances. It is the fluid nature of the CoRT programme that allowed participants to gain comfort with the thinking exercises and produce as many responses as possible (fluency), from as many aspects as possible (flexibility), and with as much uniqueness as possible (originality). The CoRT exercises are designed in a manner that broadens the perspective of trainees; thus, students were made to examine a situation from different viewpoints (technique example: EBS and OPV) while analysing the positive and negative aspects of the situation (technique example: PMI). The CoRT exercises also helped the students to take a step back and analyse the short-term and long-term consequences of their actions and decisions (technique example: sequence and consequences). The mix of CoRT techniques developed the cognitive ability of students to think, produce solutions, and then analyse each input critically one by one. Further, students worked in groups that allowed them to get a deep insight into each other's thoughts, which additionally obligated them to look beyond the obvious or most common answers. This process worked as an unconscious force for students to consciously look for more and more answers, switch categories when they hit a bottleneck in one category, and provide unique solutions to stand out (both as an individual and as a group).

The teamwork helped them to build a much stronger social circle and helped to build a deeper understanding of each other's thought processes.

The group discussion was also found to benefit students' cognitive and psychological development. Students worked in self-organised groups of four to five members. Through this group activity, students became more open to the views and opinions of others and came out of the "I am always right" mindset. Inter-group and intra-group discussions helped the students widen their insights and explore different alternatives to reach the same goal. Intra-group discussions had a larger effect on fluency, while inter-group discussions majorly affected the flexibility of students. Renzulli et al. (1974) found that group settings have a significant effect on the fluency, flexibility, and originality scores of participants. Thomas and Fink (1963) also reported that group settings have a significant effect on individual and group productivity. The discussions within one group helped members to first identify the line of thought and then dig deeper into it by analysing the problem from different aspects. On the other hand, when each group shared its opinion in the class discussion, the other groups realised an alternative way of approaching the same problem. The post-experiment results showed that the CoRT programme is superior to the lecture method in improving the fluency, flexibility, and originality of students. The lecture method of teaching is criticised around the world for its one-way transfer of information and because it discourages students from active participation in the classroom. The lecture method has failed to initiate thought provocation among students. The CoRT programme is adaptable in its application, and it has the potential to play a significant role in developing students' thinking regardless of grade or level of knowledge. The present study further establishes researchers' claim that a thinking programme should be introduced in the school curriculum (Best, 1982; Florida, 2004).

To facilitate creativity and its subdivisions, a thinking programme must be integrated into the teaching process of students, starting at the school level. The present study further established that regular training could help students become more sensitive and insightful in their understanding of their problems. The CoRT programme could serve as an effective thinking tool in the present increasingly stressful world, where individuals are subjected to more thinking and decision-making than ever before. The importance of creativity has been recognised at the individual as well as the social level. At the personal level, creativity helps in the workplace and daily life, while at the social level, it can lead to a discovery in art, a scientific invention, or a social movement (Lubert, 1994).

CONCLUSION
The study used the quasi-experimental research method to determine the effect of the CoRT programme on commerce students' fluency, flexibility, and originality and discovered that the CoRT programme is significantly more effective than the lecture method. The analysis of the adjusted mean scores revealed that the CoRT programme significantly improved the fluency of students, followed by originality, while little improvement was observed in the flexibility of students.

DECLARATIONS:
Authors' contributions:

Komal Gehlawat: Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing.

Prof. R.S. Pandey: Conceptualization, Formal analysis, Writing – review & editing, Supervision.

Conflicts of interest/ Competing interests: The authors have no competing interests to declare that are relevant to the content of this article.

Data availability statement: The data belong to the Ph.D. thesis of the researcher. Data would be made available upon reasonable request and after due approval from the supervisor and the university.

Ethical Approval:

The treatment was in the form of classroom discussions where students were subjected to different thinking tools. Teachers were welcome to participate and oversee the treatment.

Consent to participate: Informed consent was obtained from all individual participants included in the study.

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IMPACT OF PANDEMIC ON NET BANKING (E - BANKING) AND ITS FUTURE PROSPECTS WITH REFERENCE TO MULUND CITY

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ABSTRACT

A disease caused by a corona virus, 1st time identified in Wuhan, China in December 2019. On February 11, 2020, the WHO announced an official name for this disease that causing the new 2019 novel corona virus outbreak the new name for this disease is corona virus disease 2019 called COVID -19.

In India, the year 2020 began with the fight against the corona virus and it came with one of the most changes in all our lives the lockdown in March 2020. After lockdown all the people face a lot of problems like the closure of schools and colleges, closure of gym, cinema hall, keeping social distance, etc., one of the most difficult problems is the closure of grocery shops which leads to problems of physical payment of various bills. Earlier the people use to shop grocery from shops by paying cash directly, they used to pay bills physically, but during the pandemic, it becomes impossible to pay cash due to social distancing measures. People always find some solutions to their problems and payment through online resources is the solution to their problems of making payment easy and quickly.

This paper is an attempt to study "The Impact of Pandemic on net banking (e – banking) and its future prospects with reference to Mulund east"

INTRODUCTION

Today due to advanced technology the banking sector groomed there self to be a part of digitalisation. The banking sector despite of accepting deposits and lending loans, they are more conscious about customer satisfaction and hence they introduced many technologies in their operating activities. Banking sector giving more and more facilities to their customer to survive in today's competitive world. They are providing customer care services, ATM; cash deposit machine, passbook printing machine, chequebook, Demat account services and Net - banking systems. Even a bank employee will come to your home to fill the form and collecting the documents of yours for opening an account. The people also search for convenient way for their day to day activities and hence the facilities introduced by banks provide convenience to the customers for their banking needs, so the society easily adopt the facilities provided by banks.

The concept of E-banking or Net-banking is introduced in late 1990 & ICICI was the 1st bank to introduce internet banking to its customer in 1996. Low-processing cost per transaction is one of the reasons behind the popularity of internet banking. Internet banking facilitates to transfer cash, making payment, interbank transfer of funds, any inquiry or transactions is processed online without any reference to branch. Due to some events like demonetisation and the popularity of using smart phones and mobile applications people of India are moving towards e – banking services in huge numbers but the most of the urban people are using e-banking services than rural peoples.

In simple term, Pandemic means the 'worldwide spread of a new disease', The COVID - 19 outbreaks started in China (Wuhan) and turns to Pandemic declared by WHO. The COVID -19 Diseases spreads to other people very quickly and we does not have proper medication to cure this disease, so to stop or minimise this spread of COVID – 19, one of the most effective way is lockdown. Lockdown means closure of all the shops, transport, gyms, malls everything, only essential services like banks, dairy and grocery shops was open to the people with some instructions like people should not make crowd and they should keep distance between other people. The people should stay at home to break the chain of COVID -19 spreads. In March 2020, Indian Government declares the lockdown to break the chain of COVID, hence this lockdown changed the way of living life. All the peoples started using technology for their needs; all work is shifted to work from home. This change in day to day life found one step ahead towards digitalisation. Digitalisation means using digital platforms for the activities. Using Net banking (E - banking) or Digital payment services is a part of digitalisation and This Paper is focusing the effect of the pandemic the use of Net- Banking (e – banking) services and its future prospects

REVIEW OF LITERATURE

In the paper titled 'E- banking Services, Features, Challenges and Benefits' by Emola Driga says, with the convenience of digital channels, customers are visiting branches less often and they use online payment services and mobile technology for their banking needs more often. From this paper we found that the customers using net – banking (e – banking) or Mobile apps more often.

In a Paper titled 'Impact of E-baking on traditional banking services' by Shilpan Vyas. The author says 'e-bank is the electronic bank that provides the financial services for the individual client by means of internet' the author says that there are the limitations of safety situation around the ATM, abuse of bank cards by fraudsters at ATM, danger of giving your card number when buying online. The author also says that the e-banking transactions are cheaper than traditional banking. The author gives conclusion that e-banking is borderless entity permitting anytime, anywhere and anyhow banking. This facilitates us with all the functions and many advantages as compared to traditional banking services. From this paper we come to know that 'e-bank' is popular for many reasons even before COVID-19.

In a paper titled 'Demonetisation and e- banking in India' by Dr. Sweta Singhal. The author concluded that E-banking is a buzzword after demonetization. India is now in the list of top countries where major population transact online. With the introduction of smart phones and mobiles application the usage rate has increased. But there is a long way to go as rural population of India is still waiting for some program from banks that will facilitate their usage of e-banking services. From this paper we can say that people already was aware and using the e-banking services in a large amount the reason behind it is usage of smart phones and demonetisation.

In a paper titled 'How successful countries are in promoting digital transactions during COVID-19' by Hoda Mansour . The author finds that low - and lower –middle - income countries had significantly responded to the surged need for digital means of payment during the pandemic compared to the upper-middle-income and high-income countries. The author also finds that government effectiveness and the number of commercial banks were predictors of government policy response, while the full lockdown of countries and the overall digital adoption were not. From this paper we can conclude that most of the countries moving towards e-banking lead to digitalisation.

In a paper titled 'Digital Payments Usage During Covid19 Pandemic With Special Reference To E-Wallet Users in Guwahati City' The author finds that the nationwide lockdown has benefited digital payment platforms as 42% Indians have increased the utilization of digital means for payments for purchasing essentials and mobile recharges are top use causes. From this paper we can say Pandemic resulted in increase in usage of Net-banking (e – Banking) Services. But This Study was confined to Guwahati City only.

In a Paper Titled 'A Case Study On "Mobile Banking Is A Boon To Banking Customers During The Covid-19 Pandemic Situation"-With Special Reference To The SBI Customers Of Mangalore City" by Mrs. Divya M P and Dr. C.K. Hebbar. The author found that COVID-19 crisis has increased Mobile banking usage, more customer are transforming towards mobile banking, therefore bank should improve the digital engagement level and make it simpler to operate mobile banking. The author also says that the bank should encourage and guide the customer to operate mobile banking for all type of banking activities. The author is saying banks along with government support must transform into digitalisation, but the study was confined to customers of State Bank of India of Mangalore city only.

By reviewing the above papers we have reached to a conclusion that the people were already aware and using Net banking (E- banking) services or Digital payment apps but the situation of pandemic leads in increase in the awareness and usage of net-banking (e-banking) services. But I found that there is a research gap of the analysis of the users of net –banking (E – banking) services with regards to Mulund city and therefore I have made an attempt to study the 'Impact of Pandemic on Net - Banking (E- Banking) And Its Future Prospects With Reference To Mulund City'

OBJECTIVES
1. To study the performance of Net Banking (E- banking) Services
2. To study its future prospects
3. To understand the requirements of the users.

LIMITATIONS OF THE STUDY
Due to limitation of time and Lockdown caused by pandemic (COVID -19) the researcher has collected the data within the boundaries of Mulund city.

DATA COLLECTED
The researcher has collected all information with the help of Primary data. The information is collected through online survey with the help of questionnaire prepared with the help of Google form. The data is collected from 150 respondents. The responses are as follows:

Gender	Number of respondents
Male	59
Female	91

Age Groups	Number of respondents
Up to 20 years	90
21 to 40 years	50
41 to 60 years	05
60 years and above	05
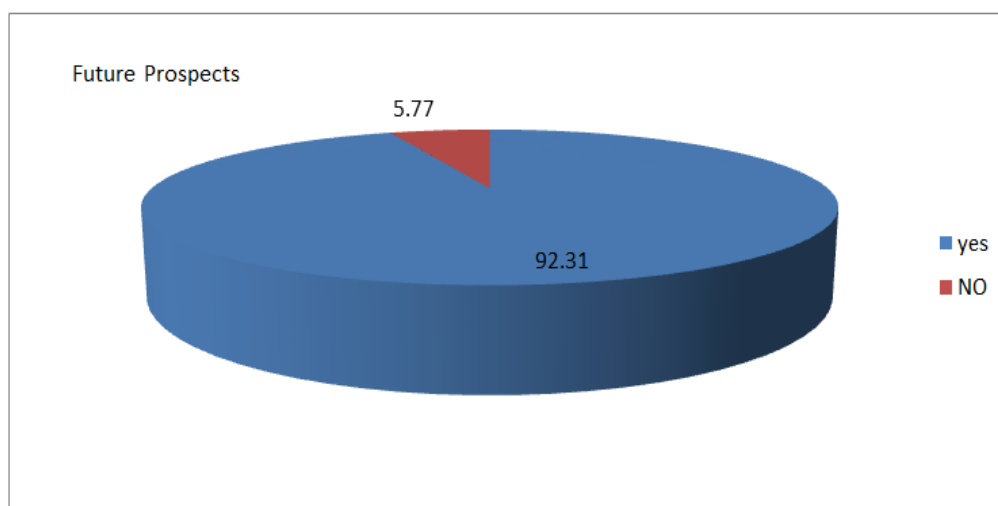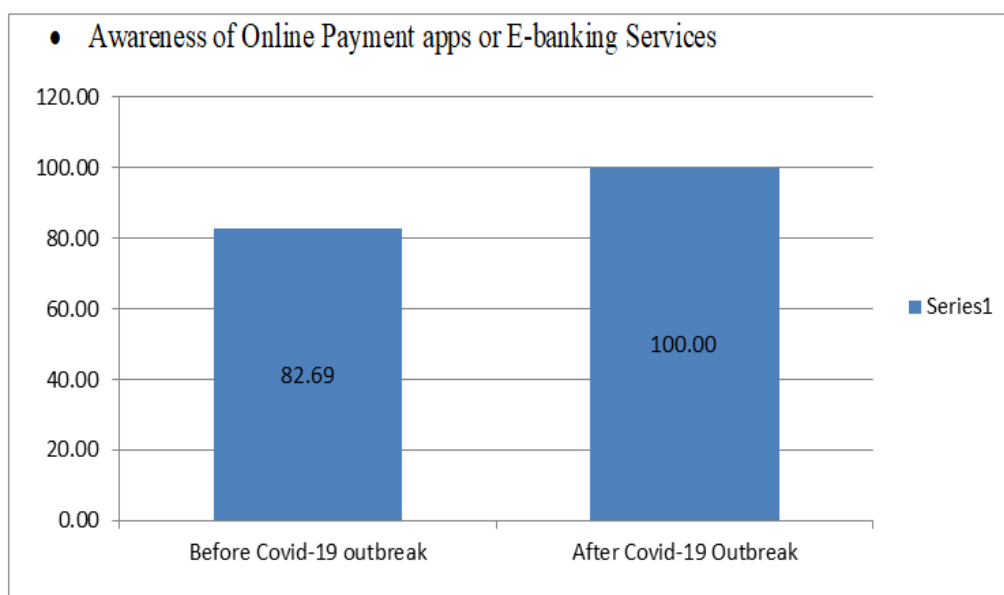
FINDINGS

1. The researcher has found, that because of COVID - 19 Pandemic the government has declared Complete Lockdown. However the lockdown was declared through the country and in some areas due to increase in COVID – 19 cases that areas were sealed, but the people will need necessary things like food, milk, vegetable, they have to pay bills, make the recharge of their mobiles in there day to day life, but for this needs they find it difficult to go out and purchase the necessary things physically or pay the bills physically. So they were aware about the net-banking (e-banking) services or apps from which they can pay without any physical contact through their bank account.

2. As many users familiar with the mobile and computer operating they find it easy to collaborate with net-banking (e-banking) services to do all the payment transactions by way of online fund transfer or by using mobile apps like Google pay, phone pay, paytm, bhim and many other apps launched by particular bank.

3. Net- banking (e – banking) services are mostly used for fund transfer and Mobile banking apps are used for grocery shopping, mobile recharges and payment of bills.

4. Due to pandemic most of people moved towards online payment i.e. digital payment apps hence resulted in increase in the use of Net-banking (e-banking) services.

5. While using an online payment apps or net-banking services the people thinking a lot for the safety issue. As in today's technological world most of the computer and mobiles can be hacked.

6. Other than the apps designed and launched by the banks all other apps like google pay, paytm, Bhim and so on. do not have customer care services for digital payment apps

7. One of the disadvantage of net- banking is most of the transaction got failed again and again. Some time the transactions got fail but the money will be debited from the bank.

CONCLUSION

- As many situations of the past leads to increase in the awareness and usage of net- banking (e- banking) services like Demonetisation, usage of smart phones. The Pandemic also resulted in almost 20% increase in the number of users of Net Banking (E-Banking) apps or services. 100 % people whether their age is 20years or above 60 years are learning to operate mobile banking or Net banking and accepting the change in a positive way. This change is a positive impact towards digitalisation.

- The users of Net-banking (E- banking) are worried about the security issues. The bank should improve security features of their e-banking services. The bank should guide or create e-content for the usage of Net-banking or E-banking services, so the customer will get all the information to operate net-banking (e - banking) services as well about their accounts and transaction at home.

- As it is find very easy and time saving to adopt net - banking (e - Banking) or mobile banking services and apps to make the payment , users will continue to use the Net-banking (E-banking) apps and services even after Pandemic also.

- The advantages of using net-banking (e-banking) or Digital payment apps are they give alert of bill payment in every month. They provide rewards for making digital payment. They keep records of transactions and provide information of balance also.

- According to a study of human psychology, a person is less attached with the cash in the bank than cash in hand and hence due to ease of Net - banking the customer spends the cash kept in bank leads in increase in the expenditure thus resulting boost in economy.

SUGGESSTIONS:

- Bank should make an Improvement in customer care services.

- Bank should guide and encourage the customer for using Net-banking (e- banking) services for that they can create a video explaining step by step procedure for Net- Banking transactions.

- There should be efficient security features for using Net- banking services or Mobile apps, like while doing the online transaction any question or quote made by the customer can asked before executing the payment via online mode

- Most of the time when we earn reward of 'better luck next time', so the bank should provide rewards for using net banking.

- The bank should charge fewer charges for fund transfer.

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SOCIO-LEGAL PERSPECTIVES IN ENACTMENT OF UNIFORM CIVIL CODE IN INDIA FOR HARMONIZING DIVERSITY

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ABSTRACT
The Uniform Civil Code has been a topic of significant debate within the Indian socio-legal framework. Article 44 of the Constitution, a directive principle, mandates the state to implement a Uniform Civil Code. Despite numerous directives from the Supreme Court, the UCC remains unimplemented due to excessive politicization. In the absence of uniform personal laws for matters like marriage, divorce, and adoption, different religious communities follow their own laws derived from religious texts and customs, which often result in gender discrimination. This paper aims to balance the Right to Freedom of Religion and the Right to Equality by distinguishing between 'essential religious practices' and 'secular activities'. A gradual and well-informed approach, particularly aimed at minorities, is necessary for enacting a Uniform Civil Code. The debate around the UCC is complex, involving issues of gender equality, individual rights, religious freedom, and social justice

Keywords: Uniform civil code, Socio-legal, diversity, Enactment, Article

1. INTRODUCTION
The UCC aims to replace the current personal laws, which are based on religious scriptures and customs, with a unified set of laws for all citizens, achieving legal uniformity within diversity. It seeks to uphold the constitutional ideals of equality, as outlined in Articles 14 and 15 of the Indian Constitution, irrespective of religion, caste, or gender. However, the implementation of a UCC faces varying levels of acceptance and resistance due to concerns about its impact on cultural and religious autonomy. This complex interaction of law, religion, and society in the UCC debate is the focus of our submission, which explores its advantages and disadvantages while attempting to reconcile differing viewpoints (Malik., 2024).

India is a highly diverse country with a wide array of traditions and religions. This diversity is reflected in the country's legal system, which incorporates rules and regulations that consider religious beliefs. Various religions, including Hinduism, Islam, Christianity, Sikhism, and Buddhism, have their own distinct personal laws governing matters like marriage, divorce, inheritance, and adoption. These laws are based on religious scriptures, customs, and practices that differ significantly from one another. The legalization of these diverse practices is rooted in the Constitution of India, specifically Article 25, which declares India a secular nation. This article ensures that everyone is free to practice their religious beliefs and prohibits discrimination on religious grounds (Waza., 2023).

The concept of the UCC is outlined in Article 44 of the Indian Constitution, which is part of the Directive Principles of State Policy. While these principles are not legally enforceable, they are considered fundamental to the governance of the country and guide the creation and interpretation of laws. The UCC aims to consolidate personal laws into a common civil code applicable to all citizens, regardless of religion, caste, or community. The primary goal is to promote equality, unity, and integrity, ensuring that all citizens are treated equally under the law, thereby fulfilling the mandate of the Indian Constitution (Malik., 2024).

2. HISTORICAL BACKGROUND OF UCC
The evolution of civil laws in India is closely connected to the history of personal laws. Lord Warren Hastings supported categorizing identities strictly under the 1772-73 Regulation Act, which decreed that Hindus and Muslims should be governed by their own laws (Menon 1998: 48). In 1835, the British Government presented a report emphasizing the need for uniform codification of Indian laws related to crime, evidence, and contracts, while explicitly recommending the exclusion of Hindu and Muslim personal laws from this codification. These personal laws remained uncodified to segment the diverse population along religious lines and to develop a judicial system responsive to the prevailing social conditions, mainly serving the imperial objective of exerting greater control over Indian territory (Agnes 2011).

Many members of the Constituent Assembly disliked this debate, with significant opposition from Muslim members who believed that the Uniform Civil Code (UCC) was detrimental to the religious and cultural ethos of Indian society. Mohammad Ismail, a member of the Madras legislative assembly, contended that adhering to one's personal laws was a fundamental right and an integral part of one's way of life. While addressing the assembly, he stressed the need to add a provision to Article 35 that would reflect this viewpoint, "Provided that

any group, section or community of people shall not be obliged to give up its own personal law in case it has such a law" (The Constitution of India 1949).

However, many members supported the Code. Raj Kumari Amrit Kaur, co-founder of the All India Women's Conference in 1927 and the first female Cabinet Minister in free India, championed a common code and marriage equality for women. She argued that a uniform code would safeguard women from discriminatory personal laws and should therefore be established as a justiciable right (R Kruthika 2018). K. M. Munshi, also known as Ghanshyam Vyas and founder of the educational trust Bhartiya Vidya Bhawan, shared the view that personal laws discriminated against citizens based on their sex, which was unconstitutional (Constituent Assembly Debates 1948). Dr. B. R. Ambedkar, a strong proponent of uniformity in civil laws, regarded social reform as the paramount duty of Indian lawmakers. He defended the state's right to intervene in personal laws, asserting that a uniform code would establish the 'power' to govern those who consent to it, rather than an obligation. (Constituent Assembly Debates 1948)

The Uniform Civil Code (UCC) was first included in the Bharatiya Janata Party's (BJP) election manifesto in 1996 and has been promoted as a means to ensure gender equality. The issue resurfaced when the Uttarakhand Government passed a proposal to implement the UCC in its first cabinet meeting under newly elected Chief Minister Pushkar Singh Dhami. He stated that this move was in line with his pre-election promise and announced the formation of a committee of experts to draft the UCC. In 2023, with the BJP in power at the center, Prime Minister Narendra Modi signaled his support for UCC on June 27th, speaking in favor of its implementation and criticizing opposition parties for allegedly inciting opposition among minority communities. Following the Prime Minister's speech on June 27th, Union Law Minister Arjun Ram Meghwal held a meeting with Union Home Minister Amit Shah, attended by the law secretary as well. In an interview with Economic Times, Meghwal stated, "Whatever the PM said on UCC is as per the Constitution and is mentioned in Article 44." These developments occurred as representatives from the Law Commission and the Law Ministry were invited to a hearing by the Parliamentary Standing Committee on Personnel, Public Grievances, Law, and Justice on July 3, 2023, to discuss the Law Commission's notice requesting comments on the UCC from stakeholders. The government plans to introduce the UCC during the parliamentary Monsoon session in August 2023. It has become crucial to understand the UCC and the significant emphasis behind its implementation (Gupta et al., 2024).

3. SOCIO-LEGAL PERSPECTIVES IN ENACTMENT OF UNIFORM CIVIL CODE IN INDIA

1. Potential conflict arising from the imposition of uniform civil code in India

Below are some of the potential conflicts that will arise from the imposition of uniform civil code in India. Religious sensitivities: Opposition from religious groups. Imposition of uniform civil code may phase strong opposition from different religious groups who see it as an intrusion into their religious autonomy and practices. They argue that personal laws that are based on their religious scriptures and traditions are an integral part of their religious identity and should be protected as a fundamental right. Resistance to change: some religious communities may resist any attempt that can modify their personal laws, fearing that it would harm and dilute their religious practices. they can view uniform civil code as and potential threat to their identity and religious traditions. Gender Justice: The attempt to change certain personal laws that have been criticized for discrimination against women such as marriage, divorce and inheritance through uniform civil code may face resistance from conservative sections of the society who argue to preserve the pure traditional gender roles and practices. Cultural differences: India is a very rich cultural diversity which is reflected in various customary practices associated with different religious communities. Imposing upon them a uniform civil code may clash with these practices and can potentially lead to resistance and cultural conflicts. As different sections of the societies strive to safeguard their unique customs and tradition.

2. Promotion of National Unity and Integration with UCC

Advocates for the introduction of a UCC in India posit that it could significantly enhance national unity and integration, underlining the principle of 'one nation, one law.' By creating a common legal framework, the UCC could establish a uniform set of laws applicable to all citizens, regardless of their religious or cultural backgrounds. This uniformity in civil laws could instill a shared sense of citizenship and unity among all Indians. This approach, which involves uniform application of laws without considering religious or social affiliations, could engender a greater sense of national integration (Ghosh., 2018). Moreover, the UCC could play a critical role in reducing religious discord and communal tensions, which often stem from varying personal laws across different religious communities. By replacing these disparate personal laws with a unified legal code, it's possible to minimize the chances of inter-religious conflicts, thereby fostering social harmony and integration.

Furthermore, implementing a UCC could underline India's commitment to secularism, a crucial aspect of the Indian Constitution. By ensuring that civil laws remain separate from religious laws, the state can emphasize its neutrality towards all religions, bolstering the principle of unity in diversity. Promotion of Gender Justice and Women's Rights One of the most prominent arguments in favor of the UCC in India is its potential to promote gender justice and enhance women's rights, particularly among communities where traditional personal laws may be seen to disadvantage women. The UCC aims to establish a uniform legal framework applicable to all citizens, irrespective of their religious or cultural backgrounds. This uniformity could help to ensure that all women, regardless of their religious affiliation, have access to the same rights and legal protections. The UCC could thereby contribute significantly to the promotion of gender justice in India (Raju., 2019). Particularly it can address the concerns related to unequal treatment given to Muslim women under the Muslim personal law

Potential to Simplify the Legal System and Ensure Equality before the Law The implementation of a UCC in India carries with it the potential for significant legal simplification and a greater assurance of equality before the law. The current system of personal laws, being derived from a multitude of religious and cultural traditions, can often be complex and challenging to navigate. A UCC would offer a uniform set of laws applicable to all citizens, irrespective of their religious or cultural background, thereby potentially simplifying the legal system (Ratnaparkhi., 1997). The preceding section has already identified some ways wherein the UCC can reform the Muslim personal law and provide better treatment to Muslim women. In this section, some deviations even in Hindu law based on customs are discussed.

Cons of Implementing a UCC in India In furtherance to the third research question, this section discusses in detail some of the drawbacks and concerns related to the implementation of UCC in India. Potential Threat to Cultural and Religious Diversity The implementation of UCC in India, despite its potential benefits, raises concerns about possible threats to the country's rich cultural and religious diversity. These concerns predominantly stem from the fear that a UCC might homogenize personal laws and thereby compromise the unique customs and traditions of different religious and ethnic communities (Sambhavi., 2017). There is a fear that the UCC could lead to cultural homogenization and loss of cultural diversity, given its intent to provide a standardized set of laws for all citizens. The existing system of personal laws allows various communities to preserve and practice their distinct customs and traditions, which form an integral part of their cultural identities.

3.3 Empowerment of Women in India through Uniform Civil Code: Issues and Challenges

For a long time, women have had to struggle to break through the boundaries that have existed for ages and to enter male-dominated spaces. Historical records indicate that women in ancient India enjoyed a privileged position. However, with the advent of new religious traditions and their corresponding personal laws, women's status declined, pushing them to the margins of society. Gender inequality in personal laws further degraded their societal standing. To improve their position, the British introduced reforms, including legislation to outlaw sati and restrict child marriage. During the Constituent Assembly debates, members discussed implementing a common civil code to eliminate religious and gender-based disparities. However, it was placed under Part IV of the Constitution, with the hope of enforcement under favorable future conditions. Despite these efforts, obstacles to women's emancipation persist. They continue to battle long-standing barriers and struggle to enter male-dominated areas. The primary issues women face include ongoing crimes against them, lack of decision-making authority, restricted freedom of movement, limited access to education, employment opportunities, and media exposure (Mishra., 2014).

In India, several factors contribute to the complexity of issues concerning women's rights, and addressing these issues would immediately benefit women's empowerment:

- Inequality in personal laws, particularly concerning marriage and property rights, has subjected women to harsh treatment, perpetuating a stigma on their status.

- Illiteracy prevents women from participating in traditional and modern sectors such as agriculture and business. Educational attainment among women in rural areas progresses slowly, and not all women have equal access to education.

- Many women are unaware of their legal rights and regulations that could enhance their personal status. Even when aware of rights related to succession, marriage, and family, they often choose not to exercise them due to traditional dominance exerted by male family members such as parents, husbands, and elders. Cultural attitudes play a significant role in how these issues manifest.

- Gender inequality in India has significantly hindered the country's progress, necessitating concerted efforts across all religious communities to achieve meaningful change. Women's equality remains more of a personal achievement than a societal one, as not all women are treated equally in terms of power, employment opportunities, and education. Despite legal provisions for equal rights on paper, women face limited employment options and inadequate protection from exploitation in the workplace. Gender inequality manifests in various forms, including social stereotypes, domestic violence, and discrimination against girls and women in many parts of the country (Mayoux., 2003).

- Another critical issue is the deficiencies within the judicial system, characterized by lengthy legal procedures and operational challenges. Despite existing secular laws aimed at protecting women's fundamental rights, the delayed court processes often deny them timely justice.

- Although child marriage is prohibited in India, many girls still marry before the legal age of eighteen. Efforts by both government and non-governmental organizations have not bridged the substantial gap between those who are protected by law and those who are not. Patriarchal mindsets entrenched in age-old customs continue to pose a significant challenge to achieving gender equality.

- Social pressure from families often prevents women from seeking justice through secular laws, as they are bound by traditional customs and rituals. Despite the passage of 73 years since the enactment of the Constitution of India, the aspiration for a common civil code remains unfulfilled, with its placement under Part IV as directive principles that are not enforceable by courts. However, there is increasing societal awareness and consensus on the need to emancipate and empower women so they can contribute effectively to the welfare and progress of society.

- To build a sustainable society, it is crucial to uplift the dignity of women and empower them, ensuring they have equal opportunities and rights in all aspects of life (Malik., 2023).

4. ENACTMENT OF UCC

1. Strategies for a Balanced Implementation of UCC

The complex issues related to the implementation of UCC discussed in the preceding sections highlight the need to reconcile UCC with the religious freedoms and cultural identities of India's diverse population. The fourth research question investigates the possible ways and means to reconcile UCC with India's religious and cultural diversity. It is to be kept in mind that any drastic or sudden implementation of UCC in India could prove to be problematic and counter-productive. Implementing a UCC in India, considering the country's diverse religious and cultural fabric, would require a delicate balance of various considerations. The recommendations and strategies that could facilitate a balanced implementation. It is important to remember that the goal of the UCC is to unite the country under a common legal framework that respects diversity and guarantees equality, and this should be communicated clearly to all communities, including religious minorities

2. Uniform civil code and conflicts of personal laws

The customs, social practices, and religious interpretations of these communities, as observed in their personal lives, are deeply rooted in the religion they were born into and practice. Several codified personal laws govern aspects such as marriage, divorce, property, and inheritance:

- The Indian Christian Marriage Act of 1872 (applicable throughout India except in the erstwhile regions of Travancore-Cochin, Manipur, and Jammu & Kashmir)

- The Cochin Christian Civil Marriage Act of 1920 (applicable in the Travancore-Cochin areas)

- The Anand Marriage Act of 1909 (for Sikh marriages)

- The Muslim Personal Law (Shariat) Application Act of 1937 (applying Shariat laws to Indian Muslims)

- The Parsi Marriage and Divorce Act of 1937

- The Hindu Marriage Act of 1955 (applicable not only to Hindus but also to Buddhists, Jains, and anyone who is not a Muslim, Christian, Parsi, or Jew and not governed by any other law)

Two scenarios need to be discussed to determine the conflicts: a) Personal laws, whether codified or customary, that conflict with the provisions of Part III of the Indian Constitution, and b) Conflicts arising from personal laws that aim to reform existing laws deemed arbitrary and unconstitutional in relation to Article 25 of the Indian Constitution. The Indian judiciary, as the protector of the Constitution, faces a dilemma in addressing the interrelation between personal laws and Part III of the Constitution. A landmark judgment that sheds light on this dilemma is the Narasu Appa Mali case. In this case, the constitutionality of the Bombay Prohibition of

Bigamous Marriage Act 1946 was challenged based on Articles 14, 15, and 25 of the Indian Constitution. The major issues in the case included: a) Whether the personal laws of Hindus are considered "law" within the meaning of Article 13(3)(b) and Article 372(3), Explanation 1, and b) Whether altering the personal law of one religious community without similar changes in others' personal laws violates the principle of equality under the law

4.3 Necessity of UCC

4.3.1 The promotion of genuine secularism is encouraged
India currently practices selective secularism, where secular principles are applied in some areas but not in others. A uniform civil code in India would apply the same legal provisions to all citizens, regardless of their religious affiliations, including Hindus, Muslims, Christians, and Sikhs. This seems to be a reasonable and non-religious perspective. Implementing a uniform civil code does not restrict individuals' religious freedom but ensures equal treatment for everyone, exemplifying true secularism.

4.3.2 It is essential to ensure equal treatment for all Indian citizens
Currently, India's personal laws are influenced by specific religions, allowing practices like multiple marriages for Muslims, while Hindus and Christians face legal consequences for the same actions. This does not align with the principle of equality. All Indians should be subject to the same laws regarding marriage, inheritance, family, and land to guarantee equal treatment for everyone in India (Harshith., 2024).

4.4 Advantages of implementing a uniform civil code
Implementing and enforcing a Common Civil Code would yield several benefits. Firstly, it would promote national integration and accelerate this process. Secondly, it would eliminate overlapping provisions within the legal system. Thirdly, it would decrease litigation stemming from personal laws. Additionally, it would foster a sense of unity and national identity, thereby bolstering the nation. Ultimately, this would equip the country with the strength and resilience needed to combat communal and divisive forces.

Global perspective on the adoption of a uniform civil code: Countries like Israel, Japan, France, and Russia have strengthened their national cohesion through a robust sense of unity, a quality that we have yet to fully develop and propagate. Many nations have either a uniform civil code or uniform laws governing civil and criminal matters. European countries and the United States have established secular laws that are uniformly and impartially applied to all citizens, irrespective of their religious affiliations. Islamic countries adhere to a uniform legal system based on Sharia law, applied universally regardless of individuals' religious backgrounds.

Regarding the Uniform Civil Code (UCC), there is a lack of awareness among the populace, particularly among minorities. Many people misunderstand the code, fearing that its enactment would force them to adopt the religious practices of the majority, thereby losing their identity. Therefore, the first step should be to educate people about the true meaning and scope of the UCC. A Commission should be established to define the code's scope and extent, and the Parliament should draft a code specifying its contents. This code should differentiate between essential religious practices and secular activities related to religion. Only financial activities or secular matters like maintenance and inheritance should be regulated by the State, not religious or customary practices like saptapathi or nikah. This ensures that one community's religious practices are not imposed on another. Provisions regarding marriage validity should include age requirements, marriage registration, and so forth. Minorities should be assured that their Right to Religion will not be infringed upon. The draft should then be made available for public opinion, and nationwide campaigns and discussions should be conducted. After considering the Commission's viewpoints, the Parliament should enact a code applicable across the country, regardless of religion, race, caste, or creed (Pachauri., 2016).

5. HARMONIZING DIVERSITY
There are different ways being considered to address the legal and social issues related to personal laws, instead of having a single uniform civil code for everyone these alternatives take into account that diverse religious and cultural traditions in India and aim to promote fairness, equality and social harmony. Here are some alternatives.

1. Reform and Harmonization of personal laws
Instead of a uniform civil code the approach should be to impose and make the existing personal laws consistent with each other. This involves change in the existing laws to address unfairness towards certain gender and discriminatory practices. The goal should be to ensure equal rights for individuals in areas like marriage, divorce, inheritance and property ownership.

2.   Selective implementation of reforms

This alternative suggests implementing changes in areas where there is widespread agreement, while allowing communities to maintain their own personal laws, in other aspects this allows for gradual change while respecting the diversity of personal laws.

3.   Community mediation

Various communities in India have their own customary practices for resolving disputes and family matters. Alternative way of resolving conflicts such as community mediation, can be encouraged to solve any specific problem within specific communities. This approach ensures fairness and upholders constitutional principles while respecting the cultural practices of different sections of the society.

4.   Legal pluralism

Legal pluralism means recognising and accommodating different legal traditions. under this approach individuals of different societies have the freedom to choose the legal system they want to follow based on their religious or cultural beliefs. It respects the diversity of Indian society and allows individuals to resolve legal matters while adhering to constitutional principles.

5.   CONCLUSION

Since ancient times, India's diverse society has been governed by personal laws encompassing civil rights such as marriage, property, maintenance, adoption, and more. However, these laws have often reflected a patriarchal mindset, shaping customs and traditions that perpetuate unequal entitlements to civil rights, particularly disadvantaging women. The framers of the Indian Constitution endeavored to introduce uniformity in civil matters to uplift the status of women and eliminate gender-based inequalities. Despite these efforts, the implementation of a uniform civil code has faced challenges. Pressure persists to move towards nationwide implementation of a uniform civil code, which would act as a comprehensive framework to facilitate robust legislation based on a common set of laws, promoting gender equality. It is crucial to ensure that while religious communities may have their own norms, the legal system remains accessible to make incremental advancements in women's rights.

The discourse on the UCC in India presents a complex interplay of legal, social, and cultural dimensions. To highlight the complexities associated with the implementation of UCC in India, the author had framed four research questions. The first research question had sought to examine the legal complexities associated with the adoption of UCC. The examination revealed that the adoption of the UCC is fraught with complex legal challenges, largely due to India's historical attempts at codifying personal laws and the strong resistance from various religious communities. The UCC's implementation is complicated by the diverse and pluralistic nature of Indian society, where personal laws are deeply intertwined with religious and cultural identities. The historical resistance to codification reflects the difficulties in reconciling the demand for uniform civil laws with the preservation of cultural and religious diversity.

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EFFECTIVENESS OF NEP 2020 IN INDIAN SOCIO-CULTURAL SET-UP

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ABSTRACT
Indian National Education Policy 2020 aims to achieve rapid changes to entire education and knowledge landscape of India. The educational framework of India has recently put more stress on skill-based knowledge development and increase in opportunity for vocational courses. Thus, re-contextualization and re-configuration of application-based knowledge is necessary in education which is the most significant issue in understanding Indian education landscape. The impact of NEP to extend the horizon of Indian education landscape can be assessed through the transformation of teaching-learning process. However, the present research is to explore the contribution of NEP 2020 in formulating new education landscape of the country; and, to analyse the impact of new teaching-learning process to bring socio-cultural change among contemporary students. The study depends on the result of a micro-level survey to identify the transformation of students at undergraduate level with the inclusion of NEP. To carry forward the importance of NEP 2020 to future generation, it is our duty to assess the development till date to map out new directions in the sphere of skill and knowledge-based education.

Keywords: Social Change, Culture Change, Knowledge, Skill, Transformation

INTRODUCTION
A developing nation like India is going to have no choice but to undergo significant changes to its educational system. In addition, a robust media-based education system is absolutely necessary in order to make considerable as well as active participation of the citizens in the process of development.The National Education Policy 2020 is a comprehensive policy that aims to bring transformational changes in the Indian education system. The policy has been formulated after extensive consultation with various stakeholders, including teachers, students, parents, and educationists. The policy aims to address the current challenges facing the Indian education system and provide a roadmap for its development in the future.

The policy has several key features, including introducing a new structure of education from the foundational stage to higher education, including vocational education, and using technology in education. The policy also aims to promote multilingualism and provide quality education to all students, including those from disadvantaged backgrounds. The paper aims to explore the contribution of NEP 2020 in framing new education landscape of the country. In addition to that, analysing the impact of new teaching-learning process under the NEP 2020,its assessment should be given high priority in order to properly shape the overall social and cultural change in Indian society through incorporation of more students and enhancing their skill acquisition process. The study depends on the result of a micro-level survey to identify the transformation of students at undergraduate level with the inclusion of NEP 2020. To carry forward the importance of NEP 2020 to the future generation, it is our duty to assess the development till date to map out new directions in the sphere of skill and knowledge-based education.

The Government of India announced the National Education Policy 2020 (NEP 2020) to provide quality and equality in education for all citizens of the country and makes them globally competitive. New and improved technology has an essential role in disseminating information about the new policy and its benefits to the people of India.

REVIEW OF LITERATURE
After long awaiting, the Union Cabinet implemented the new education policy the on 29th July to transform Indian education scenario. Providing quality education, quality education and achieving holistic development of every Indian citizen are the most basic goals of this policy. The growth trajectory also incorporates a 'gender - inclusion fund' to provide girls and transgender students quality education, institutional infrastructural improvement, better learning environment, technological enhancements and improved cocurricular and extracurricular activities for them (Hoque and Mohanta 2020; Muddu, Joshi and Bhaskar 2021). Teachers share information to students and experience challenges to facilitate the present teaching-learning process with

already available techniques and tools among students. The concept of socialization in contemporary period is changing rapidly with technological advancement of the country. Now, students have become more capable of using various modes for their educational purposes (Upadhyay, 2017). Social scientists are continuously engaging themselves to identify more appropriate learning methods in order to improve country's educational landscape through their research and the positive consequences should bring as an outcome.

Multiple entries and exit at the undergraduate level, establishment of education centres that helps to 360-degree assessment of student's learning capacity as well as improvement in mental abilities of students - all will provide a quality education for Indian citizens (Verma and Kumar 2021). The policies have given special emphasis on Hence, besides its experimental, integrative and enjoyable character, the holistic learning is the primary motto of NEP 2020. The other real understanding of NEP 2020 is towards the overcoming of the routine memorization and mere storing of some unconnected pieces of information in the mind (Jain, Sharma and Khanam 2021) to holistic education system.

The traditional learning system is transforming in recent decades to some extent by changing their ways of delivering news and distribution of information (Lee, 2010). Ansari and Khan (2020) mentioned about the collaborative learning as a new concept of education in recent period. Interaction among various stakeholders of education system like teachers, peers and friends also considered as a significant stimulant of present education system. Not only that, online social media facilitate students to become more creative and dynamic in terms of collaborative learning and research. Researchers are analysing NEP 2020 from the student's skill development point of view and identifies the need for vocational educational model to inculcate the skill-based education system (Jain, 2023).

Various social institutions play vital role in creating a new vision towards improved perception, beliefs, values and activities of citizens (Stack and Boler 2007; Chavan and Bhorkade 2022). NEP 2020 creates a new and transformed education landscape focusing on holistic and multidisciplinary educational approach that has increased the creativity and high-quality education system of the country. According to Kumar and Nandini (2022),the introduction of various programs like Artifact Conservation, Translation and Interpretation, Archaeology, Graphic Design, Web Design, Art and Museum Administration and so on extend the horizon of knowledge creating a new path towards quality education in India.

METHODOLOGY AND OBJECTIVES
The paper is mainly based on secondary sources like articles, chapters in books and various other documents. However, a survey involving 100 college students of Undergraduate colleges from North and South Kolkata and 50 teachers of different colleges is conducted as the source of primary data using face to face interview method. The age group of student respondents is 18 to 20 years and respondents are selected by purposive sampling method.

The objectives of the present research are–

- To explore the contribution of NEP 2020 in formulating new education landscape of the countryand,

- To analyse the impact of new teaching-learning process to bring socio-cultural change among contemporary students.

Role of National Education Policy 2020 in Creating New Education Landscape
The National Education Policy 2020 is a significant policy announcement by the government, and it is essential to create awareness about its key features and benefits among the general public. This policy also aims to play a very crucial role in spreading information and creating awareness about various vocational courses and training programs under different schemes of the government. The new education landscape that has developed in recent years, especially since the incorporation of online teaching methods, is believed to become strengthened after the implementation of National Education Policy 2020 all over the country. A report on NEP 2020 by UGC website tells that it is "the outcome of mammoth exercise to integrate Indian traditional value-based education with the present technology dominated teaching and learning process" (UGC website).This new education landscape of the country based on the use of various platforms, such as print, electronic, and social media is supposed to disseminate information about all the government schemes. Experts and educationists provide an in-depth analysis of the procedure to create this new educational landscape and to identify its potential impact on the education sector. Different social media platforms can also be used as case studies to highlight the policy's benefits, including vocational education and the promotion of multilingualism. The press, for example, can showcase the success stories of students who have benefitted from the approach and how it has transformed their lives.

In addition, the role in creating awareness about implementing the policy also comes under the purview of NEP 2020 and its creation of new education landscape of the country. It will provide updates to every stakeholder of education sector on the progress made in implementing the policy and highlight the challenges faced. However, as majority of higher education institutions are incorporating different modes of teaching-learning process, like mass media, in order to engage students in study along with updating the teaching fraternity of the institution with recent developments in their own disciplines and related discourses. These also allow students to sensitize and inform about the educational details and updates.

The National Education Policy 2020 is a comprehensive policy that aims to bring transformational changes in the Indian education system. The variety of educational tools and mechanisms is essential in creating awareness about the procedure and its benefits among the general public. They can use various platforms to circulate information about the policy and highlight its key features and benefits. The social media can also play a vital role in creating awareness about the implementation of the procedure and providing updates on its progress. Successfully implementing the policy requires the active participation of all stakeholders, including the media.

In the spotlight of National Education Policy 2020, it is therefore necessary to take suitable strategies to communicate with students in such a way that educational equality is achieved. Development of the creative potential of each individual is the primary aim to formulate any Education Policy. However, National Education Policy 2020 is based on 'the principle that education must develop not only cognitive capacities –but both the 'foundational capacities' of literacy and numeracy and 'higher-order' cognitive capacities, such as critical thinking and problem solving – but also social, ethical, and emotional capacities and dispositions' (Ministry of HRD). It will open the scope to be a 'student-centric, experiential, and inquiry-based approach to learning' in Indian social set-up through initiating a mode of problem- solving, critical thinking and encouraging creativity among students. To attain the goal of equality in education with excellence and the corresponding multitude of benefits to every stakeholder, it is highly important to start with a proper strategy to offer equal opportunity and facility to each of them. Thus, the concept of communicative equity is applicable to ensure educational equality under NEP 2020. Thus, the mode of education has shifted from rote learning to conceptual understanding as well as to skill enhancement among students in every corner of the country.

An enquiry has been served by this present study through conducting primary survey among students and teachers asking some questions about their perception regarding the mode of education ranging from traditional (classroom teaching with chalk and duster) to online (virtual mode) and to hybrid (i.e., sometime face to face interaction between teacher and student along with virtual classes) mode. As the NEP 2020 aims to create an inclusive education system by promoting holistic development, fostering creativity and innovation among students; hence, the successful implementation of the policy requires individual and group perception of all stakeholders, including educators and students. The diagram 1 shows the cartographic representation of teacher's perception regarding the mode of education in past and in present time.

Diagram 1: Mode of Education and Opinion of Teacher Respondents
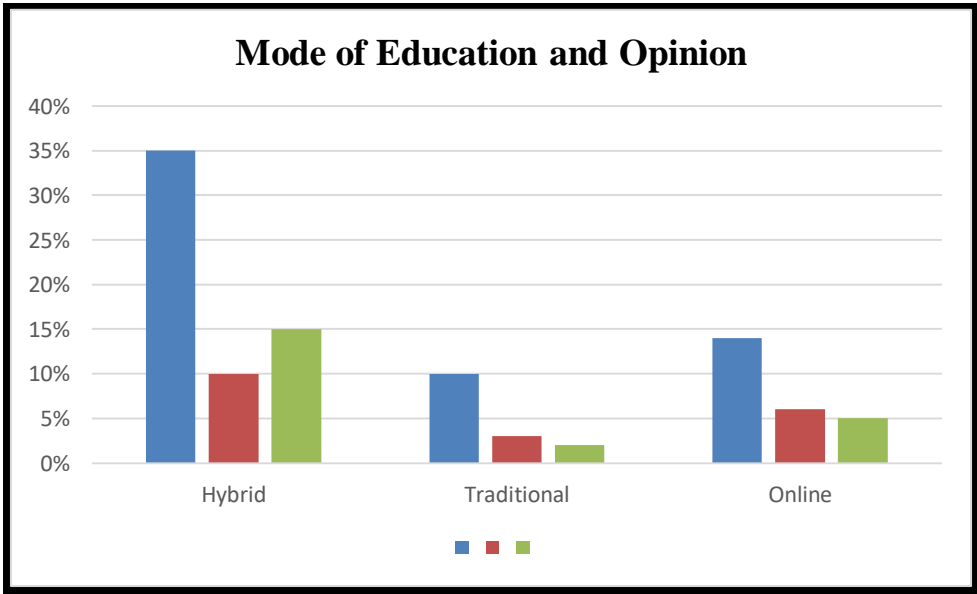
Source: Data collected by the researchers (March 2023 to June 2024)

On the basis of the collected data, it can be said that, effectiveness of NEP is positively reflected in hybrid mode (35%) whereas through online mode of learning, positive effectiveness is 14%. Hence, it is showed that hybrid teaching-learning process is marked as most positively effective in the context of NEP 2020. Hybrid teaching is a form of teaching that combines traditional teaching method with virtual mode, which is used both mode of teaching, i.e., "online and offline". The organic combination of these two teaching forms helps the students to learn a topic from shallow (SUN, 2020) to deep according to the requirement and acceptability of the student.

From the students' perspective traditional method of learning is more popular than NEP 2020 as the data reflect for NEP 2020, 45 percent of response comes through the survey, whereas 55 percent of them are in favour of traditional learning method (Table 1). This can be due to the first introductory phase of NEP 2020; students are not very clear about the new method till now.

Table 1: Students' Responseregarding mode of Teaching- Learning Process

Response / Teaching Learning	Positive	Negative	Neutral	Total
Traditional	38%	7%	10%	55%
NEP 2020	24%	6%	15%	45%
Total	62%	13%	25%	100%

Table 2: Teachers' Response regarding mode of Teaching- Learning Process

Response / Teaching Learning	Positive	Negative	Neutral	Total
Traditional	32%	9%	10%	51%
NEP 2020	19%	5%	25%	49%
Total	51%	14%	35%	100%

There is no specific difference between traditional educational system and NEP 2020 in the context of the response from the teachers as 51 percent of them are in favour of traditional method and 49 percent are supportive of NEP 2020 (Table 2).

Hence, there is a wide opportunity and scope of improvement in the new education landscape of the country in post-NEP 2020 era. The new education landscape is passing through the initial years and after analysing the trial phases, it may develop the country's youngsters into a skilled workforce of India.

Socio-Cultural Change through Introduction of New Education Landscape
On the basis of functional theory, education fulfils several necessities of society. The most important function is socialization. The norms, values and skill are learned by the students through educational institution. Also "hidden curriculum" is taught by schools. Through hidden curriculum, students can learn the values like respect for authority, punctuality and even individualism. Sometimes, harmony and belongingness can be learned by the students through educational systems. Next important function is social integration. Functionalists opined that, through education common set of beliefs and values can emerge through proper education. The most important function of education is social placement. The idea can be appropriately related to societal context with the identification of specific inclination of students. NEP 2020 has a focus on skill development of the students (diagram 1), which is closely connected to this process of social placement. Social and cultural innovation is another dimension of education. Encouragement of scientific discoveries and artistic creativity should be incorporated in education. NEP 2020 has ample scope to incorporate innovative mechanism in education.

According to Conflict theory, sometimes education can be linked with inequality, which is harmful for the society. Remembering this NEP 2020 has a focus on inclusive education burring all kinds of inequality. Symbolic interactionists perspective gives importance on interaction in educational scenario. It can be related with gender role and even the expectation of teachers in the context of performance. NEP 2020 put emphasis on the role of teachers for enhancement of the talent of students in multidirectional orientations. Thus, the ultimate goal of NEP 2020, i.e., the pluralistic understanding of knowledge can be achieved by multi-disciplinary approach.

The significant pedagogical transformation occurred in the Indian education system after the implementation of NEP 2020, can affect immensely on the socio-cultural mind set up of Indian citizens (including educators, students, parents, policy makers and many more). The student-centric holistic approaches to education system aims to initiate critical thinking, value based learning and skill enhancement among students from primary education to higher education through differential strategies and pathways. The shifting of traditional method of teaching and evaluation process to conceptual, interactive and deep learning will help students to clear their understanding about any topic through encouraging application oriented holistic learning. Thus, the concept of experiential learning methods, such as project-based learning, hands-on activities and inquiry-based learning will encourage to explore and promote critical thinking and problem-solving skills among students and they will automatically spread their advanced technical skill in shaping the society in a improved way. The integration of different subjects and their interconnectedness through promoting multidisciplinary learning aims to develop a holistic understanding of real-world issues and challenges among youths and future young generation. The integration of Technology is the need of the hour and NEP 2020, if implemented properly, will encourage the use of digital tools, online resources, and educational technology platforms to facilitate personalized learning as well as introduce collaborative learning environments in the country. This convergence of tradition with modernity will definitely create a new cultural parameter in the new education landscape of the country.

Diagram2: Socio-Cultural Significance of NEP 2020
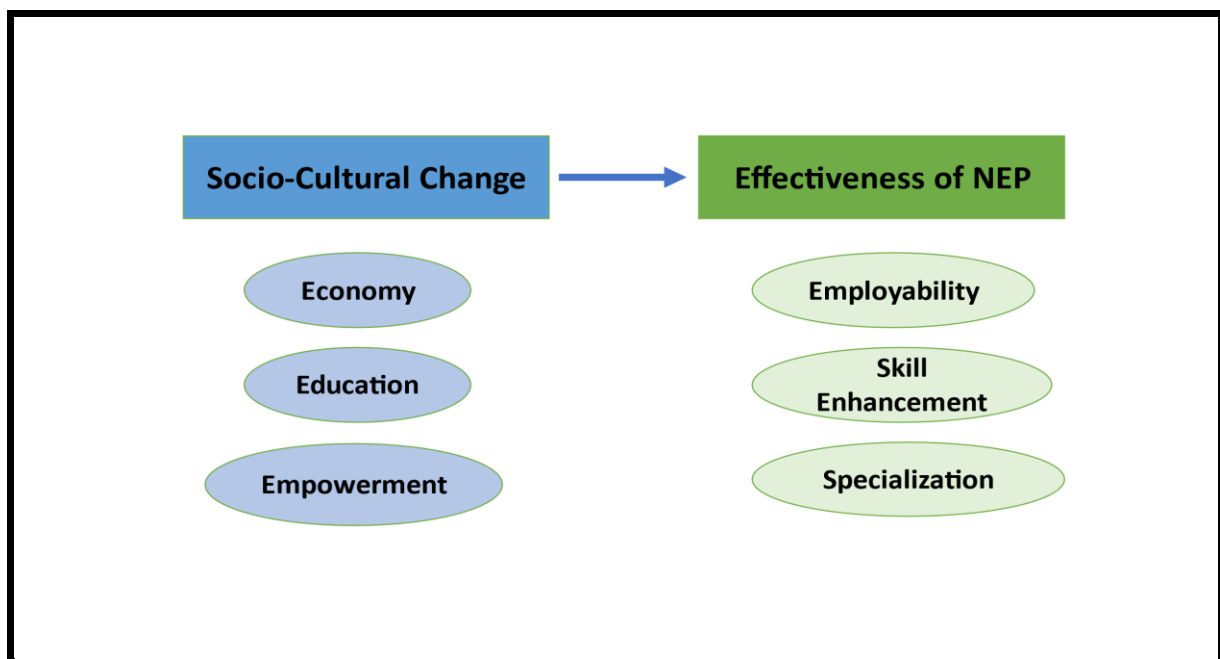
Source: Compiled by the researchers

The NEP 2020 aimed to improve and strengthen the training programs in rural India with the expectation of improve agribusiness and also in partnered sectors to augment the rural efficiency through skill-enhanced graduates and specialized labours and through market-based expansion in practice. More importance is given to technical education through equipping professionals in cutting-edge areas like in Artificial Intelligence (AI), 3-D machining, big data analysis, machine learning to preparethe graduates with recent technological knowhows. In the areas of health and environment, most important addition are various courses, hands-on trainings and internship programs on biotechnology, nanotechnology, neuroscience, genomic studies and above all resource management and sustainable living by incorporating these into higher education courses. All these courses is expected to upgrade the employability factor among the youth and help to create the startup entrepreneurs at the service of digital India at present and in future years also.

Integrating new age skills and entrepreneurship education in schools and in higher education promote enhancement in skill-based development among students. The significance of designing of various vocational courses and their development is created in order to meet the common norms of skill development as well as improvements in standards at the global level. The skilled workforce is always supposed to develop the nation at global level and help the country to equality in resource utilization and resource distribution among various segments of society. Under the Hub and Spoke Model, Industrial Training Institutes (ITI) or Pradhan Mantri Kaushal Kendras (PMKK) will take the leading role in vocational education and training (VET) for students spread skill training to students at higher school level and at graduate level (Jain, 2023).

Specialization in curriculum will assist students to move forward in the study and where they have more interest, they will shine. Under this background, Special Education Zone (SEZ) is also started to formulate to empower every section of the population irrespective of their caste, class and religious character and their social hierarchy. NEP 2020 emphasizes inclusivity character of educational system, where internal structure and operational culture in school and college education system can be improved through infrastructural support and by making corresponding changes in curriculum. Hence, incorporating the materials on human values like respect for all, tolerance, patience, empathy and so on will help to create a skill-based specialized education landscape of the country.

CONCLUSION

NEP 2020 is connected to the age of globalization as the future generation is connected to each other with highly mediated existence. They are completely influenced by the mediated world. As, educational system is connected to each sector of society and administration for the diffusion of knowledge related information, thus, professional help can be taken for making the study materials more interesting to the younger generation. Youtube, blogs and social media platforms can be utilised for the transmission of knowledge in hybrid mode of education. Interaction between teachers, peers and friends can be recognised as significant influence in engaging students in knowledge sector. The importance of formative assessment has been investigated by researchers, which is an ongoing, continuous, and classroom-based assessment process. It encourages the assessment of students in terms of their critical- thinking abilities, their problems- solving efficiencies, communication capacity and collaborative activities. It ensures collaborative learning, multidisciplinary learning and skill-based learning as a new turn in the educational system. Blended mode of education can ensure more participation among students in educational system despite of their distance, available time and other hindrances. Thus, through NEP, creativity and dynamism can be considered as two most important pillars of learning and understanding. Educational approach of NEP 2020 has important focus on two interrelated orientations like holistic and multi-disciplinary education. The aim of this kind of approach is to increase the thinking capacity of the students with creativity. Soft skill development and introduction of vocational subjects within the curriculum will broaden the scope of employability of future generation undoubtedly.

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A STUDY OF IMPACT OF ONLINE LEARNING ON THE ACADEMIC PERFORMANCE OF THE UNDERGRADUATE STUDENTS THROUGH PARTIAL LEAST SQUARE STRUCTURAL EQUATION MODELING (PLS-SEM AND NECESSARY CONDITIONS ANALYSIS (NCA)

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ABSTRACT

The present study aims to study the effect of Online learning on the Academic performance of the learners. The combination of PLS-SEM and NCA analysis was used to analyze the effect of course material, ease of use, ease of learning, faculty teaching and student's expectation on the academic performance with student's satisfaction as a mediating variable. A sample of 627 respondents were collected from undergraduate learners of University of Mumbai. The findings revealed that course material, ease of use, ease of learning, faculty teaching, student's perception are necessary and sufficient factors for predicting the effect on the academic performance of the learners. Student's Expectation, Ease of Learning and Satisfaction are important variable and the performance is excellent whereas Ease of use, course material and Faculty teaching were important but the performance was poor.

Keywords: Online Learning, Academic Performance , PLS-SEM and NCA

INTRODUCTION

Online learning during the Covid-19 pandemic was conducted for the undergraduate students through Online platforms like Zoom meetings, Microsoft teams, Google meet, Webex etc. The satisfaction level of the learners for Online learning was different for different learners. The satisfaction level had affected the academic performance of the undergraduate learners.

The studies conducted in the past revealed that the Online learning had positive as well as negative effect on the academic performance Asaad Mubarak Elshareef Mohammed (2022). Independent factors like course design, Prompt feedback and Student's satisfaction had a positive effect on the academic performance of the learners Ram Gopal Singh, Varsha Singh and Arun Aggarwal (2021). Online learning motivates learners to learn independently Balalakshmi and R Savithri (2021). Student's satisfaction was different for different level of online learning. Online learning Level was moderate among the learners Gio L. Ledesma (2021) .

Our present studies tried to remove these inconsistencies by identifying the gaps in the past studies by analysing the Impact of Independent factors like Course material, Ease of Use, Ease of Learning, Faculty teaching and Student's Perception on the academic performance of the learners with Student's Satisfaction as a mediating variable.

We have conducted PLS-SEM and NCA analysis to determine the necessary and sufficient factors for the academic performance of the learners and the critical level of the independent factors through bottleneck analysis. We also have analysed the important and performing factors for the academic performance through IMPA analysis .

THEORETICAL MODEL & METHOD :

To test the hypothesis proposed above we have developed a theoretical model which analyzes the impact of Course material, Ease of Learning, Ease of use, Faculty teaching, Students perception on the Student's Satisfaction which in turn has impact on the academic performance of the students (figure 1)

PLS - SEM Method was used for testing & analyzing the relationships between independent variables & dependent variables. Partial Least Squares (PLS) helps the researchers to analyze the relationships simultaneously. It also helps to analyze the mediation relationships with the regression analysis (Nur Ainna Ramli, Hengky Latan & Gilbert V. Nartea, 2018). PLS- SEM techniques are more appropriate for determining the causal predictive model (Chin, et al. 2020). PLS-SEM path modeling is useful technique to analyze and estimate the causal models (Hair et al 2021). PLS-SEM is beneficial for estimating models with many constructs, structural model relationships and many indicators per construct (Marko Sarsted and Joseph F.HairJr 2014). PLS SEM evaluation criteria provides the appropriate metrics for checking the result's robustness (Joseph F. Hair, Jeffrey J. Risher, Marko Sarstedt, Christian M. Ringle, 2019). Based on the findings of the above researchers we have decided to use PLS- SEM for the present study.

NCA analysis helps to identify the necessary conditions which are essential to achieve the desired outcome (Dul et.al 2016). The combined use of PLS-SEM and NCA helps the researchers in identifying the necessary factors

required for an outcome (Ritcher et al 2020). We have used PLS- SEM and NCA analysis to determine the necessary & sufficient conditions to achieve the desired level of outcome. IPMA was performed to determine the relative importance - performance dimension of the constructs. SmartPLS 3.0 software was used to analyze the model estimation (Ringle 2015).

MODEL RESULT ASSESSMENT:

A questionnaire with survey items having 5 - point Likert Scale was designed for the study (Table 1). For evaluation of survey items, a Pilot test was conducted by circulating 100 questionnaires among the learners of University of Mumbai. Corrections in the survey items were made based on the responses from the pilot test. The final Sample consisted of 627 learners form various programmes like BCom, BMS, BBI, BFM of University of Mumbai. There were no missing values in the final data collection since all the questions in the questionnaire were set to mandatory

Table 1 : Demographic Distribution :

Gender		Programme				Class	
Male	Female	BBI	BMS	BCOM	BFM	SY	TY
317	310	133	258	120	116	368	259

Fig 1: PLS-SEM Model
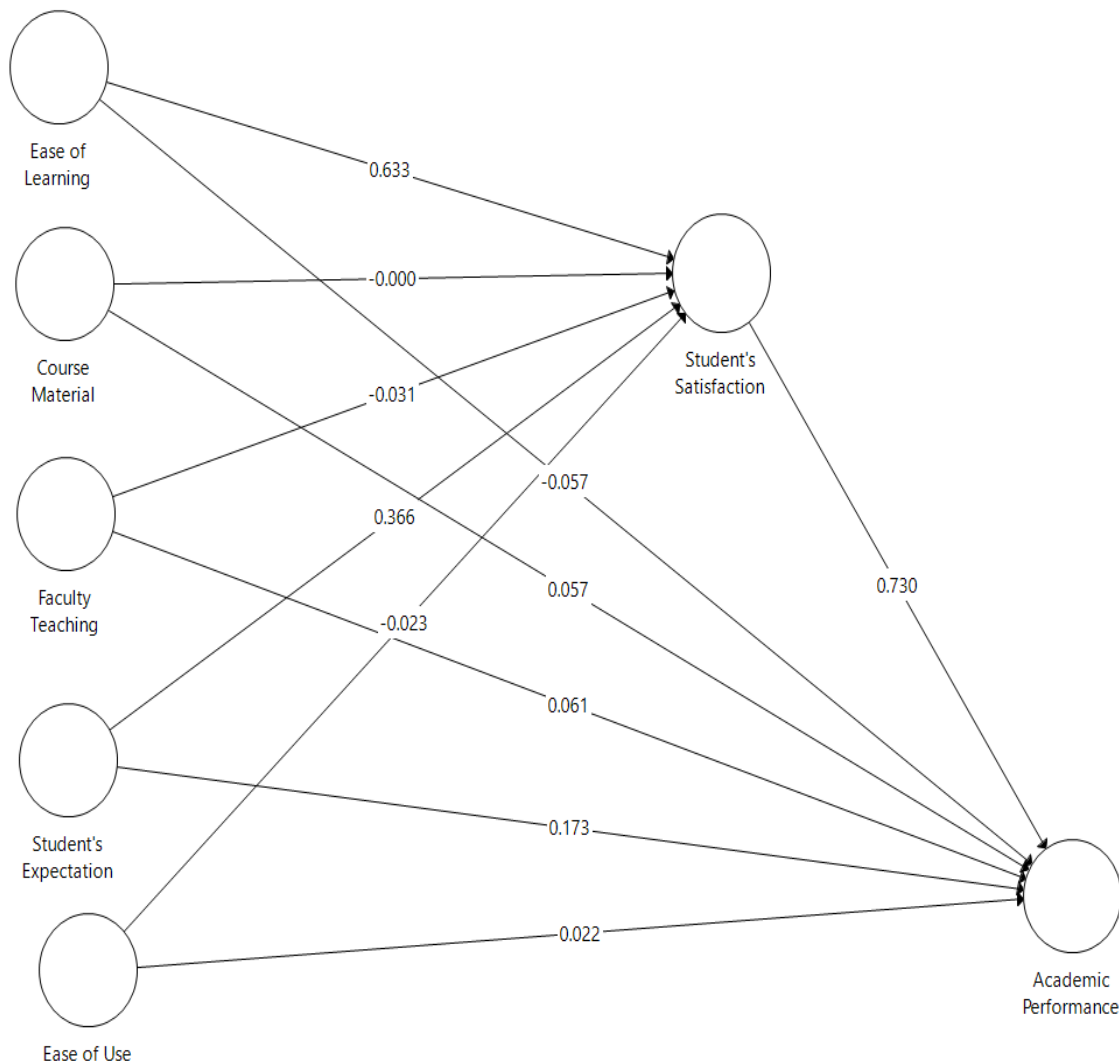
Findings of PLS-SEM:

The present research study adopted Joseph Hair (2017,2019 et al) for assessment of the measurement model. To measure the common method bias in our study we followed Podsakoff and Organ,1986; Podsakoff et al 2003) and Kock (2015). Gender and Class were used as control variables related to student's academic performance to measure the collinearity among the variables. The inner variance inflation factors (VIF) are less than 3.3 (Kock 2015) (Table 2). We therefore conclude that our sample is free of common method bias and do not have any critical collinearity issues.

Table 2: Control Variables: Gender and Class

Indicator	Gender		Class
	VIF < 3		VIF < 3
CM1	2.967		2.967
CM2	2.867		2.867
CM3	2.803		2.803
EOU1	1.859		1.859
EOU2	1.814		1.814
EOU3	1.048		1.048
EOU4	1.633		1.633
F1	2.873		2.873
F2	2.842		2.842
F3	2.356		2.356
F4	2.088		2.088
L1	2.875		2.875
L2	2.232		2.232
L3	3.055		2.85
L4	2.981		2.981
P1	2.989		2.989
P2	3.644		2.644
P3	3.557		2.557
P4	2.386		2.386
SE1	2.185		2.185
SE2	1.73		1.73
SE3	1.926		1.926
SS1	2.89		2.879
SS2	2.87		2.988
SS3	2.789		2.789
SS4	2.883		2.883

Source : Own Calculations

The bootstrapping procedure with 10000 sub samples, two -tailed test option with 95 % significance level was followed to test the significance level. The reflective measurement model was measured by analyzing the Convergent Validity and Internal Consistency reliability. The convergent validity was measured through indicator loadings and indicator reliability and the Internal consistency was measured through AVE, Cronbach Alpha and the composite reliability. All the indicator loading were above the threshold value of 0.70 and the indicator reliability values were more than 0.5 (Table 3). The latent variables had average extracted variance above the threshold value of 0.5 and the Cronbach Alpha value was within the threshold limit of 0.7 and 0.95 (Hair,et,al ,2017 (Table 3). we therefore assume that all the latent variables had reliability and convergent validity.

The discriminant validity was analyzed by using Heterotrait – Monotrait rate of correlations (HTMT) (Franke and Sarstedt 2019 ; Henseler , et al., 2015) . The HTMT values for all the latent variables were below the threshold value of 0.9 (Table 5) and we therefore assume that the latent variables have discriminant validity.

The R^2 values were analyzed by comparing the R^2 values of the previous similar studies. We found that the R^2 values of our study .8281 and 0.87 were similar to the R^2 values of the studies conducted in the past .

Table 3 : Construct Reliability

Latent Variable	Indicators	Convergent Validity		Internal Consistency Reliability			
		Loadings	Indicator Reliability	AVE	Cronbach's Alpha	rho_A	Composite Reliability
		> 0.70	> 0.50	> 0.50	0.70 - 0.95		
Course Material	CM1	0.843	0.711	0.757	0.903	0.906	0.903
	CM2	0.842	0.709				
	CM3	0.924	0.854				
Ease of Learning	EOL1	0.849	0.721	0.7	0.903	0.904	0.903
	EOL2	0.784	0.615				
	EOL3	0.853	0.728				
	EOL4	0.859	0.738				
Ease of Use	EOU2	0.8	0.64	0.552	0.705	0.718	0.71
	EOU4	0.712	0.507				
Faculty Teaching	FT1	0.889	0.79	0.682	0.895	0.897	0.895
	FT2	0.819	0.671				
	FT3	0.817	0.667				
	FT4	0.774	0.599				
Academic Performance	P1	0.921	0.848	0.732	0.916	0.918	0.916
	P2	0.828	0.686				
	P3	0.824	0.679				
	P4	0.847	0.717				
Student's Expectation	SE1	0.793	0.629	0.622	0.828	0.842	0.83
	SE2	0.71	0.504				
	SE3	0.881	0.776				
	SS1	0.888	0.789	0.788	0.937	0.937	0.937
Student's Satisfaction	SS2	0.863	0.745				
	SS3	0.887	0.787				
	SS4	0.912	0.832				

Source: Own Calculations

Table 4 : Construct Reliability of Items

Items	Indicators	Convergent Validity		Internal Consistency Reliability	
		Loadings	Indicator Reliability	AVE	Composite Reliability
		> 0.70	> 0.50	> 0.50	
The course material(ppt) displayed during online learning was easy to understand	CM1	0.843	0.711	0.757	0.903
The course material was well designed and organized during Online learning	CM2	0.842	0.709		
The course material(ppt) displayed during online learning helped me to learn quickly	CM3	0.924	0.854		
Online Learning was easy	EOL1	0.849	0.721	0.7	0.903
Online learning was quick	EOL2	0.784	0.615		
Online learning helped me to understand complex concepts	EOL3	0.853	0.728		
Online learning helped me to remember things easily	EOL4	0.859	0.738		

Online learning was easy through devices like Laptop/Mobile Phones	EOU2	0.8	0.64	0.552	0.71
I could use the Zoom Online platform successfully every time	EOU4	0.712	0.507		
Faculty teaching was effective during Online teaching	FT1	0.889	0.79	0.682	0.895
The communication skills of the faculty were effective	FT2	0.819	0.671		
The faculty was enthusiastic while Online teaching	FT3	0.817	0.667		
I receive prompt feedback from the faculty during online teaching	FT4	0.774	0.599		
Online learning helped me to improve my Analytical Skills	P1	0.921	0.848	0.732	0.916
Online learning helped me to improve my Communication Skills	P2	0.828	0.686		
Online learning has improved my confidence level	P3	0.824	0.679		
Online learning had improved my overall academic performance	P4	0.847	0.717		
I expected that understanding of concepts through Online learning would be easy and quick	SE1	0.793	0.629	0.622	0.83
I expected that Faculty will provide quick feedback during Online learning	SE2	0.71	0.504		
I believed that Online learning would improve my overall performance	SE3	0.881	0.776		
Online Classes were Valuable	SS1	0.888	0.789	0.788	0.937
Online Classes increased my interest in learning	SS2	0.863	0.745		
Online Classes increased my understanding ability of various concepts	SS3	0.887	0.787		
Overall, I am satisfied with Online Learning	SS4	0.912	0.832		

Source: Own Calculations

Table 5: Discriminant Validity

Latent Variables		HTMT Values < 0.9
Ease of Learning <-> Course Material		0.757
Ease of Use <-> Course Material		0.719
Ease of Use <-> Ease of Learning		0.666
Faculty teaching <-> Course Material		0.791
Faculty teaching <-> Ease of Learning		0.748
Faculty teaching <-> Ease of Use		0.669
Academic Performance <-> Course Material		0.739
Academic Performance <-> Ease of Learning		0.830
Academic Performance <-> Ease of Use		0.657
Academic Performance <-> Faculty Teaching		0.712
Student's Expectation <-> Course Material		0.789
Student's Expectation <-> Ease of Learning		0.800
Student's Expectation <-> Ease of Use		0.726
Student's Expectation <-> Faculty Teaching		0.748
Student's Expectation <-> Academic Performance		0.839
Student's Satisfaction <-> Course Material		0.721
Student's Satisfaction <-> Ease of Learning		0.886
Student's Satisfaction <-> Ease of Use		0.639
Student's Satisfaction <-> Faculty Teaching		0.694
Student's Satisfaction <-> Academic Performance		0.890
Student's Satisfaction <->Student's Expectation		0.829

Source: Own Calculations

Robustness Check of the PLS-SEM Model

Unobserved Heterogeneity

To measure the unobserved heterogeneity among the groups we followed the guidelines given by Saresdt,et al., (2019). We measured the Heterogeneity among the groups using Prediction-Oriented Segmentation (PLS-POS) and Multi-Group Analysis (MGA). The MGA algorithm was ran for three groups, Group1 ,Group 2 and Group 3. For all the path coefficients the difference in p-vlaue of Group1 vs Group 2 , Group 2 vs Group 3 and Group vs Group 3 is above the threshold value of 0.05 (Table 6). We therefore assume that the there is no unobserved heterogeneity among the groups and there is homogeneity in our sample.

Table 6 : Measurement of Unobserved Heterogeneity using POS and MGA

Path	Total Effects (Group1-Group2)	Original p-value (Group1 vs Group3)	New p-value (Group1 vs Group2)	New p-value (Group1 vs Group3)
CM -> PERF	0.378	0.16	0.1	0.11
CM -> SS	0.201	0.536	0.153	0.928
EOL -> PERF	0.064	0.372	0.485	0.744
EOL -> SS	0.161	0.127	0.168	0.253
EOU -> PERF	0.186	0.995	0.126	0.11
EOU -> SS	0.171	0.995	0.125	0.19
FT -> PERF	0.018	0.39	0.843	0.178
FT -> SS	0.132	0.104	0.202	0.208
SE -> PERF	0.085	0.953	0.386	0.193
SE -> SS	0.326	0.529	0.1	0.942
SS -> PERF	0.522	0.134	0.12	0.269

Source : Own Calculations

Non-Linearity

The Non-Linearity in the structural model was measured through guidelines provided by Svennson (2018) . We ran Ramsey's test for the latent variable extracted through PLS_SEM algorithm. We found that for all the Non-Linear relationship the F value and p-value is above the threshold value of 0.05 (Table 7) .We therefore conclude that there is no non-linearity issues in our model .

Table 7: The Non-linearity assessment through Ramsey test

Non-linear relationship	Co-efficient	p-value	f^2	Ramsey's RESET
FT*FT->SS	0.023	0.41	0.002	
SE*SE->SS	0.018	0.445	0..01	
CM*CM->SS	0.004	0.894	0.000	F= O.813051, p-value = 0.6188
EOL*EOL->SS	0.021	0.421	0.001	
EOU*EOU->SS	0.001	0.947	0.000	
FT*FT->PERF	0.001	0.965	0.000	
CM*CM->PERF	0.029	0.282	0.003	
EOL*EOL->PERF	0.008	0.736	0.000	F= 0.58911, p-value = 0.8519
EOU*EOU->PERF	0.000	0.999	0.000	
SS*SS->PERF	0.016	0.576	0.001	
SE*SE->PERF	0.031	0.15	0.004	

Source: Own Calculations

Endogeneity

To measure the Endogeneity in our study we applied the Park and Gupta (2012) Gaussian Copula approach. We first extracted the latent variable of the independent variables Course material (CM), Ease of Learning (EOL), Ease of Use (EOU), Faculty Teaching (FT) and Student's Expectations (SE) and applied the Kolmogorov-Smirnova test. We found that the p-value for all the independent variables was less than the critical level of 0.05

(p-value <0.05) (Table 8). we assumed that there is non-normality among the independent variables. We then measured the endogeneity through Gaussian Copula method. We found that all the values of all the Gaussian Copulas were above the critical value of 0.05. (p> 0.05) and (Bootstrapped value > 0.05) (Table 9). Hence values of all the Gaussian Copulas are significant. We concluded that there is no endogeneity among the variables and our structural model is robust.

Table 8: Test of Normality for Independent variables using Kolmogorov-Smirnova Test

Construct	Statistic	df	Sig.
CM	0.145	627	0.000
EOL	0.071	627	0.000
EOU	0.137	627	0.000
FT	0.099	627	0.000
SE	0.091	627	0.000
a Lilliefors Significance Correction			

Table 9: Measurement of Endogeneity Test using Gaussian Copula Method

Model	Indicators	Estimate	Pr(>|t|) > 0.05	Bootstrapped > 0.05
1	CM	0.070748	0.0582	
	EOL	0.064698	0.0772	
	EOU	0.034332	0.1935	
	FT	0.062999	0.0382	
	SE	0.154053	1.90E-06	
	SS	0.578988	< 2e-16	
	CM_star	0.001827	0.8632	0.8576624
2	CM	0.07426	0.0214	
	EOL	0.061365	0.1909	
	EOU	0.034047	0.1964	
	FT	0.063243	0.037	
	SE	0.154046	1.95E-06	
	SS	0.579326	< 2e-16	
	EOL_star	0.002413	0.9004	0.8585342
3	CM	0.075422	0.0195	
	EOL	0.064057	0.0799	
	EOU	0.022588	0.4954	
	FT	0.062889	0.0378	
	SE	0.15369	1.98E-06	
	SS	0.578749	< 2e-16	
	EOU_star	0.006368	0.5681	0.8604962
4	CM	0.073859	0.0218	
	EOL	0.063443	0.0848	
	EOU	0.034237	0.194	
	FT	0.055289	0.1429	
	SE	0.154404	1.76E-06	
	SS	0.57935	< 2e-16	
	FT_star	0.004779	0.7169	0.6683505
5	CM	0.074301	0.02113	
	EOL	0.064853	0.07603	
	EOU	0.03443	0.19191	
	FT	0.063267	0.03661	
	SE	0.146585	0.00039	
	SS	0.578634	< 2e-16	
	SE_star	0.004308	0.7649	0.7217328
6	CM	0.074691	0.0205	

	EOL	0.063366	0.0842	
	EOU	0.034313	0.193	
	FT	0.062774	0.0382	
	SE	0.153385	2.12E-06	
	SS	0.568215	< 2e-16	
	SS_star	0.007582	0.6169	

Note: star is the Gaussian Copula term using for measuring the Endogeneity

Model	Indicators	Estimate	Pr(>|t|) > 0.05	Bootstrapped >0.05
7	CM	0.071361	0.0704	
	EOL	0.06312	0.197	
	EOU	0.034284	0.1948	
	FT	0.062971	0.0384	
	SE	0.153977	0.00000201	
	SS	0.579103	< 2e-16	
	CM_star	0.001546	0.8981	0.894936
	EOL_star	0.001069	0.9612	0.9464085
8	CM	0.078575	0.049	
	EOL	0.064238	0.0795	
	EOU	0.020753	0.5626	
	FT	0.063236	0.0376	
	SE	0.153833	0.000002	
	SS	0.578809	<2e-16	
	CM_star	-0.001657	0.8928	0.8905554
	EOU_star	0.00725	0.5753	0.5578812
9	CM	0.0756144	0.0602	
	EOL	0.0633712	0.0855	
	EOU	0.0341179	0.1967	
	FT	0.0542061	0.1816	
	SE	0.154557	0.00000184	
	SS	0.5794555	< 2e-16	
10	CM_star	-0.000997	0.9419	0.9413914
	FT_star	0.0055623	0.7437	0.7112859
	CM	7.45E-02	0.0652	
	EOL	6.49E-02	0.0767	
	EOU	3.44E-02	0.1927	
	FT	6.33E-02	0.0376	
	SE	1.47E-01	0.0011	
	SS	5.79E-01	<2e-16	
	CM_star	-9.95E-05	0.994	0.9940301
	SE_star	4.39E-03	0.807	0.7837252
11	CM	0.077183	0.0519	
	EOL	0.063398	0.0843	
	EOU	0.034148	0.1962	
	FT	0.063028	0.0382	
	SE	0.153446	0.00000215	
	SS	0.566845	< 2e-16	
	CM_star	-0.001345	0.9142	0.9153966
	SS_star	0.008596	0.6302	0.5458832
12	CM	0.075261	0.02	
	EOL	0.069637	0.1557	
	EOU	0.020721	0.5528	
	FT	0.063148	0.0374	

	SE	0.15399	0.00000199	
	SS	0.578351	< 2e-16	
	EOL_star	-0.003762	0.8643	0.9940377
	EOU_star	0.007417	0.5604	0.7861457
13	CM	0.073689	0.0227	
	EOL	0.065527	0.1764	
	EOU	0.034264	0.194	
	FT	0.054559	0.1655	
	SE	0.154572	0.00000188	
	SS	0.579243	< 2e-16	
	EOL_star	-0.001477	0.9472	0.9301354
	FT_star	0.005287	0.729	0.6975805
14	CM	0.074206	0.021593	
	EOL	0.066744	0.189149	
	EOU	0.034483	0.191894	
	FT	0.06336	0.036799	
	SE	0.145767	0.000946	
	SS	0.578462	< 2e-16	
	EOL_star	-0.001255	0.957258	0.9437908
	SE_star	0.00484	0.782117	0.7549793
15	CM	0.074367	0.0213	
	EOL	0.070754	0.1586	
	EOU	0.034425	0.1919	
	FT	0.063039	0.0377	
	SE	0.153643	0.00000211	
	SS	0.564243	< 2e-16	
	EOL_star	-0.005195	0.8289	0.7849929
	SS_star	0.010019	0.5961	0.5139679
14	CM	0.075264	0.0201	
	EOL	0.063727	0.0837	
	EOU	0.023601	0.506	
	FT	0.060827	0.1259	
	SE	0.153768	0.00000201	
	SS	0.578842	< 2e-16	
	EOU_star	0.005831	0.6543	0.6370863
	FT_star	0.001233	0.9361	0.9271728
15	CM	0.0754172	0.019656	
	EOL	0.0640611	0.080159	
	EOU	0.0227796	0.522785	
	FT	0.0628864	0.037937	
	SE	0.1532612	0.000439	
	SS	0.5787278	< 2e-16	
	EOU_star	0.0062735	0.626847	0.6264853
	SE_star	0.0002445	0.988296	0.9871515
16	CM	0.07545	0.0196	
	EOL	0.06336	0.0845	
	EOU	0.02563	0.4697	
	FT	0.06264	0.0388	
	SE	0.15333	0.00000218	
	SS	0.57269	< 2e-16	
	EOU_star	0.00476	0.7139	0.7125571
	SS_star	0.00428	0.8083	0.7585453
17	CM	0.074039	0.0218	
	EOL	0.063693	0.0843	
	EOU	0.034385	0.1928	

	FT	0.056962	0.1538	
	SE	0.150483	0.0007	
	SS	0.579058	<2e-16	
	FT_star	0.003742	0.8087	0.7882888
	SE_star	0.002176	0.8975	0.8849686
18	CM	0.074538	0.021	
	EOL	0.063013	0.0873	
	EOU	0.034342	0.193	
	FT	0.05985	0.1327	
	SE	0.153553	0.00000216	
	SS	0.56986	< 2e-16	
	FT_star	0.001766	0.9098	0.9034764
	SS_star	0.006499	0.717	0.6531334
19	CM	0.07469	0.02061	
	EOL	0.06336	0.0848	
	EOU	0.03431	0.19378	
	FT	0.06277	0.03839	
	SE	0.1534	0.00061	
	SS	0.5682	< 2e-16	
	SE_star	-3.11E-05	0.99863	0.9984906
	SS_star	0.007601	0.68858	0.6182124

Model	Indicators	Estimate	Pr(>|t|) > 0.05	Bootstrapped >0.05
20	CM	0.077405	0.0582	
	EOL	0.068842	0.1682	
	EOU	0.019795	0.5882	
	SE	0.154037	0.00000202	
	SS	0.578456	< 2e-16	
	FT	0.063338	0.0375	
	CM_star	-0.001113	0.9315	0.930141
	EOL_star	-0.003144	0.892	0.8525719
	EOU_star	0.007837	0.566	0.5464482
21	CM	0.07411	0.07097	
	EOL	0.06677	0.19199	
	EOU	0.03449	0.19271	
	SE	0.1458	0.00169	
	SS	0.5785	< 2e-16	
	FT	0.06335	0.03767	
	CM_star	0.00005285	0.99688	0.9968346
	EOL_star	-0.001274	0.9576	0.9438155
	SE_star	0.004805	0.80647	0.7899805
22	CM	0.0757637	0.0606	
	EOL	0.070286	0.1671	
	EOU	0.0343267	0.1945	
	SE	0.1536599	0.00000215	
	SS	0.5637489	< 2e-16	
	FT	0.0631616	0.038	
	CM_star	-0.0007423	0.954	0.9538849
	EOL_star	-0.0048526	0.8447	0.7971729
	SS_star	0.010419	0.6051	0.5409503
23	CM	0.0751836	0.0679	
	EOL	0.0650113	0.1873	
	EOU	0.0341596	0.1968	

	SE	0.1546623	0.00000194	
	SS	0.5793537	< 2e-16	
	FT	0.0538192	0.193	
	CM_star	-0.0008281	0.9532	0.9523715
	EOL_star	-0.0011537	0.96	0.9460664
	FT_star	0.0058263	0.7437	0.716361
24	CM	0.07959	0.055955	
	EOL	0.064322	0.079476	
	EOU	0.021416	0.559367	
	SE	0.15104	0.000975	
	SS	0.578685	< 2e-16	
	FT	0.063332	0.037552	
	CM_star	-0.002206	0.873482	0.8721092
	EOU_star	0.006914	0.609243	0.5999427
	SE_star	0.001619	0.931303	0.9256778
25	CM	0.081467	0.0469	
	EOL	0.063433	0.0843	
	EOU	0.023301	0.5264	
	SE	0.153458	0.00000218	
	SS	0.570475	< 2e-16	
	FT	0.063209	0.0378	
	CM_star	-0.003156	0.811	0.8126918
	EOU_star	0.005822	0.6716	0.6681806
	SS_star	0.005925	0.7545	0.7015771
26	CM	0.080504	0.0524	
	EOL	0.063556	0.0848	
	EOU	0.021901	0.5484	
	SE	0.154129	2.01E-06	
	SS	0.579081	< 2e-16	
	FT	0.058412	0.1595	
	CM_star	-0.002875	0.8398	0.8383793
	EOU_star	0.006575	0.6273	0.6146837
	FT_star	0.003038	0.8645	0.8470856
27	CM	0.0776825	0.05902	
	EOL	0.0634927	0.08456	
	EOU	0.0341751	0.19633	
	SE	0.1518693	0.00116	
	SS	0.5673148	< 2e-16	
	FT	0.0630877	0.03833	
	CM_star -	0.0016093	0.90657	0.9082983
	SE_star	0.0009266	0.96268	0.9589079
	SS_star	0.0082106	0.67651	0.6084204
28	CM	0.077722	0.06471	
	EOL	0.063663	0.08466	
	EOU	0.034211	0.19598	
	SE	0.148957	0.00115	
	SS	0.579137	< 2e-16	
	FT	0.055527	0.17906	
	CM_star	-0.002044	0.89137	0.8928995
	SE_star	0.003197	0.86269	0.8469715
	FT_star	0.00486	0.78123	0.7541778
29	CM	0.079338	0.0549	
	EOL	0.062754	0.0891	
	EOU	0.03404	0.1981	
	SE	0.15383	0.00000217	

	SS	0.568655	< 2e-16	
	FT	0.057669	0.1649	
	CM_star	-0.002667	0.8521	0.8558254
	SS_star	0.007516	0.6886	0.6292304
	FT_star	0.003388	0.8496	0.8356408
30	CM	0.075185	0.020215	
	EOL	0.07117	0.167554	
	EOU	0.021625	0.549766	
	SE	0.150924	0.000846	
	SS	0.578085	< 2e-16	
	FT	0.063196	0.037408	
	EOL_star	-0.004777	0.844647	0.7957474
	EOU_star	0.007004	0.602322	0.5978971
	SE_star	0.001794	0.922566	0.9166348
31	CM	0.075129	0.0203	
	EOL	0.074708	0.1432	
	EOU	0.023783	0.5081	
	SE	0.153709	0.00000213	
	SS	0.567628	< 2e-16	
	FT	0.06302	0.0379	
	EOL_star	-0.007981	0.7485	0.6810499
	EOU_star	0.005865	0.6626	0.6555841
	SS_star	0.007259	0.7159	0.6637204
32	CM	0.074904	0.021	
	EOL	0.070723	0.154	
	EOU	0.022115	0.541	
	SE	0.154234	0.00000202	
	SS	0.578408	< 2e-16	
	FT	0.059211	0.144	
	EOL_star	-0.004929	0.833	0.7786523
	EOU_star	0.006696	0.624	0.6062285
	FT_star	0.002402	0.883	0.8708437
33	CM	0.075494	0.019629	
	EOL	0.063161	0.08605	
	EOU	0.024722	0.497184	
	SE	0.156874	0.000599	
	SS	0.571437	< 2e-16	
	FT	0.062609	0.039052	
	EOU_star	0.005183	0.702082	0.7046521
	SE_star	-0.002072	0.912325	0.9057569
	SS_star	0.005295	0.790315	0.7430716
34	CM	0.0752577	0.02025	
	EOL	0.0636999	0.08444	
	EOU	0.0234656	0.52243	
	SE	0.1542329	0.00066	
	SS	0.5788717	< 2e-16	
	FT	0.060687	0.13788	
	EOU_star	0.0058955	0.66807	0.6646676
	SE_star	-0.0002622	0.98827	0.9872003
	FT_star	0.001319	0.93615	0.9272033
35	CM	0.0745147	0.021141	
	EOL	0.0629106	0.088981	
	EOU	0.0342997	0.194283	
	SE	0.15477	0.000806	
	SS	0.5694695	< 2e-16	

	FT	0.0595452	0.143292	
	SE_star	-0.0006997	0.970465	0.9675632
	SS_star	0.0068305	0.733394	0.6829219
	FT_star	0.0019458	0.905206	0.8964252

Model	Indicators	Estimate	Pr(>|t|) > 0.05	Bootstrapped >0.05
43	CM	0.080429	0.06086	
	EOL	0.071181	0.16962	
	EOU	0.021513	0.56468	
	SE	0.150306	0.00147	
	SS	0.578358	< 2e-16	
	FT	0.057899	0.16993	
	CM_star	-0.00301	0.8432	0.842402
	EOL_star	-0.0052	0.83575	0.7860856
	EOU_star	0.006923	0.62603	0.6166862
	SE_star	0.002441	0.90325	0.8960134
	FT_star	0.003558	0.84641	0.8277018
44	CM	0.0749998	0.021	
	EOL	0.0745465	0.156	
	EOU	0.0240243	0.519	
	SE	0.1550053	0.001	
	SS	0.5678789	<2e-16	
	FT	0.0612364	0.14	
	EOL_star	-0.0080647	0.758	0.6956391
	EOU_star	0.0057191	0.688	0.6855024
	SE_star	-0.0006922	0.972	0.970132
	SS_star	0.0071758	0.739	0.6981899
	FT_star	0.0010776	0.95	0.9448788

Model	Indicators	Estimate	Pr(>|t|) > 0.05	Bootstrapped >0.05
45	EOL	0.0742067	0.1581	
	EOU	0.0228884	0.54254	
	SE	0.1530329	0.00141	
	SS	0.5673883	< 2e-16	
	FT	0.0592733	0.16211	
	CM_star	-0.003499	0.81903	0.8205613
	EOL_star	-0.0079004	0.76339	0.6996526
	EOU_star	0.0061647	0.66811	0.662675
	SE_star	0.0006312	0.97572	0.9743212
	SS_star	0.0076245	0.72455	0.6831244
	FT_star	0.0026585	0.88608	0.8754111

Source : Own Calculations

Hypothesis:

Based on the past studies we propose the following hypothesis for our independent factors:

Course Material

H1: Course material has a positive effect on the academic performance

H2: Course material has a positive effect on the student's satisfaction

Ease of learning

H3: Ease of Learning has a positive effect on the academic performance

H4: Ease of Learning has a positive effect on the student's satisfaction

Ease of Use

H5: Ease of Use has a positive effect on the academic performance

H6: Ease of Use has a positive effect on the student's satisfaction

Faculty teaching

H7: Faculty teaching has a positive effect on the academic performance

H8: Faculty teaching has a positive effect on the student's satisfaction

Student's Expectation

H9: Student's Expectation has a positive effect on the academic performance

H10: Student's Expectation has a positive effect on the student's satisfaction

Student's Satisfaction

H11: **Student's Satisfaction has a positive effect on the academic performance**

The path coefficients for the proposed PLS-SEM model were measured through bootstrapping with 10000 subsamples for a two – tailed test having 95 % Significance level. We found that for independent variables Ease of learning ($\beta = 0.057$, confidence interval (0.5, 0.76)), Student's expectation ($\beta = 0.173$, confidence interval (0.024, 0.327)), Student's Satisfaction ($\beta = 0.73$, confidence interval (0.575, 0.914)) and, p-values were less than the critical level of 0.05 ($p < 0.05$) (Table 10). We concluded that the Independent Variables Ease of learning, Student's Expectation and Student's Satisfaction has positive effect on the academic performance. For Independent variable Student's expectation ($\beta = 0.366$, confidence interval (0.217, 0.548)) p value was also less than the critical value of 0.05 ($p < 0.05$) (Table 10) and thus the Student's Expectation has positive impact on Students Satisfaction. For all the other path of independent variables the p-value was above the critical level 0.05 and hence were significant and therefore has no positive impact on the dependent variables Student' Satisfaction and Academic performance of the learner.

The Total effects and the specific indirect effects for the bootstrapping results was also measured. According to the results Ease of learning and Student's expectations had positive effect on Students satisfaction; Student's expectations and Student's Satisfaction had positive effect on the Academic Performance of the learners ($p < 0.05$) (Table 11).

For the Specific Indirect Effects Students Satisfaction acts as mediating variable for the relationship between Ease of Learning and Academic Performance and also for Course material and Academic performance since the p-value for both the indirect path is less than the critical value of 0.05. ($p < 0.05$) (Table 12). The R^2 values of the previous studies were 0.67 (Ram Gopal Singh, Varsha Singh and Arun Aggarwal (2021) and 0.78 Rd. Nazim Xiomara (2021). So, the R^2 value of our model (0.871) is within the acceptable limits. (Table 13).

Table 10: Bootstrapping results

Path		Confidence Interval	P Values	Hypothesis	Hypothesis Supported	f2
CM -> PERF	0.057	[-0.074,0.181]	0.382	*H1*	No	0.007
CM -> SS	0	[--0.144, 0.128]	0.996	*H2*	No	0.000
EOL -> PERF	-0.057	[0.225, 0.085]	0.470	*H3*	No	0.004
EOL -> SS	0.633	[0.5, 0.76]	0.000	*H4*	Yes	0.684
EOU -> PERF	0.022	[-0.077,.0128]	0.673	*H5*	No	0.002
EOU -> SS	-0.023	[-0.131,0.08]	0.666	*H6*	No	0.001
FT -> PERF	0.061	[-0.035,0.162]	0.229	*H7*	No	0.009
FT -> SS	-0.031	[-0.15,0.084]	0.601	*H8*	No	0.002
SE -> PERF	0.173	[0.024,0.327]	0.022	*H9*	Yes	0.050
SE -> SS	0.366	[0.217, 0.548]	0.000	*H10*	Yes	0.206
SS -> PERF	0.73	[0.575, 0.914]	0.000	*H11*	Yes	0.713

Source: Own Calculations

Table 11: Total Effects

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	p- Values
CM -> PERF	0.057	0.053	0.072	0.786	0.432
CM -> SS	0	-0.003	0.07	0.005	0.996
EOL -> PERF	0.405	0.404	0.066	6.156	0.000
EOL -> SS	0.633	0.631	0.066	9.552	0.000
EOU -> PERF	0.005	0.005	0.062	0.083	0.934
EOU -> SS	-0.023	-0.024	0.054	0.427	0.670
FT -> PERF	0.038	0.037	0.06	0.636	0.525
FT -> SS	-0.031	-0.033	0.06	0.519	0.604
SE -> PERF	0.44	0.446	0.083	5.326	0.000
SE -> SS	0.366	0.373	0.084	4.337	0.000
SS -> PERF	0.73	0.737	0.086	8.46	0.000

Source: Own Calculations

Table 12: Specific Indirect Effects

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
EOU -> SS -> PERF	-0.017	-0.018	0.04	0.419	0.675
FT -> SS -> PERF	-0.023	-0.025	0.045	0.508	0.612
SE -> SS -> PERF	0.267	0.274	0.068	3.924	0.000
EOL -> SS -> PERF	0.462	0.466	0.078	5.962	0.000
CM -> SS -> PERF	0.000	-0.001	0.052	0.005	0.996

Source: Own Calculations

Table 13: R-Square Value

Dependent Variable			R Square
Academic Performance			0.871
Student's Satisfaction			0.828

Source: Own Calculations

PLS Predict Assessment

To test the Out of Sample Predictive Power of our model we followed the guidelines provided by Shumeli, Sarstedt et al., (2019). We calculated the Q2 Predict statistic and found the value of Q2 Predict > 0. We therefore assumed that the values have predictive power. The predictive power of the values was analyzed through PLS predict in Smart PLS. The PLS Predict values were analyzed in SPSS for the Normality test using Kolmogorov – Smirnova test. The p values for all the indicators was less than 0.5 so we used MAE values for all the indicators (Table 14). The MAE values of the PLS model were less than the MAE values of the linear model for few indicators (Table 15) .We assumed that our model have small to medium predictive power to predict the   Academic Performance of the learner with Student's Satisfaction as a mediating variable.

Table 14: Tests of Normality For Dependent Variables using Kolmogorov-Smirnova Test

Construct	Indicator	Statistic	Sig.
Academic Performance	P1	0.063	0.000
	P2	0.083	0.000
	P3	0.068	0.000
	P4	0.090	0.000
Student's Satisfaction	SS1	0.078	0.000
	SS3	0.054	0.000
	SS4	0.074	0.000
	SS2	0.07	0.000
a Lilliefors Significance Correction			

Source : Own Calculations

Table 15 : PLS_Predict Assessment Model

Construct	Indicator	PLS			LM		PLS-LM
		MAE	Q²_predict		MAE	Q²_predict	MAE
Academic Performance	P3	0.692	0.484		0.701	0.476	-0.009
	P1	0.539	0.619		0.544	0.613	-0.005
	P4	0.614	0.532		0.6	0.527	0.014
	P2	0.682	0.486		0.678	0.493	0.004
Student's Satisfaction	SS3	0.554	0.610		0.546	0.615	0.008
	SS1	0.55	0.605		0.551	0.602	-0.001
	SS2	0.624	0.560		0.621	0.566	0.003
	SS4	0.572	0.635		0.565	0.643	0.007

Source : Own Calculations

Importance – Performance Analysis (IMPA)

The importance – Performance analysis was conducted to analyze the performance and importance of the variables . The X -axis represented the perceived importance (unimportant to very important) whereas the Y-axis represented the perceived performance (low performance to high performance) Martilla an James (1977) and Hair ,et al.,(2019). IMPA in fig 2 consists of Four Quadrants: Q1 (Important Variable and Performance is excellent), Q2 (Unimportant Variable and Performance is Excellent), Q3 (Important Variable and Performance is poor) and Q4 (Unimportant Variable and Performance is poor). We ran the IPMA analysis is Smart PLS and found that Student's Expectation, Ease of Learning and Satisfaction are important variable and the performance is excellent whereas Ease of Use, Course material and Faculty teaching were important but the performance was poor.

Table 16: IMPA

Indicator	Importance	Performances
CM	0.113	73.452
EOL	0.375	58.065
EOU	0.048	74.343
FT	0.083	71.321
SE	0.319	67.166
SS	0.578	60.751

Source: Own Calculations

Fig 2: IMPA Analysis

Important

□ EOU ◊ FT ϴ CM ○ SE ■ EOL △ SS
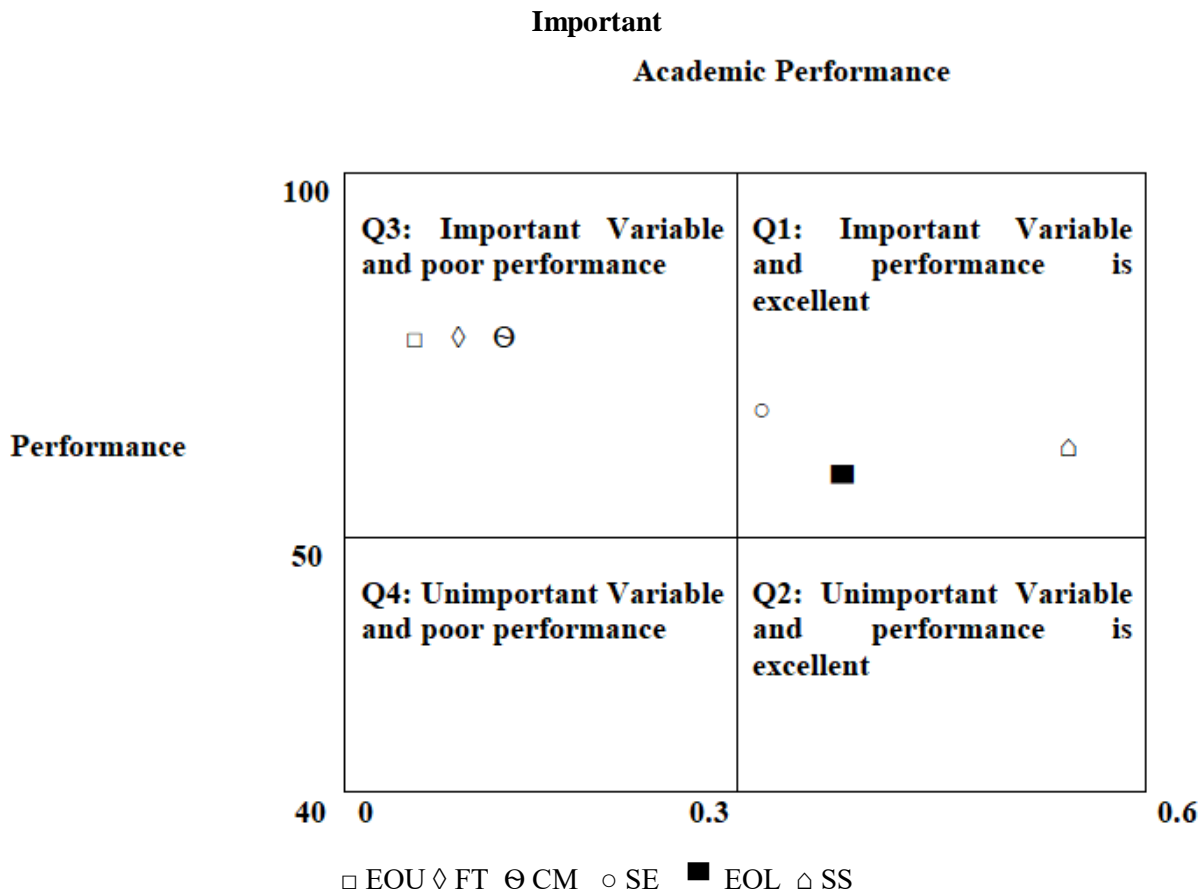
Necessary Condition Analysis

The critical levels for Student's Satisfaction and Academic performance of the students were measured by conducting the Necessary Condition Analysis. The results of NCA analysis indicated that constructs Course material, Ease of Use, Faculty teaching and Student's expectation are both necessary and sufficient conditions for Student's Satisfaction effect size

$(d \geq 0.1)$ and $(p<0.05)$ whereas the Ease of Learning Construct is sufficient but not a necessary condition since effect size $(d < 0.1)$ (Table 17). Similarly for Academic Performance of the student's Course material, Ease of Use, Faculty Teaching and Student's Expectations are necessary and sufficient condition effect size $(d \geq 0.1)$ and $(p<0.05)$ and student's satisfaction and ease of learning are sufficient but not necessary conditions $(d < 0.1)$ (Table 18).

We also found out the critical level required for Student's Satisfaction and the Academic Performance of the students through the NCA analysis. These levels are indicated in (Table 19) and (Table 20). To obtain a critical level of 70 % for Students Satisfaction the critical levels of course material , ease of use, ease of learning ,faculty teaching and student's expectations must be 6.9 % , 12.6 % , 33.5 % , 19.3 % and 35 % respectively and for critical level of 70 % for Academic Performance of the student's the critical levels of Student's Satisfaction , course material , ease of use, ease of learning ,faculty teaching and student's expectations must be 12.3 % , 16.5 % , 6 % ,27.2 % , 19.3 % and 32.9 % respectively .

Table 17: NCA Effect Sizes: Student's Satisfaction

Indicator	cr_fdh	p-value
CM	0.146	0.000
EOL	0.095	0.000
EOU	0.167	0.000
FT	0.142	0.000
SE	0.204	0.000

Source: Own Calculations

Table 18: NCA Effect Sizes: Academic Performance

Indicator	cr_fdh	p-value
SS	0.081	0.000
CM	0.111	0.000
EOL	0.075	0.000
EOU	0.110	0.000
FT	0.179	0.000
SE	0.146	0.000

Source: Own Calculations

Table 19: Bottlenecks: Student's Satisfaction

SS	CM	EOL	EOU	FT	SE
0	NN	NN	NN	NN	NN
10	NN	NN	NN	12.4	NN
20	NN	NN	NN	12.4	15.8
30	NN	NN	NN	12.4	17.5
40	NN	NN	NN	19.3	23.6
50	NN	NN	NN	19.3	23.6
60	16.9	NN	33.5	19.3	35
70	16.9	12.6	33.5	19.3	35
80	16.9	12.6	46.2	19.3	35
90	66	43.6	53.3	19.3	35
100	66	43.6	53.3	19.3	35

Source: Own Calculations

Table 20: Bottlenecks: Academic Performance

PERF	SS	CM	EOL	EOU	FT	SE
0	NN	NN	NN	NN	NN	NN
10	NN	NN	NN	NN	11.7	NN
20	NN	NN	NN	NN	11.7	NN
30	NN	16.5	NN	NN	12.4	NN
40	NN	16.5	NN	NN	12.4	NN
50	NN	16.5	NN	NN	12.4	17.5
60	NN	16.5	6	27.2	19.3	32.9
70	12.3	16.5	6	27.2	19.3	32.9
80	25.3	16.9	25	27.2	32.2	35
90	44.4	16.9	31	33.5	36.5	35
100	44.4	50.1	43.6	54.3	36.5	35

Source: Own Calculations

Contribution

Our study has contributed that the student's satisfaction act as important mediating variable for the improving the academic performance of the ungraduated learners. We also found that the students' expectation about e-learning had positive impact on both the student's satisfaction and academic performance.

Our Proposed PLS-Predict model has a medium predictive power for analyzing the effect of independent variables like Course of material, Ease of Use, Ease of learning, Faculty teaching and Student's Expectation with Student's satisfaction as a mediating variable on the Academic Performance of the students.

Very few studies have analyzed the combined effect of PLS-SEM and NCA analysis. Through the combined analysis we found that Course of material, Ease of Use, Ease of learning, Faculty teaching and Student's

Expectation are necessary and sufficient factors for the Academic Performance of the learners. We also found out the critical level of independent variables required for the having 70 % ,80 %, 90 % and 100 % Student's satisfaction and Academic performance through bottleneck analysis.

We also found the important and performing variables for improving the academic performance of the learners through IMPA analysis. Student's Expectation, Ease of Learning and Satisfaction are important and performing variables whereas Ease of Use, Course material and Faculty teaching were important but were not performing.

FURTHER SCOPE OF THE STUDIES:

Our study has many limitations. The study was confined to the primary data collected from the undergraduate learners of University of Mumbai. The sample size of the research studies was 627. Future studies of Online learning can be conducted through Multigroup analysis at All India level with a large sample size and anchor based measurement of Independent variables and dependent variables instead of attribute measurement.

CONCLUSION

The independent factors course material, ease of use, ease of learning, faculty teaching, student's perception are necessary and sufficient factors for predicting the effect on the academic performance of the learners. Course material should be updated and made easy and also the ease of use of the Online learning platforms for improving the Academic performance of the learners. The faculty teaching for Online learning has to be improved to have a positive and significant effect on the academic performance of the learners.

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A STUDY ON THE IMPACTS OF INFLUENTIAL MARKETING BY CELEBRITY ENDORSEMENTS ON CONSUMER BUYING BEHAVIOUR AMONG INDIVIDUALS RESIDING IN SUBURBAN AREAS OF MUMBAI DISTRICT

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ABSTRACT:

This study investigates the impact of Celebrity Endorsements as a form of Influential Marketing on Consumer Buying Behavior among individuals residing in the suburban areas of Mumbai City. The research aims to assess awareness, perceptions, and the factors Influencing Consumer Behavior due to Celebrity Endorsements. A descriptive research methodology was employed, using simple random sampling to collect data from 219 respondents through Google Forms. The findings reveal significant awareness of celebrity endorsements, particularly among the 20-30 age group, which comprises 80% of respondents. While 59% of respondents follow Celebrities or Influencers, 63% are influenced by endorsements for niche products. However, trust in recommendations from Friends and Family remains paramount, surpassing the influence of Celebrity Endorsements. Additionally, 64% of respondents have made purchases solely based on Celebrity Endorsements, with athletes being perceived as the most credible endorsers. The study highlights the nuanced impact of celebrity endorsements, emphasizing the importance of authenticity, the effectiveness of advertisements, and the role of personal trust networks in Consumer Decision-Making. These insights suggest that while Celebrity Endorsements, as a powerful tool of Influential Marketing, significantly shape Consumer Behavior, Brands must consider multiple factors, including product type and endorsement authenticity, to maximize the effectiveness of their Marketing Strategies.

Keywords: Celebrity Endorsements, Consumer Behavior, Influential Marketing, Marketing Strategies, Suburban Areas

INTRODUCTION:

In the densely populated metropolis of Mumbai, suburbs are bombarded with commercial messages. To what degree do these endorsements really influence the purchasing behaviour of suburban customers?

Have you ever observed yourself experiencing a sense of curiosity when you see your favourite actor using a novel mobile device, which in turn triggers a need inside you to own a similar one? Alternatively, might it be that the popularity of a certain clothing brand is only attributed to the endorsement of a renowned actor or actress? In contemporary times, it is prevalent to see the utilization of celebrity endorsements, as marketers heavily depend on their influence on augment sales. However, to what extent do these endorsements really influence the purchasing choices of suburban Mumbai residents?

Celebrities have significant influence on social media, making it an ideal platform for influencer marketing. By sharing their lives with millions of followers, they develop trust and a feeling of connection. When a customer living in the suburbs observes their beloved celebrity recommending a product, it might create the impression of receiving a personal endorsement from a close acquaintance. This may have the psychological effect of helping consumers automatically relate the product to the celebrity's successful or fashionable attributes.

The draw of celebrity is apparent. They signify beauty, prosperity, and an ideal way of life. By placing celebrities at the front and getting them to endorse everything from gadgets to food and drinks, social media marketers take use of this star power. Consumers are inundated with photos and videos of their favourite celebs talking about a certain product. However, the problem still arises, does this genuinely effect purchase choices, or is it simply a feeble effort to make profit from fame?

But are these stars actually supporting things, or are they doing it for the money. For a number of clients, this creates severe issues. The product the celebrity is supporting even utilised by them? Can we truly trust what they say? a person is growing more uncertain; people begin to question whether the celebrities genuinely appreciate the companies they represent or if they are simply doing it for money.

In order to do this, the study intends to investigate deeper into this topic by evaluating the effect of celebrity endorsements on purchase behavior among suburban Mumbai dwellers. Such insight might help marketers build more successful ads that are anchored in consumer activities and it may also educate suburban customers about what truly impacts their purchases.

OBJECTIVES:
1. To study the awareness of Celebrity Endorsements among the Individuals.

2. To study the perception of Influential Marketing among the individuals of Mumbai suburban.

3. To evaluate the factors affecting consumer buying behaviour with the celebrity endorsement.

LIMITATIONS:
1. **Area:** The data is limited to the suburban area of Mumbai City, potentially affecting the generalizability of the findings to a broader population.

2. **Time:** Due to time constraints, the research had a limited window for collecting sampling data, potentially impacting the depth and breadth of the study.

3. **Subjective Thinking:** Not every respondent may exercise utmost care in filling out a survey, introducing the possibility of response bias. The survey method may make it challenging to ensure that all respondents dedicate accurate time and attention to the questionnaire, potentially affecting data reliability.

HYPOTHESIS:
HO_1: There is no significant awareness of celebrity endorsements among individuals residing in suburban areas of Mumbai City.

H11: There is significant awareness of celebrity endorsements among individuals residing in suburban areas of Mumbai City.

HO2: Celebrity endorsements do not significantly affect consumer buying behaviour among individuals residing in suburban areas of Mumbai City.

H12: Celebrity endorsements significantly affect consumer buying behavior among individuals residing in suburban areas of Mumbai City.

RESEARCH METHODOLOGY:
1. **Research Category:** The research conducted is descriptive, focusing on individuals in the suburban area of Mumbai City.

2. **Tools and Techniques Applied:** Statistical patterns were employed to present primary data in the research paper. The data analysis included frequency and percentages to ensure accuracy.

3. **Sampling Method:** Simple random sampling was used to gather practical information. Respondents participated by answering a survey conducted through Google Forms, providing a snapshot of the opinions of individuals in the suburban area of Mumbai City. The use of Google Forms facilitated efficient data collection within the constraints of time.

4. **Sample Size:** The primary data for the research study consisted of more than 200 respondents. This sample size was deemed sufficient for the research objectives while accommodating time limitations.

Data Interpretation and Analysis:

Data Interpretation for the Primary Data Questionnaires of the Individuals in Suburban area of Mumbai City:

(Table 1)

Age Category	Frequency	Percentage (%)
Age 20 – 30 years	176	80%
Age 30 – 40years	37	17%
Age 40 and above	8	4%
Total	**221**	**100%**

The survey data shows a diverse age distribution among respondents. The majority fall in the 20-30 age range, comprising 80% of the total, followed by 30-40 year-olds at 17%. A small percentage, 4%, are in the aged 40 and above.

(Table 2)

Gender Category	Frequency	Percentage (%)
Male	118	47%
Female	103	53%
Total	**221**	**100%**

The data reflects a slightly higher representation of females at 53% compared to males at 47%. This indicates a nearly balanced gender distribution among respondents, with a slightly higher number of female participants.

(Table 3)

Education Qualification	Frequency	Percentage (%)
10th pass	11	5%
12th pass	22	10%
Under graduate (pursuing)	83	38%
Graduate (passed out)	73	33%
Post graduate	22	10%
Professionals	10	5%
Total	**221**	**100%**

The educational profile of respondents indicates a significant portion with an under graduate, comprising 38% of the total. Graduates make up 33%, while Postgraduates and 12th pass constitute 10%. 10th pass and professionals form smaller percentages at 5%.

(Table 4)

Occupation Category	Frequency	Percentage (%)
Student	91	41%
Self employed	16	7%
Salaried	101	46%
Retired	1	1%
Homemaker	12	5%
Total	**221`**	**100%**

The survey reveals that a large proportion of respondents are Salaried, making up 46% of the total. Student represent 41%, and Self-employed /Businessmen at 7%, followed by Homemakers they are at 5%. Retired from the smallest group at 1% of the total.

(Table 5)

Do You Follow Celebrities/influencer?	Frequency	Percentage (%)
Yes	**131**	**59%**
No	**90**	**41%**
Total	**221**	**100%**

The data shows that a majority of respondents, 59%, follow celebrities or influencers, while 41% do not. This suggests that celebrity and influencer content holds significant interest for more than half of the surveyed population, indicating its potential impact on public opinion and trends.

(Table 6)

Do You Purchase Products, Endorsed by Celebrity of Your Niche?	Frequency	Percentage (%)
Yes	139	63%
No	82	37%
Total	**221**	**100%**

The provided data indicates that 63% of respondents purchase products endorsed by celebrities within their niche, while 37% do not. This suggests that celebrity endorsements have a significant influence on consumer purchasing decisions in this particular niche. However, a notable minority of respondents (37%) do not rely on celebrity endorsements when making purchasing choices.

(Table 7)

On Majority, on who's Recommendation you take your Purchase Decision of Buying a product?	Frequency	Percentage (%)
Friends and Family	124	57%
Advertisements (Traditional and Modern)	52	24%
Social media marketing	36	16%
Celebrity endorsement	7	3%
Total	**219**	**100%**

The data reveals that 57% of respondents primarily rely on recommendations from friends and family when making purchase decisions, while advertisements influence 24%, and social media marketing accounts for 16%. Celebrity endorsements have the least impact, guiding only 3% of respondents. This suggests that personal connections are the most trusted source for purchase decisions, far outweighing other forms of marketing.

(Table 8)

Do you pay more attention to Celebrity Endorsements when they are promoting a social cause alongside the product?	Frequency	Percentage (%)
Yes	100	45%
No	121	55%
Total	**221**	**100%**

The data shows that 45% of respondents pay more attention to celebrity endorsements when they are promoting a social cause alongside a product, while 55% do not. This indicates that incorporating social causes into endorsements has a moderate influence, appealing to nearly half of the audience, though a slight majority remains unaffected by this approach.

(Table 9)

What factors influence you the most when evaluating a Celebrity Endorsements?	Frequency	Percentage (%)
Trustworthiness of the Celebrity	51	23%
Celebrity's Image and Personality	40	18%
Match between the Celebrity and the product	37	17%
Effectiveness of the Advertisements	93	42%
Total	**221**	**100%**

The data indicates that the effectiveness of the advertisements is the most influential factor, affecting 42% of respondents when evaluating celebrity endorsements. Trustworthiness of the celebrity is the next most important factor at 23%, followed by the celebrity's image and personality (18%), and the match between the celebrity and the product (17%). This suggests that while the celebrity's attributes are important, the overall impact of the advertisement itself plays the most critical role in shaping audience perception.

(Table 10)

Have you ever purchased a product exclusively because a Celebrity endorsed it?	Frequency	Percentage (%)
Yes	141	64%
No	80	36%
Total	**221**	**100%**

The data reveals that 64% of respondents have purchased a product exclusively because a celebrity endorsed it, while 36% have not. This suggests that celebrity endorsements can be a powerful motivator for consumer purchases, with a significant majority of respondents influenced by celebrity endorsements alone.

(Table 11)

Are there any specific types of Celebrities whose Endorsements you find more believable or trustworthy?	Frequency	Percentage (%)
Movie stars	58	26%
Athletes	89	40%
Musicians	19	9%
Social media influencers	55	25%
Total	**221**	**100%**

The data shows that athletes are considered the most believable or trustworthy endorsers, with 40% of respondents favoring them. Movie stars follow at 26%, while social media influencers and musicians are trusted by 25% and 9% of respondents, respectively. This suggests that endorsements by athletes carry the most weight in terms of credibility among the audience.

(Table 12)

How important is it for the celebrity to actually use the product they endorse for you to trust their recommendation?	Frequency	Percentage (%)
Very important	80	36%
Somewhat important	39	18%
Neutral	61	28%
Not important at all	41	19%
Total	**221**	**100%**

The data indicates that for 36% of respondents, it is very important that a celebrity actually uses the product they endorse to trust their recommendation, while 18% find it somewhat important. A neutral stance is taken by 28%, and 19% consider it not important at all. This suggests that while a significant portion of the audience values authenticity in endorsements, others are either indifferent or less concerned about whether the celebrity actually uses the product.

(Table 13)

Have you ever had a positive or negative experience with a product you purchased because of a Celebrity Endorsement?	Frequency	Percentage (%)
Yes	117	53%
No	103	47%
Total	**221**	**100%**

The data reveals that 53% of respondents have had either a positive or negative experience with a product purchased due to a celebrity endorsement, while 47% have not. This indicates that celebrity endorsements can significantly impact consumer experiences, with just over half of the audience having encountered real-life outcomes related to their endorsement-driven purchases.

FINDINGS:

As per the Researcher's Findings: -

1. The majority of respondents in the suburban area of Mumbai City are in the 20-30 age range, comprising 80% of the total, followed by 30-40 year-olds at 17%.

2. 38% of are under graduate, 33% are graduate, and 12th pass and postgraduate consist 10%, the smaller percentages include 10th pass and professionals which is 5%.

3. Salaried form the large proportion of occupational Group at 46%, Student represent 41%, and Self-employed /Businessmen at 7%, followed by Homemakers they are at 5%. Retired from the smallest group at 1% of the total.

4. Females are slightly more represented at 53 % compared to Males at 47%, indicating a nearly balanced gender distribution.

5. The data indicates that 59% of respondents follow celebrities or influencers, reflecting a strong interest in their content and suggesting a substantial influence on public opinion and trends.

6. The data shows that 63% of respondents are influenced by celebrity endorsements for niche products, underscoring their impact on consumer decisions, while 37% remain unaffected.

7. The data indicates that 57% of respondents trust recommendations from friends and family the most for purchase decisions, with advertisements, social media marketing, and celebrity endorsements having significantly lesser influence.

8. The data shows that 45% of respondents are more attentive to celebrity endorsements promoting social causes, while 55% are not, indicating a moderate influence of social causes on endorsement effectiveness

9. The data shows that 42% of respondents prioritize the effectiveness of advertisements over the celebrity's attributes when evaluating endorsements, highlighting the ad's overall impact as the most critical factor.

10. The data shows that 64% of respondents have made purchases solely based on celebrity endorsements, demonstrating their strong influence on consumer behavior.

11. The data reveals that athletes are viewed as the most credible endorsers, with 40% of respondents finding them most trustworthy, compared to movie stars, social media influencers, and musicians.

12. The data shows that 36% of respondents consider it very important for a celebrity to actually use the endorsed product, while 28% are neutral and 19% find it not important, indicating mixed opinions on the importance of authenticity in endorsements.

13. The data shows that 53% of respondents have experienced positive or negative outcomes from products bought due to celebrity endorsements, highlighting their significant impact on consumer experiences.

CONCLUSION:

The study explores the Influence of Celebrity Endorsements on Consumer Buying Behavior among Individuals residing in the Suburban Areas of Mumbai City. The findings reveal a significant awareness and impact of Celebrity Endorsements, particularly among the younger demographic aged 20-30. The data suggests that while a substantial portion of the population follows Celebrities or Influencers, the Influence of Celebrity Endorsements is nuanced, with 63% of respondents being swayed by Endorsements for Niche Products. However, trust in recommendations from Friends and Family surpasses that in Celebrity Endorsements, underscoring the importance of personal connections in purchase decisions.

The study also highlights the mixed opinions on the authenticity of endorsements, with a notable portion of respondents emphasizing the importance of Celebrities genuinely using the products they endorse. Additionally, while Athletes are deemed the most credible endorsers, the overall effectiveness of the advertisement remains a critical factor for consumers.

These Insights indicate that while Celebrity Endorsements play a significant role in shaping consumer behavior, their impact is influenced by various factors such as the type of product, the perceived authenticity of the endorsement, and the personal trust network of the consumers. The research underscores the need for Brands to consider these dynamics when utilizing Celebrity Endorsements in their Marketing Strategies.

ECONOMIC RELEVANCE:

1. **Economic Insight:** The study examines the economic impact of celebrity endorsements on consumer behavior. By understanding how these endorsements influence purchasing decisions, businesses can fine-tune their marketing strategies to be more cost-effective and impactful.

2. **Market Impact:** This research focuses on the suburban areas of Mumbai, which are experiencing economic growth and diversity. The findings will help businesses target this specific demographic more effectively, leading to better market penetration and increased sales.

3. **Budget Optimization:** Businesses often spend large amounts on celebrity endorsements. This study will help them understand the return on investment (ROI) from such endorsements, enabling them to allocate their marketing budgets more efficiently.

4. **Brand Recognition:** Celebrity endorsements can significantly boost a brand's visibility and credibility. The study will assess how these endorsements help in building and maintaining brand recognition, which is crucial for attracting and retaining customers.

5. **Competitive Advantage:** In a highly competitive market, understanding the effectiveness of celebrity endorsements can give companies an edge over their competitors. The research will provide insights that can help businesses differentiate themselves in the marketplace.

6. **Long-term Sustainability:** Consumer loyalty is vital for long-term business success. The study will explore the factors that contribute to consumer trust and loyalty, particularly in relation to celebrity endorsements, offering strategies for sustainable business growth.

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TO STUDY THE REASONS FOR NO ACTIVE PARTICIPATION IN STOCK MARKET AMONG UNDERGRADUATE STUDENTS OF SUBURB AREA IN MUMBAI CITY

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ABSTRACT:

This research paper explores the reasons behind the lack of active participation in the stock market by undergraduate students in the suburban area of Mumbai City, focusing on their awareness of stock market operations and the factors influencing their disengagement. A sample of 80 respondents was surveyed, revealing that over 93% of students are aware of stock market operations and financial markets. However, despite this high level of financial literacy, the majority prefer managed investment options such as Systematic Investment Plans (SIPs) and Mutual Funds over direct participation in stock trading. Key barriers include limited proficiency in technical stock analysis, lack of access to real-time financial resources, and a lack of confidence in managing complex market activities. Many students cited perceived risks, time constraints, and insufficient disposable income as additional factors deterring them from active stock trading. The findings suggest that while awareness is not a major issue, there are significant gaps in technical expertise, financial resources, and investment behavior that prevent more direct engagement with stock markets. This study underscores the importance of targeted financial education to enhance technical skills, provide more accessible financial tools, and broaden market understanding, potentially encouraging more active stock market participation among young investors.

Keywords: *Financial Literacy, Investment Behavior, Stock Market Participation, Technical Analysis, Undergraduate Students*

INTRODUCTION:

The stock market plays a vital role in the financial infrastructure of a country, providing a platform for companies to raise capital and for investors to build wealth. It serves as a reflection of a nation's economic health and influences various sectors of the economy. However, despite the stock market's significance and its potential as a wealth-building tool, certain segments of the population, particularly undergraduate students, exhibit limited participation. This is especially evident among students from suburban areas, where economic conditions and societal factors may contribute to this disengagement. While young investors have the advantage of time on their side, allowing for long-term growth and the ability to withstand market fluctuations, their lack of active involvement in the stock market is an area of growing concern. Investigating the reasons for this absence is critical, particularly in a country like India, where financial markets are expanding rapidly, and opportunities for wealth generation are abundant.

In India, the financial market has undergone significant changes in recent decades, with stock exchanges like the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) becoming more accessible through online platforms and digital trading tools. This evolution has made it easier for the general population to invest in stocks. However, despite these advancements, many young individuals, particularly undergraduates, remain hesitant to engage with the stock market. Suburban areas, where economic conditions often differ from urban centers, present a unique set of challenges. These areas might lack the financial awareness and resources that are more readily available in major cities, contributing to the students' reluctance to participate in the market. Furthermore, the cost of living, lower disposable income, and a focus on immediate financial needs often take precedence over long-term investment planning for students in these regions. Moreover, undergraduates face

several specific hurdles that contribute to their absence from stock market investment. One of the primary barriers is financial literacy. Many students do not receive adequate financial education, either in schools or from their family environments, which limits their understanding of how the stock market works and the benefits of investing. Financial literacy is a crucial skill, and its absence can lead to a perception of the stock market as overly complex or risky. This lack of understanding is compounded by the inherent volatility of the stock market, which can intimidate inexperienced investors. Undergraduates, particularly those from suburban areas where economic security may be more tenuous, often prioritize avoiding risks. This conservative financial behavior, while understandable given their circumstances, prevents them from taking advantage of the growth potential that the stock market offers.

Another significant factor is the competing financial obligations that undergraduates face. Many students are burdened with educational expenses, including tuition fees, accommodation, and textbooks, which leave little room for discretionary spending. For students in suburban areas, where family incomes may be lower compared to urban counterparts, these financial pressures are often heightened. Consequently, the idea of setting aside money for stock market investments may seem impractical or even irresponsible when immediate expenses and short-term financial goals, such as saving for a laptop or covering daily expenses, are more pressing. Furthermore, student loans, which are common among undergraduates, also serve as a deterrent to investing. The priority for most students is to pay off debt rather than take on the perceived risk of investing in stocks. Lastly, the social and cultural context in suburban areas can also influence investment behavior. In many Indian households, particularly in suburban and rural regions, the focus is on saving rather than investing. Traditional savings instruments like fixed deposits, gold, and real estate are often preferred over the stock market due to their perceived stability and lower risk. This cultural emphasis on conservative financial practices further discourages undergraduates from exploring the stock market as a viable option for wealth generation. Even if they are aware of the potential benefits of investing, students from suburban areas may not have the social support or mentorship necessary to navigate the complexities of the stock market.

The absence of active stock market participation among undergraduate students in suburban areas is thus a multifaceted issue. It is influenced by a combination of factors, including low financial literacy, risk aversion, limited disposable income, student loans, and cultural attitudes towards saving and investment. These factors, when combined, create a barrier that prevents young individuals from exploring the opportunities that the stock market presents. This research aims to investigate these reasons in detail, focusing on undergraduate students from the suburban areas of Mumbai. By understanding the specific challenges, they face, it will be possible to identify strategies that could encourage greater participation, ultimately helping these students to build a stronger financial future and contribute more actively to the economy.

OBJECTIVES:
1. To study awareness level about the operation in the Stock Market among students.

2. To understand the reasons for not participating in the Stock Market.

LIMITATIONS:
1. **Area:** The data is limited to the suburban area of Mumbai City, potentially affecting the generalizability of the findings to a broader population.

2. **Time:** Due to time constraints, the research had a limited window for collecting sampling data, potentially impacting the depth and breadth of the study.

3. **Subjective Thinking:** Not every respondent may exercise utmost care in filling out a survey, introducing the possibility of response bias. The survey method may make it challenging to ensure that all respondents dedicate accurate time and attention to the questionnaire, potentially affecting data reliability.

HYPOTHESIS:
$H1O_1$: Undergraduate financial markets students in the suburban area of the Mumbai district are not significantly aware of stock market operations.

$H1O_1$: Undergraduate financial markets students in the suburban area of the Mumbai district are significantly aware of stock market operations.

$H2O_2$: The reasons identified do not significantly impact the lack of active participation in the stock market by undergraduate financial markets students in the suburban area of the Mumbai district.

$H2O_2$: The reasons identified significantly impact the lack of active participation in the stock market by undergraduate financial markets students in the suburban area of the Mumbai district.

RESEARCH METHODOLOGY:

1. **Research Category:** The research is descriptive in nature, focusing on individuals in the suburban area of Mumbai City.

2. **Tools and Techniques Applied:** Statistical patterns and representations were employed to present the primary data in the research. Data analysis included frequencies and percentages to ensure accuracy.

3. **Sampling Method:** Simple random sampling was used to gather relevant information. Respondents participated by answering a survey conducted via Google Forms, providing a snapshot of the opinions of individuals in the suburban area of Mumbai City. The use of Google Forms facilitated efficient data collection within the given time constraints.

4. **Sample Size:** The primary data for the research study consisted of 80 responses. This sample size was deemed sufficient to meet the research objectives while accounting for time limitations.

DATA INTERPRETATION AND ANALYSIS:

(Primary Data: Question 1)

Gender Category	FREQUENCY	PERCENTAGE (%)
Male	49	61.25
Female	31	38.75
TOTAL RESPONDENTS	**80**	**100**

The data indicates that the majority of respondents are male, comprising 61.25% of the total, while females represent 38.75%. This suggests a notable gender disparity in the sample, with nearly two-thirds being male. The total respondent count is 80, which means the findings are based on a relatively small group.

(Primary Data: Question 2)

Age Category	FREQUENCY	PERCENTAGE (%)
Student	63	78.75
Internship	7	8.75
Part-Time Job	9	11.25
Full-Time Job	1	01.25
TOTAL RESPONDENTS	**80**	**100**

The majority of respondents, accounting for 78.75%, are students, indicating that the sample largely represents individuals in an academic phase. Internships make up a small portion, with only 8.75% of respondents currently pursuing this option, suggesting a limited transition to professional experience at this stage. Part-time jobs are slightly more common than internships, at 11.25%, reflecting a trend of students or young professionals balancing work and study. Only 1.25% of respondents are in full-time employment, highlighting a significant gap between full-time career engagement and other categories. The data suggests that the population is predominantly in early stages of education and career development.

(Primary Data: Question 3)

Are you aware about Financial Markets?	FREQUENCY	PERCENTAGE (%)
Yes	75	93.75
No	5	06.25
TOTAL RESPONDENTS	**80**	**100**

The data shows that a large majority of respondents, 93.75%, are aware of financial markets, indicating a high level of financial literacy within the group surveyed. Only 6.25% of the respondents are not aware, highlighting that very few individuals lack exposure or knowledge about the financial markets. This suggests that most individuals in the group may have a stronger understanding of investment opportunities, economic trends, or financial decision-making. The total number of respondents was 80, which provides a reasonably solid sample size to interpret these findings. The data reflects a dominant awareness of financial markets among the respondents, with minimal knowledge gaps.

(Primary Data: Question 4)

Are you aware about Stock Market?	FREQUENCY	PERCENTAGE (%)
Yes	75	93.75
No	5	06.25

TOTAL RESPONDENTS	80	100

Out of 80 respondents, a significant majority (93.75%) indicated that they are aware of the stock market. Only 6.25% of the respondents stated that they are not aware. This suggests a high level of awareness about stock market concepts among the surveyed group. The results imply that stock market education or exposure may be widespread in this sample.

(Primary Data: Question 5)

Are you aware about the Stock Exchanges of India?	FREQUENCY	PERCENTAGE (%)
Yes	72	90
No	8	10
TOTAL RESPONDENTS	**80**	**100**

The survey data reveals that a significant majority of respondents, constituting 90%, are aware of the stock exchanges in India, reflecting a high level of familiarity with the country's financial markets. Only 10% of the respondents reported no awareness of these exchanges, indicating a relatively small segment of the population lacking knowledge in this area. The data underscores a robust awareness among the surveyed individuals, which is crucial for understanding the broader engagement with financial markets. This high awareness rate could be indicative of effective financial literacy initiatives or widespread media coverage related to stock exchanges. The findings suggest that further research could explore the depth of this awareness and its impact on investment behaviors and financial decision-making.

(Primary Data: Question 6)

Are you aware about different Financial Markets?	FREQUENCY	PERCENTAGE (%)
Commodities Market	35	16.67
Debt Market	28	13.34
Derivatives Market	57	27.14
Equity Markets	53	25.23
Forex Market	37	17.62
TOTAL RESPONDENTS	**210**	**100**

The survey results on awareness of various financial markets reveal a diverse distribution among respondents. The Derivatives Market emerges as the most recognized segment, with 27.14% of participants demonstrating awareness. This is followed by Equity Markets, which account for 25.23% of the responses, indicating a significant familiarity with stock trading and investments. The Commodities Market, despite its importance, garners relatively less recognition at 16.67%, suggesting a potential gap in awareness or engagement in this area. The Forex Market, with 17.62% of respondents, shows moderate awareness, reflecting an understanding of foreign exchange trading. The Debt Market, encompassing bonds and fixed-income securities, is acknowledged by 13.34% of the participants, highlighting a lower level of familiarity compared to other markets. The data indicates a varied level of awareness across different financial markets, with derivatives and equity markets being the most prominent among the respondents.

(Primary Data: Question 7)

Are you to Interpret the Index? (Nifty/Sensex)	FREQUENCY	PERCENTAGE (%)
Yes	56	70
No	24	30
TOTAL RESPONDENTS	**80**	**100**

The data indicates that a majority of respondents, 70%, interpret the Nifty/Sensex index, while 30% do not. This suggests a strong engagement with market indicators among the respondents. The high percentage of individuals involved in interpreting these indices implies a significant level of market awareness and involvement. Conversely, the 30% who do not engage with the index may represent a segment less focused on or less informed about market trends.

(Primary Data: Question 8)

Are you able to Read & Understand the Chart Patterns of Stocks?	FREQUENCY	PERCENTAGE (%)
Yes	50	62.5
No	30	37.5

TOTAL RESPONDENTS	80	100

Among the 80 respondents, a majority of 62.5% (50 individuals) reported an ability to read and understand stock chart patterns. In contrast, 37.5% (30 respondents) indicated a lack of proficiency in this area. This distribution suggests a significant proportion of respondents possess skills pertinent to technical analysis, potentially influencing their investment strategies. The data underscores a notable variance in expertise within the surveyed population regarding stock chart interpretation.

(Primary Data: Question 9)

Are you able to do the Fundamentals and Technical Analysis?	FREQUENCY	PERCENTAGE (%)
Yes	47	58.75
No	33	41.25
TOTAL RESPONDENTS	**80**	**100**

A total of 80 respondents were surveyed regarding their ability to perform fundamental and technical analysis. Out of these, 47 respondents, representing 58.75%, confirmed their capability in these areas. Conversely, 33 respondents, or 41.25%, indicated they do not possess this skill. The data highlights a notable majority of respondents who are proficient in both fundamental and technical analysis. This suggests a significant level of expertise among the surveyed group, potentially influencing their decision-making and investment strategies.

(Primary Data: Question 10)

Are you aware about the different ways of Investing in Stock Market?	FREQUENCY	PERCENTAGE (%)
Depositories	33	15.49
Direct Participation	50	23.48
Mutual Fund	61	28.63
SIP	69	32.40
TOTAL RESPONDENTS	**213**	**100**

The data reveals diverse preferences among respondents regarding stock market investment avenues. The highest proportion of participants, 32.40%, prefer Systematic Investment Plans (SIP) for investing in the stock market, indicating a strong inclination towards this method due to its structured and disciplined approach. Mutual Funds follow closely, with 28.63% of respondents favouring them, reflecting their appeal for diversified investment portfolios managed by professionals. Direct Participation in the stock market is chosen by 23.48% of respondents, underscoring the interest in individual stock investments and direct market involvement. Depositories, while less popular, still account for 15.49% of the investment choices, suggesting a specific interest in safe-keeping and managing stocks electronically. The cumulative frequency of these investment options emphasizes a preference for managed and systematic investment approaches over direct stock market involvement. This distribution highlights varying levels of engagement and investment strategies among respondents, reflecting a diverse investment landscape. The data provides valuable insights into the investment preferences of individuals in the stock market, which can guide future financial planning and product development.

FINDINGS:

As per the Researcher's Findings: -

1. The survey data reveals a significant gender disparity, with 61.25% of respondents being male and 38.75% female, based on a total sample size of 80 respondents.

2. The findings indicate that 78.75% of respondents are students, 8.75% are engaged in internships, 11.25% hold part-time jobs, and only 1.25% are in full-time employment, highlighting a population primarily in the early stages of education and career development.

3. The data reveals that 93.75% of the 80 respondents demonstrate a high level of financial literacy through their awareness of financial markets, with only 6.25% lacking such awareness, indicating minimal knowledge gaps within the sample.

4. A significant 93.75% of respondents demonstrated awareness of the stock market, while only 6.25% indicated a lack of awareness, suggesting widespread stock market education or exposure within the surveyed group.

5. The survey data indicates that 90% of respondents possess awareness of India's stock exchanges, highlighting a strong familiarity with financial markets, while only 10% demonstrate a lack of knowledge, suggesting a need for further exploration into the relationship between this awareness and investment behavior.

6. The survey findings reveal a varied distribution of financial market awareness, with the Derivatives Market recognized by 27.14% of respondents, followed by Equity Markets at 25.23%, Forex Market at 17.62%, Commodities Market at 16.67%, and Debt Market at 13.34%, indicating a higher familiarity with derivatives and equity markets compared to other segments.

7. The data reveals that 70% of respondents demonstrate engagement with the Nifty/Sensex index, indicating substantial market awareness, while the remaining 30% exhibit a lack of interaction with these market indicators, potentially reflecting lower financial literacy or interest in stock market trends.

8. The survey findings reveal that 62.5% of respondents demonstrate proficiency in reading and interpreting stock chart patterns, while 37.5% lack such skills, indicating a considerable variation in technical analysis expertise among the population surveyed.

9. The survey results indicate that 58.75% of respondents possess the ability to perform both fundamental and technical analysis, demonstrating a majority proficiency that may play a crucial role in shaping their investment decision-making and strategies.

10. The data indicates that respondents exhibit a diverse range of preferences regarding stock market investment avenues, with a notable inclination towards Systematic Investment Plans (32.40%) and Mutual Funds (28.63%), while a smaller proportion engages in direct stock market participation (23.48%) or depositories (15.49%), highlighting a tendency towards managed and systematic investment approaches.

CONCLUSION:

The research study provides a comprehensive understanding of the factors contributing to the lack of active participation in the stock market by undergraduate students in the suburban area of Mumbai City. The findings reveal a high level of financial literacy and awareness about the stock market and financial instruments among the majority of respondents. However, despite this knowledge, direct engagement in stock market activities remains limited, with a significant preference for managed investment avenues such as Systematic Investment Plans (SIPs) and Mutual Funds.

The study highlights key barriers to participation, including limited technical expertise in stock chart analysis and a lack of interest or confidence in direct stock market investments. While a majority of respondents are proficient in fundamental and technical analysis, there remains a notable segment that lacks the necessary skills to engage actively in stock trading. Additionally, the data indicates a need for targeted educational efforts to bridge knowledge gaps, particularly in less familiar markets such as debt and commodities.

In conclusion, while awareness of the stock market is widespread, practical engagement remains constrained by both skill gaps and investment preferences. Future initiatives should focus on enhancing financial education, particularly in technical analysis and diverse market segments, to encourage more active participation in stock market activities.

ECONOMIC RELEVANCE:

The economic relevance of studying the reasons for the lack of active participation in the stock market by undergraduate students in suburban areas of Mumbai City lies in its potential to uncover critical barriers and drivers affecting young investors' engagement. Understanding these factors is crucial for policymakers, financial institutions, and educators to design targeted interventions that foster financial literacy and investment participation among youth. This research can illuminate gaps in financial education, accessibility issues, or risk perceptions that obstruct students from exploring stock market opportunities. By addressing these barriers, stakeholders can enhance economic inclusion and support the development of a more informed and proactive investor base. Furthermore, the findings can contribute to broader economic growth by promoting early investment habits, which can lead to increased capital formation and financial stability in the long term. Thus, this study not only addresses individual investment behaviors but also has implications for broader economic development and financial market participation.

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AN ANALYTICAL STUDY ABOUT THE MARKET COMPETITION IN ONLINE MEDIA VIDEO STREAMING OTT PLATFORM IN MUMBAI CITY

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ABSTRACT:

This study examines the competitive landscape of Online Media Video Streaming OTT Platforms in Mumbai City, focusing on consumer behavior and preferences. The research employs a descriptive methodology, gathering primary data from 100 respondents in the suburban areas of Mumbai using simple random sampling. The analysis reveals a significant shift towards digital content consumption, particularly among younger audiences aged 15-20 years, who are the most active users of OTT Platforms. Netflix, Amazon Prime Video, and Disney+ Hotstar dominate the market, reflecting their widespread appeal and strong consumer loyalty. Key factors influencing platform choice include video and sound quality, content availability, and pricing, with a notable preference for more affordable subscription plans. The study highlights a trend towards personalized subscriptions, with most users opting for their own accounts, emphasizing the importance of tailored content experiences. Additionally, the findings suggest that OTT Platforms are predominantly used for entertainment, with comedy and action/adventure genres being the most popular. The research concludes that the OTT Market in Mumbai City is thriving, driven by strong consumer demand, competitive offerings, and a clear shift from traditional media to digital platforms, underscoring the evolving landscape of media consumption in urban India.

Keywords: Content Consumption, Consumer Behavior, Digital Media, OTT Platforms, Video Streaming.

INTRODUCTION:

In the past few decades, entertainment has undergone a remarkable transformation with rapid advancements in technology and the internet. The modes of consuming media have changed, as television and cinema have given rise to Online Video Streaming Platforms, often called Over-The-Top (OTT) Platforms. These platforms have revolutionized audience access and engagement with content, offering convenience, choice, and flexibility. From the comfort of their homes, viewers can immerse themselves in a diverse array of movies, TV shows, documentaries, and original productions. Unlike traditional television, which operates on fixed schedules and limited programming, streaming services offer on-demand access to a vast library of content. This empowers viewers to curate their own viewing experiences, binge-watch entire seasons, and discover hidden gems.

Original productions from streaming services like Netflix, Amazon Prime Video, and Disney+ have garnered critical acclaim and reshaped the entertainment landscape. The rise of OTT Platforms has presented opportunities for both content creators and consumers. The era of traditional broadcasting is giving way to a new form of digital entertainment, where viewers can watch whatever they want, whenever they want. Updated shows, movies, and documentaries not only attract subscribers but also foster brand loyalty and differentiate platforms in the market. OTT Platforms continuously innovate to enhance the viewer experience, leveraging data analytics and AI-driven algorithms to tailor content recommendations to individual preferences.

The Online Video Streaming OTT Platform Market is a dynamic ecosystem shaped by intense competition, technological innovation, and evolving consumer preferences. Some of the prominent OTT Platforms are:

1. **Netflix:** Netflix is a media-streaming and video-rental company founded in 1997 by American Entrepreneur Reed Hastings. Its headquarters is in Los Gatos, California. In 1999, Netflix began offering an online subscription service. By 2007, it introduced the option to stream movies and television shows

directly over the internet. In 2010, Netflix introduced a streaming plan that offered unlimited streaming service. By 2016, its streaming service was available in more than 190 countries.

2. **SonyLiv:** SonyLiv is an over-the-top streaming platform owned by Culver Max Entertainment. Launched in 2013 as the first OTT service in India, SonyLiv provides live sports, original titles, and other content from its networks, as well as licensed content from third parties. The SonyLiv content library includes series, TV shows, and films. Its headquarters is in Mumbai.

3. **LIV Sports:** Launched on June 1, 2014, as a new sports service, LIV Sports began streaming live channels of other networks, including news channels, in 2019. It streams content from Sony Pictures Entertainment, Sony Pictures Television Studios, and ITV, and has also started producing and distributing original movies and series. SonyLiv aims to create an innovative business model enabled by digital technologies, enhance customer experience, and pave the path for future growth.

4. **Hotstar:** Hotstar is an Indian subscription-based OTT streaming service owned by Disney Star, a subsidiary of Disney Entertainment. It features Indian films, television, and sports content for both Indian and global audiences. Initially launched as Hotstar, it was integrated with Disney's global streaming brand as 'Disney+ Hotstar' in April 2020.

5. **Voot:** Voot is an Indian OTT platform owned by Viacom18. Launched in March 2016, it initially offered content from local brands and original series as an ad-supported service. In August 2023, Voot began migrating its content to Jio Cinema, starting with sports rights such as the 2022 FIFA World Cup and upcoming Indian Premier League rights. Voot also hosted content from Colours TV, MTV, and other channels, along with Bollywood films.

6. **MX Player:** MX Player is an Indian video streaming platform developed by MX Media & Entertainment. Initially launched as a video player in 2011, MX Player was relaunched as an OTT platform in 2019 with original programming. It has also licensed content from various Indian and international studios, including Sony Entertainment, Sun TV Network, and others.

7. **Amazon Prime Video:** Amazon Prime Video is an American subscription service primarily distributing films and television series produced by Amazon Studios as Amazon Originals. The service also hosts content from other providers and live sporting events. Prime Video additionally offers a content add-on service called Amazon Channels, allowing users to subscribe to additional services from other content providers within Prime Video.

8. **Hulu:** Hulu is an American subscription streaming service owned by The Walt Disney Company. Launched on October 29, 2007, its headquarters is in Los Angeles, California. In 2010, Hulu launched a subscription service initially called "Hulu Plus." In 2017, the company introduced "Hulu with Live TV," an OTT service featuring broadcast programming channels.

OBJECTIVES:
1. To understand the demographic details of respondents from the suburban areas of Mumbai City.

2. To examine respondent's preferences when choosing an Online Video Streaming OTT Media Platform.

3. To analyse the usage patterns of the respondents regarding Online Video Streaming OTT Media Platforms.

LIMITATIONS:
1. **Area**: The data is collected only from the suburban area of Mumbai City.

2. **Time:** Due to time constraints in completing the research, limited time was invested in collecting the sample data.

3. **Subjective Thinking:** Not every respondent exercises utmost care when filling out a survey. Since the survey method is used, it becomes difficult to determine if all respondents dedicated sufficient time and attention.

4. **Restricted Respondents:** Although efforts were made to collect responses from a wide range of individuals, the research is limited to respondents who are actually subscribing to and watching Online Video Streaming OTT Media Platforms.

HYPOTHESIS:

H1o2: There is no relationship between the demographic details of respondents and their choice of Online Video Streaming OTT Platforms in Mumbai City.

H1o2: The data suggests a significant shift towards Online Media Video Streaming OTT Platforms as the preferred choice for consuming video content.

H2o3: There is no significant relationship between the customers and their subscription to Online Media Video Streaming OTT Platforms in Mumbai City.

H2o3: There is a significant relationship between the customers and their subscription to Online Media Video Streaming OTT Platforms in Mumbai City.

RESEARCH METHODOLOGY:

1. **Data Source:** The research is descriptive in nature, and the data was collected from individuals in the suburban area of Mumbai City.

2. **Tools and Techniques Applied:** Statistical patterns and representations were employed to present primary data in the research paper. The data analysis included frequencies and percentages to ensure accuracy.

3. **Sampling Method:** Simple random sampling was used to gather practical information. Respondents participated by answering a survey conducted through Google Forms, providing a snapshot of the opinions of individuals in the suburban area of Mumbai City. The use of Google Forms facilitated efficient data collection within time constraints.

4. **Sample Size:** The research study collected primary data with 100 responses received during the survey.

DATA INTERPRETATION AND ANALYSIS:

(Primary Data: Question 1)

Age Category	Frequency	Percentage
15-20 years	57	57%
21-30 years	29	29%
31-50 years	12	12%
50+ years	2	02%
Total Respondents	100	100%

The data reveals that the majority of respondents, 57%, fall within the 15-20 year's age category, indicating that younger individuals are the primary users of Online Video Streaming OTT platforms. The 21-30 year's age group follows with 29%, showing a strong engagement among young adults as well. Respondents aged 31-50 years make up 12% of the total, suggesting a lesser but notable interest in OTT platforms among middle-aged individuals. Only 2% of respondents are aged 50 and above, indicating minimal adoption of OTT services in this older demographic. Overall, the data suggests that OTT platforms are most popular among younger audiences, particularly those under 30.

(Primary Data: Question 2)

Which platform do you use the most?	Frequency	Percentage
Cable/DTH Provider	10	10%
Online Media Video Streaming OTT Platform	69	69%
Both	21	21%
Total Respondents	**100**	**100%**

The data reveals that a majority of respondents (69%) predominantly use Online Media Video Streaming OTT Platforms for consuming video content. Only 10% of the respondents continue to rely solely on Cable/DTH providers, indicating a significant decline in their usage. A smaller segment, 21%, utilizes both Cable/DTH and OTT Platforms, suggesting a transitional phase for some consumers. The overwhelming preference for OTT Platforms highlights the growing trend towards on-demand, flexible viewing options. This shift may indicate a broader movement away from traditional television services in favour of more modern streaming alternatives.

(Primary Data: Question 3)

Do you subscribe to Online Media?	Frequency	Percentage
Yes	71	71%
No	29	29%
Total Respondents	**100**	**100%**

The data reveals that a significant majority (71%) of respondents in Mumbai City subscribe to online media, indicating strong penetration and adoption of OTT platforms. Conversely, 29% of respondents do not subscribe to online media, suggesting a segment that either prefers traditional media or is not yet engaged with digital platforms. This trend underscores the growing dominance of online media in the entertainment landscape.

(Primary Data: Question 4)

Do you watch content on your Friend's Subscribed Account?	Frequency	Percentage
Yes	44	44%
No	56	56%
Total Respondents	**100**	**100%**

The data indicates that 56% of respondents do not use a friend's subscribed account for watching content, while 44% do. This suggests that the majority of users prefer to use their own subscriptions rather than relying on shared accounts. The trend may reflect a preference for personalized content experiences and account security.

(Primary Data: Question 5)

Which Online Media Video streaming do you subscribed?	Frequency	Percentage
Alt Balaji	08	02.88%
Amazon Prime Video	58	20.86%
Disney + Hotstar	40	14.39%
Eros Now	15	05.40%
Jio Cinema	20	07.19%
Sony Liv	26	09.35%
MX Player	16	05.76%
Netflix	65	23.38%
Other Platform	20	07.19%
Not a OTT Platform Subscriber	10	03.60%
Total Respondents	**278**	**100%**

The data reveals that Netflix is the most subscribed Online Media Video Streaming platform among respondents, with 23.38% of the total subscriptions, followed by Amazon Prime Video at 20.86% and Disney+ Hotstar at 14.39%. A smaller segment of respondents, 9.35%, subscribe to Sony Liv, while platforms like MX Player and Jio Cinema hold a moderate share of 5.76% and 7.19%, respectively. Interestingly, 3.60% of respondents do not subscribe to any OTT platform, indicating that a small portion of the population still abstains from digital streaming services. The diversity in platform preferences suggests that while Netflix dominates, there is significant competition among various OTT platforms catering to different audience segments.

(Primary Data: Question 6)

Do you utilise OTT Platform?	Frequency	Percentage
Entertainment Purpose	71	32.13%
Binge watch with Friends	32	14.48%
Awareness of Current Tends	24	10.86%
Health and Fitness	17	07.69%
Business Knowledge	28	12.67%
Geographical Knowledge	11	04.98%
Nature Knowledge	12	05.43%
Historical Knowledge	16	07.24%
Not an OTT Platform Subscriber	10	04.52%
Total Respondents	**221**	**100%**

The data shows that the majority of respondents (32.13%) use OTT platforms primarily for entertainment purposes, indicating a strong preference for leisure and recreational content. A significant portion of users (14.48%) also engages in binge-watching with friends, suggesting the social aspect of media consumption on these platforms. The relatively lower percentages for categories like health and fitness (7.69%), business knowledge (12.67%), and geographical knowledge (4.98%) indicate that while OTT platforms are utilized for educational and informational content, these purposes are secondary to entertainment. Notably, only 4.52% of respondents do not subscribe to any OTT platform, highlighting the widespread adoption of these services in Mumbai City. Overall, the data suggests that OTT platforms are primarily viewed as a source of entertainment, with additional uses varying among respondents.

(Primary Data: Question 7)

Which content do you prefer to watch?	Frequency	Percentage
Action and adventurous	60	13.42%
Animation	42	09.40%
Comedy	67	14.99%
Documentaries	27	06.04%
Mystery	26	05.82%
Drama	52	11.63%
Fantasy	23	05.15%

Horror	28	06.26%
Kids	18	04.03%
Mystery and thrillers	22	04.92%
Rom-com	48	10.74%
Science fiction	24	05.37%
Not a OTT Platform Subscriber	10	02.24%
Total Respondents	**447**	**100%**

The data reveals that Comedy is the most preferred genre among respondents, with 14.99% favouring this type of content. Action and Adventure follows closely, attracting 13.42% of the viewers, indicating a strong interest in high-energy and thrilling content. Drama and Romantic Comedies (Rom-com) are also popular, with 11.63% and 10.74% of respondents, respectively, showcasing a preference for emotionally engaging narratives. On the other hand, genres like Science Fiction (5.37%) and Fantasy (5.15%) have a more niche audience, while Documentaries (6.04%) and Horror (6.26%) maintain moderate interest. Notably, only a small fraction (2.24%) of respondents reported not subscribing to any OTT platform, indicating a high level of engagement with online streaming services.

(Primary Data: Question 8)

How often do you use OTT Platform?	Frequency	Percentage
Always	24	24%
Casually	40	40%
Sometimes	28	28%
Not a OTT Platform Subscriber	08	08%
Total Respondents	**100**	**100%**

The data indicates that the majority of respondents, 40%, use OTT platforms casually, suggesting that these services are integrated into their regular entertainment habits but not necessarily a primary focus. A significant portion, 28%, uses OTT platforms sometimes, reflecting a moderate level of engagement, while 24% of respondents always use these platforms, highlighting a dedicated user base. Only 8% of respondents never use OTT platforms, indicating that OTT services have widespread reach and appeal among the surveyed population.

(Primary Data: Question 9)

What factors influence the choice of Online Media Video Streaming?	Frequency	Percentage
Price Content	72	16.74%
Share Content Availability	40	09.30%
Advertising	27	06.28%
Latest Content Availability	62	14.42%
Video Quality	77	17.91%
Sound Quality	74	17.21%
Language Options	68	15.81%

Not a OTT Platform Subscriber	10	02.33%
Total Respondents	**100**	**100%**

The data indicates that video quality (17.91%) and sound quality (17.21%) are the most influential factors in choosing an Online Media Video Streaming platform, followed closely by content availability and language options. Price content is also a significant consideration for many users, accounting for 16.74% of the preferences. A small portion of respondents (2.33%) are not OTT subscribers, highlighting the overall popularity and widespread adoption of these platforms.

(Primary Data: Question 10)

Which plans do you prefer to subscribe, while subscribing OTT Platform?	Frequency	Percentage
Monthly -Basic	44	44%
Monthly-Premium	12	12%
Annually	34	34%
Not a OTT Platform Subscriber	10	10%
Total Respondents	**100**	**100%**

The data indicates that the majority of respondents (44%) prefer to subscribe to the Monthly-Basic plan when choosing an OTT platform, suggesting a preference for more affordable, short-term options. A significant portion (34%) opts for annual subscriptions, indicating a commitment to long-term access, while a smaller percentage (12%) selects the Monthly-Premium plan, showing a preference for premium features. Notably, 10% of respondents do not subscribe to any OTT platform, highlighting a segment of the population that either does not use these services or prefers alternative media consumption methods.

FINDINGS:

1. The majority of respondents (57%) belong to the 15-20 year's age category, indicating that younger audiences are the most active users of online video streaming OTT platforms.

2. The majority of respondents, 69%, prefer using Online Media Video Streaming OTT platforms, while 10% use Cable/DTH providers, and 21% use both.

3. Notably, 71% of respondents in Mumbai City subscribe to online media, indicating a strong preference for digital content consumption.

4. The data indicates that 56% of respondents do not use a friend's subscribed account for watching content, while 44% do. This suggests that the majority of users prefer to use their own subscriptions rather than relying on shared accounts. The trend may reflect a preference for personalized content experiences and account security.

5. The data indicates that Netflix is the most popular streaming platform among respondents, followed by Amazon Prime Video and Disney+ Hotstar, with the majority adopting these services, though a small segment remains unsubscribed.

6. The findings indicate that OTT platforms in Mumbai City are predominantly used for entertainment, with a significant social aspect, while educational and informational content is of secondary importance.

7. The data reveals that Comedy is the most preferred genre among respondents at 14.99%, followed by Action and Adventure (13.42%), with genres like Science Fiction and Fantasy having a niche audience, and a high engagement level in online streaming services, as only 2.24% reported not subscribing to any OTT platform.

8. The data reveals that most respondents engage with OTT platforms to varying degrees, with 40% using them casually, 28% sometimes, 24% always, and only 8% never using them, demonstrating the widespread reach and appeal of these services.

9. The data reveals that video and sound quality are the most influential factors in selecting an Online Media Video Streaming platform, with content availability, language options, and price also playing significant roles, while a small percentage of respondents are non-subscribers, reflecting the widespread adoption of these platforms.

10. The data reveals that most respondents prefer the more affordable Monthly-Basic plan for OTT subscriptions, with a significant portion choosing annual plans for long-term access, while a smaller group opts for the Monthly-Premium plan, and 10% do not subscribe to any OTT platform.

CONCLUSIONS:

The study on market competition in Online Media Video Streaming OTT Platforms in Mumbai City reveals several key insights into consumer behavior and preferences. The demographic analysis highlights that younger audiences, particularly those aged 15-20 years, are the most active users of OTT Platforms, reflecting a generational shift towards digital content consumption. A significant majority of respondents prefer OTT Platforms over traditional Cable/DTH services, indicating a strong trend toward digital media. Netflix, Amazon Prime Video, and Disney+ Hotstar emerge as the leading platforms, underscoring their dominance in the market. The preference for entertainment content, especially comedy and action/adventure genres, indicates that OTT Platforms are primarily used for leisure. Factors such as video and sound quality, content availability, and pricing play crucial roles in influencing platform selection, with affordability being a significant consideration for many users.

The study also uncovers the prevalent use of personalized subscriptions, with most respondents preferring to use their own accounts rather than shared ones, highlighting the importance of tailored content experiences. The varying degrees of engagement with OTT Platforms suggest that these services have achieved widespread adoption, catering to diverse viewer needs. The findings indicate a thriving OTT Market in Mumbai City, characterized by strong consumer demand, competitive platform offerings, and a clear shift from traditional to digital media consumption.

ECONOMIC RELEVANCE:

The rise of Online Media Video Streaming OTT Platforms has transformed the Entertainment Industry, significantly impacting the economy, particularly in urban areas like Mumbai City. These platforms have created new revenue streams for content creators, distributors, and technology providers. The subscription-based and ad-supported models used by OTT services contribute to a growing digital economy, with platforms like Netflix, Amazon Prime Video, and Disney+ Hotstar driving substantial consumer spending.

Market competition among OTT Platforms stimulates innovation and investment, leading to improved content quality, technological advancements in streaming services, and a diversified user experience. Additionally, the demand for localized content has led to job creation in media production, scriptwriting, marketing, and technological development, fostering employment growth in related sectors. The competition among OTT Platforms also fosters a price-sensitive market, which pushes companies to offer more affordable and flexible pricing models to capture a wider audience, thus benefiting consumers. Moreover, OTT Platforms contribute to the Indian Economy by attracting Foreign Investment and Promoting Digital Infrastructure Development. With the expansion of high-speed internet and smartphone usage in cities like Mumbai, the digital content consumption trend is expected to continue growing, thus enhancing the long-term economic relevance of the OTT Industry in the country.

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A STUDY ON MISLEADING MARKETING CAMPAIGNS CONDUCTED BY MULTINATIONAL COMPANIES TARGETING INDIVIDUAL CONSUMERS IN THE SUBURBAN AREAS OF MUMBAI CITY

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ABSTRACT:

This study Investigates the Impact of Misleading Marketing Campaigns conducted by Multinational Companies targeting Individual Consumers in the suburban areas of Mumbai City. Utilizing a Descriptive Research Methodology, data were gathered from 416 respondents through a structured survey. The findings reveal that a significant portion of consumers is aware of Misleading Advertisements, with 84.62% perceiving ads as deceptive and 65.63% expressing Dissatisfaction with the claims made by Multinational Companies. Despite this awareness, 76.92% of respondents still rely on Advertisements for Purchase Decisions. The study also highlights a growing concern about the inadequacy of existing Legal Frameworks, with 87.74% advocating for stricter Government Guidelines. Additionally, Social Media emerged as the most common platform for encountering Advertisements, particularly in product categories like Noodles and Health Proteins/Drinks. The research underscores the need for enhanced Consumer Education and stronger Legal Measures to combat Misleading Marketing Practices effectively.

Keywords: Consumer Awareness, Legal Frameworks, Multinational Companies, Misleading Marketing, Social Media

INTRODUCTION:

The History of Advertising in India goes to early 20th century when advertising was mostly done via print medium. The oldest form of advertising in India may be linked back to 29th January , 1780, when the first advertisement was published in India's First Newspaper named 'The Bengal Gazette' (weekly). However, it was not until the 1920s that the modern advertising business started to take form in India the First Indian Ad Agency, The Indian Advertising Agency, was founded in the year 1931.The debut of radio stations and television in advertising scene signalled a new era, with over 30% of world's population utilising them by 20th century start. Television advertising first debuted in India in 1976 with the introduction of Door-darshan. The first television commercial that debuted in India was on 1st of January in the year 1976 for Gwalior Suiting.

An advertising is typically regarded as a public communication that promotes a product, a service, brand or event. Advertising has three major purposes to inform, to convince and to recall. Advertising is a means of letting prospective buyers know about a product. Main purpose of advertising is to raise the sales of a product and make the consumers pick the product over all other items available in the market after evaluating the positive and the negative side of the product. It is difficult to quantify precisely how much advertising an individual sees every day, since it may vary greatly based on a variety of variables such as the people's age, location, hobbies, and online and offline activity. However, it is believed that the typical individual views between 4000 and 10000 commercials every day. But currently there are numerous deceptive advertising because of which people's reliance on them is eroding day by day.

Any advertising or promotion via television, radio or any other means to misrepresent the nature, quality or geographic origin of products, service or commercial activities so as to mislead the customer is termed misleading advertisement. A misleading advertising is the one, which does not give genuine information regarding the goods being marketed. The primary purpose of misleading advertising is to provide customers

inaccurate information and influence their decision of purchasing items which is a means of performing a fraud with the consumers. It may feature one or more qualities which mislead the viewer's such as inaccurate information, false pricing, exaggeration, etc. There are numerous forms of bait advertising, false promises, failure to disclose, misrepresentations, hidden costs, etc.

Revant Hemantsinghka, widely known as 'Foodpharmer' has started a new effort dubbed 'Label Padega India' that invites people to read labels of daily packaged goods marketed in India. The influencer thinks this would drive large firms to quit bogus marketing promises and start supplying higher quality items. In order to convince people to read labels, he has established a social media challenge that invites individuals to publish a story or post with a label.

REVIEW OF LITERATURE:

Vadehra, S. (2010):
Hindustan Unilever was found guilty of making false claims about its malted beverage "Kisan Amaze," which allegedly provides over 30% of children's daily brain nutrients, in a case under the Prevention of Food Adulteration Act. This first investigation by the Food Safety Authority committee found the claims unscientific and harmful to children's food habits. Violators face up to six months' imprisonment and product withdrawal bystates. The case serves as a deterrent against misleading food advertisements and underscores the need for stringent guidelines. It highlights the vulnerability of children, who, unable to recognize marketing strategies, are easily influenced by advertisements, emphasising the broader issue of protecting consumers from deceptive health claims and ensuring advertising transparency.

S. Turner, C, Jones (2018)
A public health complaint was lodged with the UK's Advertising Standards Authority (ASA) in June 2017 against Nestlé for misleading advertising of its Milky bar, which touted milk as the main ingredient despite its high sugar content. The ASA dismissed the complaint, siding with Nestlé's claim that milk, though in powdered form, was the primary ingredient. Subsequent complaints to Food Standards Scotland (FSS) about inadequate nutritional labelling were also rejected. This case highlights failures in regulatory oversight and the need for continued advocacy against misleading food advertising. The Milky-bar 'Kid': Nestlé, childhood obesity and the regulation of advertising of high sugar and fat ultra-processed products.

Bilal Ahmad Rather, Iqbal Ahmad Hakim (2019)
In April 2014, a raid by the Lucknow Food & Drug Administration on a local shop in Barabanki, Uttar Pradesh, led to the discovery of Monosodium Glutamate (MSG) and excessive lead in Nestlé's Maggi noodles. This unexpected finding escalated into a major public relations crisis for Nestlé India, whose Maggi brand accounted for 30% of its revenue. The case highlights the importance of adherence to quality standards, legal compliance, and the implications of failing to manage public relations effectively.

Alford Chris, Cox H, Wescott R (2001)
Red Bull is a brand of energy drinks created and owned by the Austrian company Red Bull GmbH. With a market share of 43%, it is the most popular energy drink brand as of 2020, and the third most valuable soft drink brand, behind Coca-Cola and Pepsi. Benjamin Careathers filed a case against Red Bull in 2013 as the advertisement stated that RED BULL GIVES YOU WINGS this is their tag line which actually means it make you feel light after you consume it. In this case, the court ruled in favour of Benjamin and other plaintiffs and, thus, ordered Red Bull a class settlement for all victims. It agreed to pay a total of $13 million as compensation to the customers who felt cheated by drinking its energy drink in the last decade. The compensation per victim was a cash pay-out of up to $10.

Dr. Indu R (2022)
Advertising, a crucial promotional tool, influences consumer behaviour through paid, non-personal communication. Effective advertising requires substantial investment in ad creation and media scheduling, aiming to drive purchasing behaviour. Credibility is vital; credible ads are more persuasive and likely to succeed. The study focuses on the impact of advertising credibility on the effectiveness and brand image of children's health food drinks (complan). In Kerala, known for its high literacy and consumerism, ads significantly shape consumer behaviour, making it an ideal market for studying advertising effects.

Sana Sarfaraz, Tanveer Bano, Wajeeha Fatima, Rana Amjad, Ammarah Mehak, Mahira Iqbal, Kiran Nadeem (2017)
This study surveyed 200 young individuals aged 15-25 in Karachi to assess their consumption patterns and preferences for cold drinks. Results indicate high consumption rates, with 90% consuming these drinks and

51% doing so daily. Most favoured black coloured drinks, despite higher sugar content associated with health risks. Experimental findings on rabbits showed significant blood sugar increases after consuming black drinks. The study highlights youth addiction to cold drinks and their preference for coloured varieties, posing potential health concerns.

OBJECTIVES:
1. To determine the awareness level of misleading advertisements among the individuals in theMumbai City.

2. To study the misleading marketing campaigns conducted by the multinational companies in India.

3. To understand the influence of misleading marketing campaigns by multinational companies.

4. To understand the claims made by the multinational companies in their marketing campaign.

5. To analyse the unhealthy ingredients added by the multinational company in their highly selling products.

LIMITATIONS:
1. **Area:** The data is limited to the suburban area of Mumbai City, potentially affecting the generalizability of the findings to a broader population.

2. **Time:** Due to time constraints, the research had a limited window for collecting sampling data, potentially impacting the depth and breadth of the study.

3. **Subjective Thinking:** Not every respondent may exercise utmost care in filling out a survey, introducing the possibility of response bias. The survey method may make it challenging to ensure that all respondents dedicate accurate time and attention to the questionnaire, potentially affecting data reliability.

Hypothesis:

HO_1: Individuals in the suburban areas of Mumbai City have a high awareness level of Misleading Advertisements conducted by Multinational Companies.

$H1_1$: Individuals in the suburban areas of Mumbai City have a low awareness level of Misleading Advertisements conducted by Multinational Companies.

HO_2: Misleading marketing campaigns conducted by multinational companies do not significantly influence the purchasing decisions of individual consumers in the suburban areas of Mumbai City.

$H1_2$: Misleading marketing campaigns conducted by multinational companies significantly influence the purchasing decisions of individual consumers in the suburban areas of Mumbai City.

Research Methodology:
1. **Research Category:** The research conducted is descriptive, focusing on individuals in the suburban area of Mumbai City.

2. **Tools and Techniques Applied:** Statistical patterns and representations were employed to present primary data in the research paper. The data analysis included frequency and percentages to ensure accuracy.

3. **Sampling Method:** Simple random sampling was used to gather practical information. Respondents participated by answering a survey conducted through Google Forms, providing a snapshot of the opinions of individuals in the suburban area of Mumbai City. The use of Google Forms facilitated efficient data collection within the constraints of time.

4. **Sample Size:** The primary data for the research study consisted of 416 responses. This sample size was deemed sufficient for the research objectives while accommodating time limitations.

DATA INTERPRETATION AND ANALYSIS:

(Primary Data: Question 1)

Age Category	Frequency	Percentage
14 - 17 Years	17	4.09%
18 - 30 Years	219	52.64%

31 - 45 Years	131	31.49%
45 Years and Above	49	11.78%
TOTAL	**416**	**100.00%**

The survey data shows a diverse age distribution among respondents. The majority fall in the age group of 18 – 30 years, comprising (52.64%) of the total, followed by 31 – 45 years at (31.49%). A small percentage, (11.78%), are in 45 years and above, and even smaller that is (4.09%) in the age group 14 – 17 years.

(Primary Data: Question 2)

Gender	Frequency	Percentage
Male	215	51.68%
Female	201	48.32%
TOTAL	**416**	**100.00%**

The data reflects a slightly higher representation of males at (51.68%) compared to females at (48.32%). This indicates a nearly balanced gender distribution among respondents, with a slightly higher number of male participants.

(Primary Data: Question 3)

Educational Qualification	Frequency	Percentage
Partial illiterate	21	5.05%
SSC	19	4.57%
HSC	32	7.69%
Under-Graduate (Pursuing)	123	29.57%
Graduate (Pass-out)	79	18.99%
Post-Graduate	95	22.84%
Professional	47	11.30%
TOTAL	**416**	**100.00%**

The educational profile of the respondents shows a significant portion with undergraduates, comprising (29.57%) of the total. Graduates make up (18.99%), while Postgraduates constitute (22.84%) and Professionals comprise (11.30%). Partial literates and 12th pass individuals form smaller percentages at (5.05%) and (7.69%), respectively. SSC individuals carry the smallest percentage of (4.57)%.

(Primary Data: Question 4)

Professional Category	Frequency	Percentage
Job	86	20.67%
Business	60	14.42%
Professional	48	11.54%
Student	176	42.31%
Homemaker	46	11.06%
TOTAL	**416**	**100.00%**

The survey reveals that a large proportion of respondents are students, making up (42.31%) of the total. Service Job holders represent (20.67%), followed by Businessmen at (14.42%) and Professional Service providers at (11.54%). Homemakers form the smallest group holding (11.06%) of the total.

(Primary Data: Question 5)

Do you gain information or knowledge fromadvertisements?	Frequency	Percentage
Yes	359	86.30%
No	57	13.70%
Total	**416**	**100.00%**

The survey shows that (86.30%) of respondents gain information or knowledge from advertisements, suggesting that ads still play an informative role. However, (13.70%) of respondents do not find advertisements informative.

(Primary Data: Question 6)

Do you find advertisements misleading these days?	Frequency	Percentage
Yes	352	84.62%
No	64	15.38%
Total	**416**	**100.00%**

A significant (84.62%) of respondents find advertisements misleading, indicating widespread distrust. In contrast, (15.38%) of respondents do not find advertisements misleading.

(Primary Data: Question 7)

Are you aware of Consumer Protection Act, 1986 ?	Frequency	Percentage
Yes	263	63.22%
No	153	36.78%
Total	**416**	**100.00%**

The data reveals that (63.22%) of respondents are aware of the Consumer Protection Act, 1986, while (36.78%) are not aware of this legislation.

(Primary Data: Question 8)

Does advertisement have influence on your decision whilepurchasing the product?	Frequency	Percentage
Yes	320	76.92%
No	96	23.08%
Total	**416**	**100.00%**

The data shows that (76.92%) of respondents have been influenced by misleading advertisements while making purchasing decisions, highlighting the impact of advertising on consumer behaviour. Conversely, (23.08%) of respondents stated that they are not influenced by misleading advertisements.

(Primary Data: Question 9)

Are you generally satisfied with the claims made bymultinational companies in their advertisements?	Frequency	Percentage
Yes	143	34.38%
No	273	65.63%
Total	**416**	**100.00%**

Only (34.38%) of respondents expressed satisfaction with the claims made by multinational companies in their advertisements, suggesting scepticism among consumers. Meanwhile, (65.63%) of respondents are not satisfied with these claims.

(Primary Data: Question 10)

Do you read the product label before making a purchase?	Frequency	Percentage
Yes	324	77.88%
No	92	22.12%
Total	**416**	**100.00%**

A significant majority of respondents (77.88%) reported that they read product labels before making a purchase, indicating a high level of consumer awareness. In contrast, (22.12%) of respondents do not read labels before purchasing.

(Primary Data: Question 11)

Do you agree with the claims made by multinationalcompanies about their products?	Frequency	Percentage
Yes, I do	146	35.10%
No, I don't	270	64.90%
Total	**416**	**100.00%**

The majority of respondents (64.90%) do not agree with the claims made by multinational companies about their products, such as "100% natural" or "rich in vitamin C." However, (35.10%) of respondents do agree with these claims.

(Primary Data: Question 12)

The current lawsuit is capable enough to protect the consumer against the misleading advertisement ?	Frequency	Percentage
Yes	103	24.76%
No	313	75.24%
Total	**416**	**100.00%**

According to the survey, (75.24%) of respondents believe that the current legal framework is not adequate to protect consumers from misleading advertisements. In contrast, (24.76%) of respondents think the current laws are sufficient.

(Primary Data: Question 13)

Do you believe that the government should establish more strict guidelines for advertisements?	Frequency	Percentage
Yes	365	87.74%
No	51	12.26%
Total	**416**	**100.00%**

An overwhelming (87.74%) of respondents believe that the government should implement stricter guidelines for advertisements to protect consumers. Only (12.26%) of respondents disagree with this sentiment.

(Primary Data: Question 14)

Do you believe that chocolates and protein bars contain sugar more than their primary ingredients? (i.e. Cocoa, protein)	Frequency	Percentage
Yes	353	84.86%
No	63	15.14%
Total	**416**	**100.00%**

A substantial (84.86%) of respondents believe that chocolates and protein bars contain more sugar than their primary ingredients like cocoa or protein. On the other hand, (15.14%) of respondents do not share this belief.

(Primary Data: Question 15)

Products with high sugar content in the name of fruit juice, health drink- (Bournvita and Horlicks) and tomato ketchups, have contributed to rise in diabetes in India ?"	Frequency	Percentage
Yes	348	83.65%
No	68	16.35%
Total	**416**	**100.00%**

The survey indicates that (83.65%) of respondents believe that products with high sugar content, marketed as fruit juices or health drinks, have contributed to the rise in diabetes in India. Meanwhile, (16.35%) of respondents do not believe these products are a contributing factor.

(Primary Data: Question 16)

Through which medium do you watch the advertisements more ?	Frequency	Percentage
Television	158	18.76%
Bill Board	136	16.15%
Social Media	319	37.89%
Newspaper	127	15.08%
Pamphlets	102	12.11%
TOTAL	**842**	**100.00%**

Social Media is the most dominant medium for watching advertisements, accounting for (37.89%) of the total. This is followed by Television at (18.76%) and BillBoards at (16.15%), while Newspapers and Pamphlets have the lowest percentages at (15.08%) and (12.11%), respectively. This suggests a significant shift towards digital platforms for advertising exposure.

(Primary Data: Question 17)

Select the product category of Multinational Corporationthat does Misleading Advertisement.	Frequency	Percentage
Wafers (Lay's , Balaji , Pringles , etc.)	109	08.423%
Biscuits (Good day , Tiger , Oreo , etc.)	101	07.805%
Health Proteins / Health Drinks (Protein-ex , Bourn vita , Horlicks, etc.)	213	16.461%
Noodles (Maggi , Yippee , Patanjali ,etc.)	232	17.929%
Soft Drinks (Coca cola , Pepsi , etc.)	189	14.606%
Sauces (Kissan Ketchup, Maggi Ketchup, Heinz Ketchup,etc.)	132	10.201%
Dairy Products (Amul , Mother Dairy , Punjab Sind , etc.)	130	10.046%
Frozen Foods (McCain , Godrej yummiez , etc.)	99	07.651%
Cereals (Kellogg's , Nestle , etc.)	89	06.878%
Total	**1294**	**100.00%**

Noodles (17.929%) and Health protein drinks (16.461%) have the highest frequency of Misleading Advertisements, followed by Soft Drinks (14.606%), while categories like Biscuits (7.805%) and Wafers (8.423%) have relatively lower frequencies.

(Primary Data: Question 18)

How do you usually stay aware about misleading advertisements?
Always look up reviews and company info before purchasing.
Verify if the product has official endorsements or certifications.
Carefully read all terms, conditions, and disclaimers.
Check similar products to see if the claims are realistic.
Use the BBB or FTC to report and investigate dubious ads.

Researching the product and company is a highly effective strategy to verify legitimacy. Checking for official certifications ensures credibility of claims. Reading the fine print, comparing with competitors, and reporting suspicious ads are also crucial to uncover hidden conditions, validate claims, and mitigate misleading advertisements. These are the five best responses for staying aware of misleading advertisements.

(Primary Data: Question 19)

Give Your Opinion On The Concept Of Food Rating?
Helps consumers make informed decisions about food quality.
Drives restaurants and producers to improve offerings.
Provides clear insights into food quality and safety.
Boosts visibility and business for local eateries
Can be influenced by personal taste and experiences.

Food ratings help consumers make informed decisions and drive improvements in restaurant and producer offerings. They provide clear insights into quality and safety while boosting visibility for local eateries. However, ratings can also be influenced by personal taste and experiences. These are the five best responses for opinions on food rating.

FINDINGS:

As per the Researcher's Findings: -

1. The majority of respondents in Mumbai City are aged 18 to 30 years, representing (52.64%) of the total, with the 31 to 45 years' age group following closely at (31.49%).

2. Males slightly outnumber females, comprising (51.68%) of the respondents compared to (48.32%), indicating a nearly balanced gender distribution.

3. The majority of respondents are undergraduates, accounting for (29.57%) of the total, while partial illiterates represent a smaller portion at just (5.05%).

4. Students constitute the largest occupational group, making up (42.31%) of the total, while homemakers represent the smallest group at (11.06%).

5. The majority, (86.30%), agrees that advertisements provide consumers with a wealth of information.

6. (84.62%) respondents find advertisements misleading.

7. The data reveals that (63.22%) of respondents are aware of the Consumer Protection Act, 1986.

8. According to the research (76.92%) respondents depended on advertisements while making purchase decisions.

9. (65.63%) of respondents are dissatisfied with the claims made by multinational companies in their advertisements.

10. A significant majority of respondents (77.88%) reported that they read product labels before making a purchase which indicates consumers are highly aware.

11. The majority of respondents (64.90%) do not agree with the claims made by multinational companies about their products in the advertisements.

12. (75.24%) of respondents believe that the existing legal framework is insufficient to protect consumers from misleading advertisements.

13. (87.74%) of respondents feel that the government should build stricter guidelines to protect the consumers against misleading advertisements.

14. Most of the respondents (84.86%) believe that chocolates and protein bars contain more sugar than mentioned on the labels.

15. The survey reveals that (83.65%) of respondents think that high-sugar products, marketed as fruit juices or health drinks, have played a significant role in the increase of diabetes in India, while (16.35%) disagree with this view.

16. Social media is the most common platform for viewing advertisements, accounting for (37.89%) of the total. Television and billboards follow, with (18.76%) and (16.15%) respectively, highlighting the continued significance of traditional media.

17. Noodles (17.929%) and health proteins/drinks (16.461%) show the highest rates of misleading advertisements among product categories. In contrast, biscuits (7.805%) and wafers (8.423%) experience significantly fewer misleading ads, indicating that these categories are less affected by deceptive advertising practices.

18. Researching the product and company, checking for official certifications, reading the fine print, comparing with competitors, and reporting suspicious ads are the five best responses for staying aware of misleading advertisements. These strategies help verify legitimacy, ensure credibility, uncover hidden conditions, validate claims, and mitigate misleading ads.

19. Food ratings are crucial for informed consumer choices and driving improvements in food quality. They also boost local business visibility, though they can be influenced by personal taste and experiences.

CONCLUSION:

The findings reveal that a substantial portion of respondents in suburban Mumbai City are aware of misleading advertisements, with a majority expressing dissatisfaction with the claims made by multinational companies. Despite this awareness, many consumers still rely on advertisements when making purchasing decisions, highlighting the powerful influence of marketing campaigns. The study also indicates a significant concern about the adequacy of existing legal frameworks, with many respondents calling for stricter government guidelines to protect consumers. Furthermore, the analysis shows that misleading advertisements are particularly prevalent in specific product categories, such as noodles and health proteins/drinks, and that social media is the dominant platform for viewing ads. These results underscore the need for greater consumer education and more robust legal measures to combat deceptive marketing practices, ensuring that consumers are better protected and informed.

ECONOMIC RELEVANCE:

1. Consumer Spending and Economic Efficiency:

Misleading advertisements can lead to inefficient consumer spending across India. When consumers are deceived, they may make purchases that do not meet their needs or expectations, resulting in wasted resources and potential financial losses. Enhancing awareness and regulatory measures can improve consumer decision-making and boost overall economic efficiency.

2.   Impact on Market Competition:

Misleading marketing campaigns can disrupt fair competition within the Indian market. Multinational companies that use deceptive tactics gain an unfair advantage over local and honest competitors, which can stifle innovation and reduce market diversity. Addressing these practices helps create a more level playing field and fosters a competitive business environment.

3.   Regulatory and Legal Framework Costs:

The national enforcement of regulations against misleading advertising involves substantial costs. This includes regulatory oversight, legal proceedings, and enforcement actions. Efficient and effective regulation is essential to protect consumers without imposing excessive burdens on public resources andadministrative systems.

4.   Consumer Confidence and Economic Stability:

Persistent issues with misleading advertisements can erode consumer trust in the market, leading to decreased consumer spending and potentially slowing economic growth. By strengthening consumer protection laws and improving transparency, the study's insights can help restore consumer confidence and support stable economic conditions across India.

5.   Public Health and Economic Burden:

The analysis of unhealthy ingredients in products reveals potential public health risks, which can lead to increased healthcare costs and strain on public health resources. By addressing misleading claims related to product safety and health benefits, the study can contribute to reducing public health expenditures and improving overall societal well-being.

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A STUDY ON IMPACT OF WORKING CONDITIONS ON THE JOB SATISFACTION OF PRIVATE SECTOR EMPLOYEES IN PALGHAR DISTRICT

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ABSTRACT

Employees working circumstances are absolutely important to their overall well-being, efficiency, productivity and performance in their work. A review of earlier studies shows that the enhanced working conditions affect positively on employee's overall productivity and performance. Similarly, occupational safety and healthy working environment also adds to the fulfillment of the organizational objectives. It was also observed that the health risk reduced, cost related to absenteeism, sick days, and labour turnover was brought to the barest minimum if working conditions are improved.

Keywords: Job satisfaction, working conditions, private employees.

INTRODUCTION:-

Human resources are considered as the most valuable resource and asset to the organization. For the growth and development of the entire organization, the employees are the important human resource. If the employer managed the human resource properly then all the other resources like capital, machines, etc are managed automatically. Dynamic and moderate institutions is essential to attract and retain the right person for the right jobs at the right time through creating and sustaining their inspiration in changing situations. Employees working condition is essential for customer satisfaction and organization performance in today's competitive environment. The working environment is perhaps a key root resulting in employee's engagements and disengagements. A cordial working atmosphere leads to the physical and mental health of employees which reduces stress and tension and improves physical wellbeing of employees. Not only employees but the organization also reduces labour turnover and decreases absenteeism which results in increasing the productivity and performance of employees in the organization.

OBJECTIVES OF THE STUDY:-

1. To examine working conditions policies in an organization.

2. To study the job satisfaction levels of employees in the organization.

3. To analyse the impact of job satisfaction on the performance of employees.

4. To assess the effect of job satisfaction on the productivity of employees.

RESEARCH METHODOLOGY:

This study was done primary as well as secondary station. Primary data was collected through questionnaire and through sample data. 45 respondents have taken part in this study. Secondary data was collected through internet, books and other sources of information.

REVIEW OF LITERATURE:-

- Prakasam (1976) have examined that job level affects the level of satisfaction. When it comes to top level motivational factors including monetary and non monetary plays an important role in satisfaction level of the employees but when we talk about the lower level of organisations hygiene is one of the factors which plays important role in satisfaction of the employees.

- Roelofsen (2002) studied that the working environment is critical factor resulting in employee's engagement or disengagement. His study shows that enhancing the working environment decreases the complaints and absenteeism and improves productivity.

- Kyko (2005) according to the researcher, there are two main types of working environment, conducive and toxic work environments. Conducive helps in increasing higher productivity and toxic environment supports to low productivity.

- Danica Bakotic (2013) has stated that there is relation between working conditions and job satisfaction; He also states that the satisfaction with working conditions is higher in the case of administrative employees than in the workers who work in difficult working conditions.

Author also said that employees working in bad working conditions affects their satisfaction level for job.

- Dr. Chandrasekar (2011) states that workplace environment has a major role in motivating employees to execute their assigned work. Since money is not a only motivator in encouraging the employee performance required in today's competitive business.

LIMITATIONS OF THE STUDY:-
The research was conducted for a limited time. The time constraint was the limitation of the study. The survey was conducted by sample method. Only 43 respondents were the sample size not all population. The limited population was the limitation of the study. The survey was conducted only in Mumbai area not whole of India. The limited area was the limitation of the study.

SCOPE OF THE STUDY:
This study has a future scope to the companies who can work on their working conditions and will make better benefits for the employees so the job satisfaction of employees can be increased. This will also help to employees to think about working conditions and speak about those things.

**DATA INTERPRETATION:**

Age

45 responses
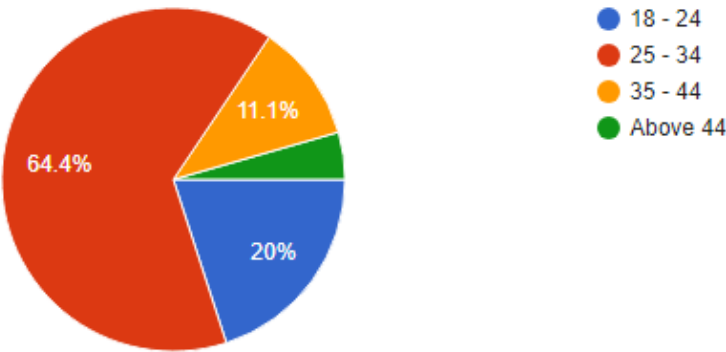
Out of the total respondents 64% were in the age group of 25 to 34 years old age group.

Gender

45 responses
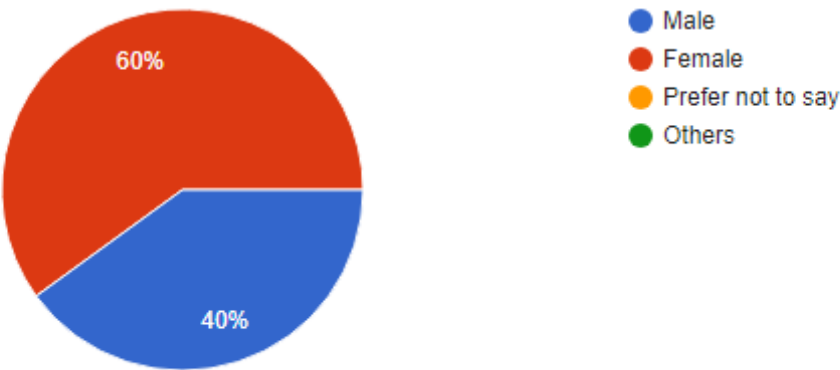
60% of the total respondents were female employees and 40% were male employees. No person was there from others group and no one opted for prefer not to say.

Occupation

45 responses
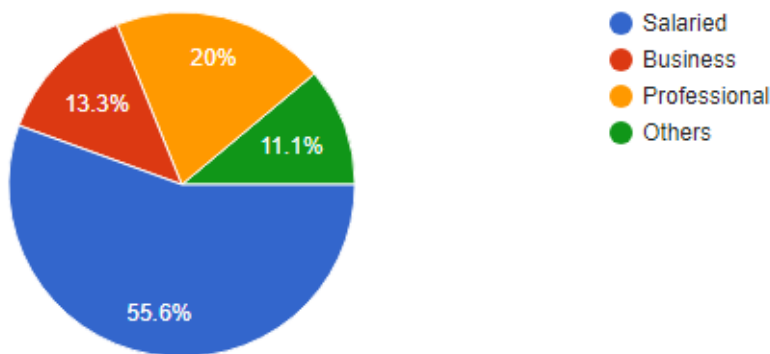
When it comes to occupation 56% were salaried people and 20% were professional, which shows that people were of working class as well as they were office working people. 11% were also from others category which was not disclosed.

Do working conditions affect work satisfaction?

45 responses
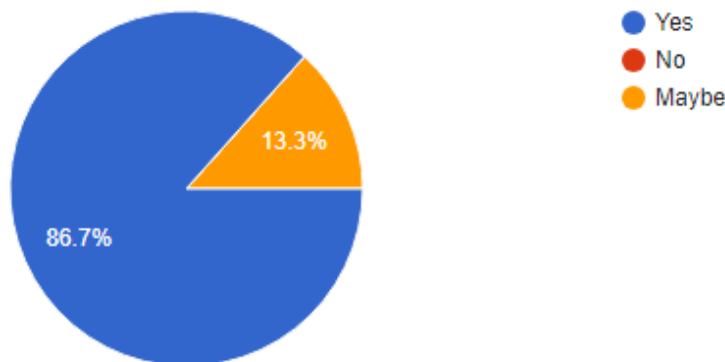
Out of total respondents 87% of the population agreed that working conditions do affect the work satisfaction and also it matters how working conditions can change the job satisfaction level of the employees in the working area.

Evaluate the following points for Job satisfactions on the scale of 1 to 5, 5 being strongly agree
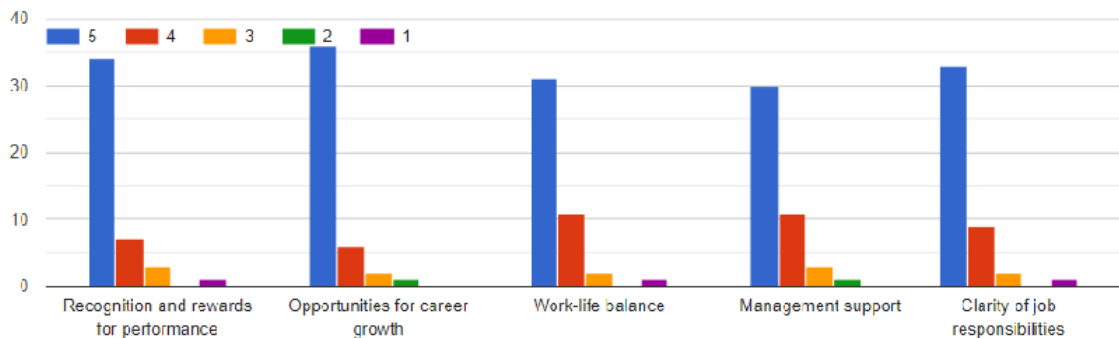
Majorly population rank all the working condition element as important like rewards, opportunities for career growth, work life balance, management support, and clarity of job responsibilities. No element was there which was least ranked. Employees think all the element are important.
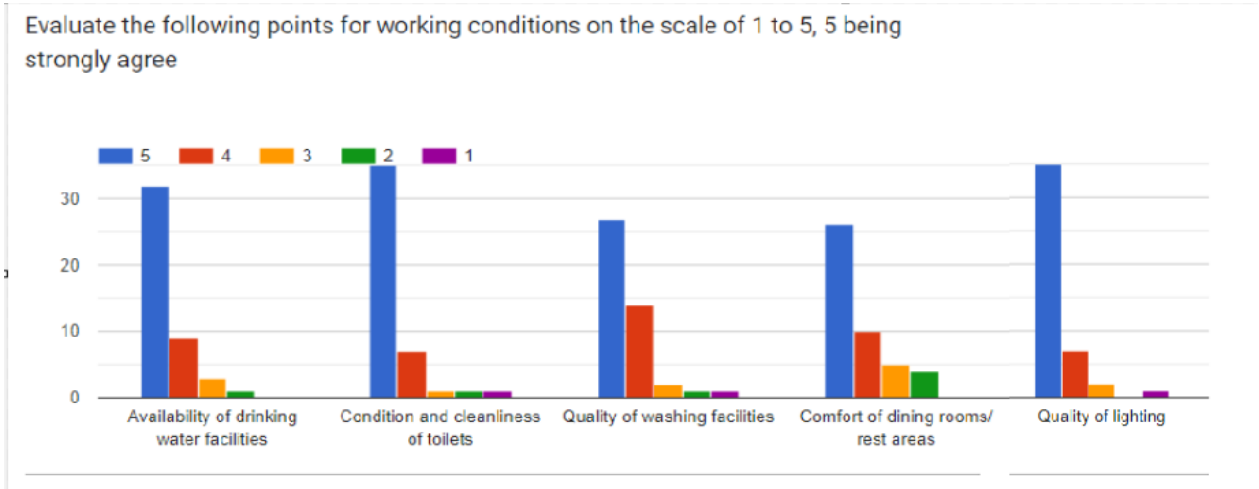
All the respondents rank all the given elements on highest grade. Availability of drinking water, cleanliness of the washrooms, quality of washing facilities, comfort of dining rooms, quality of lighting, all these elements were equally important.
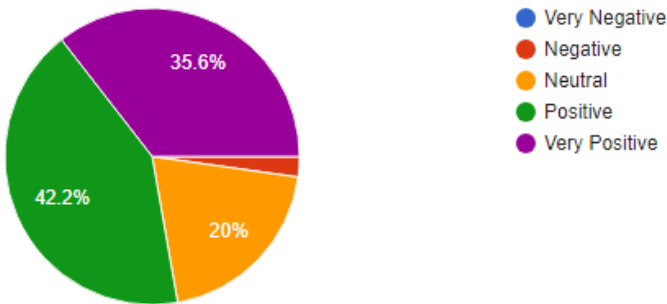
425 of the respondents said that working conditions impact the productivity of the employees and 365 of the population voted for very positive impact. 20% were neutral about the given declaration.
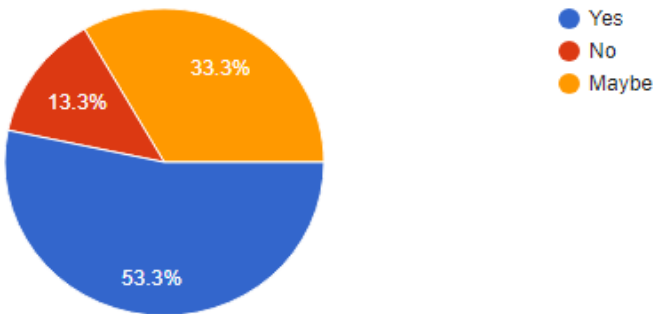
53% population said yes when it comes to changing the job for better working conditions and 33% were not sure which somehow shows that it depends upon the level of better working conditions.

CONCLUSION:

After all the study and data collected through primary as well as secondary data it was found that working conditions do affect the job satisfaction level of the employees. All the respondents voted in the favor of positive working conditions so that they increase their productivity. It is also the duty and responsibility of the employers to think about the working conditions so that employees are satisfied with job and add to the well being of the company. Also it will increase the overall productivity of the organisations. People also change the job for better working conditions and if they get better pay also they will switch job. So, it was advisable to companies to thing about the working conditions as well.

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FINANCIAL ANALYSIS OF LIC HOUSING FINANCE LIMITED AND PNB HOUSING FINANCE LIMITED

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ABSTRACT

With a strong 13% Compound Annual Growth Rate (CAGR), the Indian housing finance sector is expanding because to increased earnings, improved affordability, and significant government backing. India's housing market reflects the country's social progress and economic expansion.

In the past few years, specifically post-Covid, there has been a consistently robust performance, punctuated by occasional seasonal dips. LIC Housing Finance and PNB Housing Finance Limited, are leading housing finance companies in India, has shown a significant growth since their inception. They are reliable and stable player in the finance-housing sector. Financial analysis of the housing companies allows us to identify their financial strengths and weaknesses. Therefore, the primary aim is to analyse the financial strengths and weakness of the prominent housing finance companies i.e., LIC and PNB Housing Financing Limited on the basis of the last five years financial statement.

Keywords: Housing Finance Sector, Financial Analysis, Profitability and Financial Strength.

1. INTRODUCTION

PNB Housing Finance Limited and LIC Housing Finance Limited are both registered under National Housing Bank in India. PNBHFL was incorporated in year 1998 whereas LICHFL founded in 1989. Both are prominent housing finance companies in India having a primary goal to provide long-term financing to their customers for buying and constructing their home in India. They also offer loans for buying real estate for business purpose also. Loan are given to the professional and business for buying shops, showrooms, hostel, office etc.

Since the formation of the Modi Government and providing housing to the poor and underprivileged section of the society the housing finance industry got a boost. The base rates are basically decided by the RBI. So, most of the housing finance companies provide loan at competitive rates. The government salaried employees are preferred by the housing finance and they also check the CIBIL score before any disbursement of the loan.

Therefore, the loan repayment capacity is perfectly evaluated by the companies before giving any loans to the customers. The India's high growth is largely depended on the infrastructure development and housing is the most important of all. India is a big market for the housing finance companies and favourable government policies has given a significant growth to the housing finance business. Even today the public and private housing finance largely differs in their services.

The private housing finance is growing with a faster rate because they provide door-step services to their customers. All small and big things are being done by their customer relationship manager which is not the same in the public owned housing finance companies. But by the time they also stated valuing their customers and their behaviour towards customers is now improving. The rate of interest is found slightly lower in case of public sector housing finance companies. This study focuses on the financial position of the public sector housing finance companies and also reveals their performance in India under the favourable environment of government.

2. RESEARCH METHODOLOGY

Research Type: Analytical Research. This research is an analytical research in which the financial data of last five year from 2020 to 2024 has been taken. The data was tabulated and analysed thereafter.

Objective of Study: To understand the financial position of the PNB Housing Finance and LIC Housing Finance on the basis of the last five years financial data of the selected companies.

Data Collection: Last five years data was collected from the published annual reports of PNB and LIC Housing finance. This article is based on the secondary data collected from the LIC and PNB websites from their annual reports that includes balance sheet, profit and loss account and ratio analysis. Revenue, Expenses, Profit/Loss, Current Ratio, Quick Ratio, Debt Equity Ratio, Net Profit Margin (%), Return On Capital Employed (%), Asset Turnover Ratio are taken into consideration for the study.

3. DATA PRESENTATION AND ANALYSIS

Table No. 1. Financial Data of PNB Housing Finance (in Cr. INR) from Mar-20 to 2024

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24
Total Revenue	8,489.55	7,624.08	6,200.73	6,529.66	7,057.09
Total Expenses	7,678.54	6,417.05	5,116.77	5,168.75	5,103.19
Profit/Loss For The Period	646.24	929.9	836.48	1,046.00	1,508.01
Current Ratio	1.13	1.1	1.06	0.98	0.6
Quick Ratio	23.91	22.36	21.67	28.38	27.94
Debt Equity Ratio	8.6	6.75	5.44	4.9	3.68
Net Profit Margin (%)	8.04	12.22	13.38	16.27	21.77
Return On Capital Employed (%)	8.85	9.2	8.16	8.15	8.91
Asset Turnover Ratio	0.11	0.11	0.09	0.1	0.1

The following interpretation has been drawn on the basis of the above table no.1:-

- There is a declining trend in total revenue from Mar-20 to Mar-22, followed by a slight recovery in Mar-23 and Mar-24.

- Total expenses have been decreasing consistently from Mar-20 to Mar-24, which is positive and indicates cost management efforts.

- The profit for the period has been increasing overall, with a minor dip in Mar-22, indicating improved profitability over time.

- The current ratio shows a worrying decline, dropping below 1.0 in Mar-23 and further to 0.6 in Mar-24, suggesting potential liquidity issues.

- The quick ratio remains exceptionally high, indicating that the company holds significant quick assets relative to its current liabilities.

- The debt equity ratio shows a declining trend, indicating the company is reducing its reliance on debt financing, which is a positive sign.

- The net profit margin has been improving steadily, suggesting better profitability and efficient cost management.

- The ROCE remains fairly stable with slight fluctuations, indicating consistent returns on capital employed over the years.

- The asset turnover ratio has remained low and fairly stable, suggesting that the company's asset utilization for generating revenue is not very high.

Table No. 2. Financial Data of LIC Housing Finance (in Cr. INR) from Mar-20 to 2024

Particulars	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24
Total Revenue	19,706.88	19,880.22	20,005.31	22,728.21	27,277.80
Total Expenses	16,424.70	16,515.09	17,218.06	19,167.44	21,213.43
Profit/Loss For The Period	2,403.66	2,741.13	2,286.00	2,891.17	4,759.56
Current Ratio	2.16	1.75	1.56	0.55	0.56
Quick Ratio	28.92	31.7	39.55	41.18	38.69
Debt Equity Ratio	10.52	10.13	9.07	9.03	8.04
Net Profit Margin (%)	12.19	13.77	11.48	12.76	17.5
Return On Capital Employed (%)	8.61	7.79	6.81	7.26	8.61
Asset Turnover Ratio	0.1	0.09	0.08	0.09	0.1

The following interpretation has been drawn on the basis of the above table no.2:-

- Total revenue has shown a steady increase over the five years, indicating growth in the company's top line. The most significant increase occurred between Year 4 and Year 5.

- Total expenses have also been increasing over the years, reflecting higher operational costs. The increase in expenses is less steep than the revenue growth, which is positive for profitability.

- Profits have been increasing overall, with a dip in Year 3. The substantial increase in Year 5 indicates significant improvements in profitability.

- The current ratio has been declining, falling below 1.0 in Year 4 and Year 5. This shows that liquidity is there and company has to struggle to meet short-term liabilities.

- The quick ratio is exceptionally high, indicating that the company has substantial quick assets. Despite the low current ratio, this high quick ratio suggests that the company can still cover its immediate liabilities.

- The debt equity ratio is high but shows a decreasing trend, indicating that the company is gradually reducing its reliance on debt financing.

- The net profit margin has generally increased, with a significant jump in Year 5. This indicates improved profitability and cost management.

- The ROCE shows fluctuations, with a decline up to Year 3 and a subsequent recovery. By Year 5, the ROCE has returned to the initial value, indicating stable returns on the capital employed.

- The asset turnover ratio remains low but stable, indicating that the company's efficiency in utilizing its assets to generate revenue has not changed significantly.

Hypothesis Testing

First Hypothesis:

H0: There is no significant difference between profitability of PNB Housing Finance and LIC Housing Finance.

H1: There is significant difference between profitability of PNB Housing Finance and LIC Housing Finance.

Calculations

Treatment one (PNB)

N_1: 5, $df_1 = N - 1 = 5 - 1 = 4$; M_1: 993.33, SS_1: 416766.39, $s_{21} = SS_1/(N - 1) = 416766.39/(5-1) = 104191.6$

Treatment two (LIC)

N_2: 5, $df_2 = N - 1 = 5 - 1 = 4$, M_2: 3016.3, SS_2: 4038997.33, $s_{22} = SS_2/(N - 1) = 4038997.33/(5-1) = 1009749.33$

$t = -2022.98/\sqrt{222788.19} = -4.29$

Interpretation

The calculated t-value is -4.28593 and the p-value is .002666 which is less than .05.

Therefore, H1 is accepted that is there is significant difference between profitability of PNB Housing Finance and LIC Housing Finance.

Second Hypothesis:

H0: There is no significant difference between the return on capital employed PNB Housing Finance and LIC Housing Finance.

H1: There is significant difference between return on capital employed PNB Housing Finance and LIC Housing Finance.

Calculations

Treatment one (PNB)

N_1: 5, $df_1 = N - 1 = 5 - 1 = 4$, M_1: 8.65, $SS1$: 0.9, $s_{21} = SS_1/(N - 1) = 0.9/(5-1) = 0.23$,

Treatment two (LIC)

N_2: 5, $df_2 = N - 1 = 5 - 1 = 4$, M_2: 7.82, $SS2$: 2.58 , $s_{22} = SS_2/(N - 1) = 2.58/(5-1) = 0.65$

T-value Calculation

$t = .84/\sqrt{0.17} = 2.01$

Interpretation

The calculated t-value is 2.00813. The calculated p-value is .079508 which is more than.05.

Therefore, H0 is rejected. So, there is significant difference between return on capital employed PNB Housing Finance and LIC Housing Finance.

4. COMPARATIVE ANALYSIS OF PNB HOUSING FINANCE AND LIC

LIC Housing Finance has significantly higher revenue compared to PNB Housing Finance. Both companies show fluctuations, but LIC Housing Finance demonstrates a more robust growth trend, particularly with a substantial increase in Mar-24. LIC Housing Finance also has higher expenses than PNB Housing Finance, which aligns with its higher revenue. PNB Housing Finance shows a decrease in expenses over time, while LIC Housing Finance's expenses increase, reflecting its growth. Both companies show an overall increase in profits, with LIC Housing Finance achieving much higher profit figures. LIC Housing Finance's profit growth is particularly notable in Mar-24.

Both companies show a declining current ratio, with values below 1.0 in recent years, indicating potential liquidity issues. LIC Housing Finance starts with a higher current ratio, suggesting initially better liquidity management. Both companies have very high quick ratios, indicating a strong ability to cover immediate liabilities. LIC Housing Finance consistently has a higher quick ratio than PNB Housing Finance. Both companies are reducing their debt equity ratios, with PNB Housing Finance achieving a more significant reduction. However, LIC Housing Finance maintains a higher ratio, indicating more reliance on debt.

Both companies show improvements in their net profit margins. PNB Housing Finance demonstrates a steeper increase, especially in Mar-24, indicating more effective profitability improvements. Both companies have relatively stable ROCE figures, with slight fluctuations. PNB Housing Finance shows a more consistent performance, while LIC Housing Finance demonstrates a slight recovery in Mar-24. Both companies have low asset turnover ratios, indicating similar levels of asset utilization efficiency. The ratios remain stable over the years for both companies.

5. CONCLUSION

Revenue and Profitability: LIC Housing Finance generates significantly higher revenue and profits compared to PNB Housing Finance. Both companies are improving profitability, with LIC showing a substantial increase in the latest year.

Liquidity: Both companies have declining current ratios, with potential liquidity risks. LIC Housing Finance has a better initial liquidity position but still faces challenges. High quick ratios for both companies suggest strong immediate liquidity, though PNB's ratio slightly lags behind LIC's.

Debt Management: PNB Housing Finance shows a more significant reduction in debt equity ratio, indicating better debt management. LIC Housing Finance, while reducing debt, still maintains a higher ratio, reflecting greater reliance on debt financing.

Efficiency and Profitability: PNB Housing Finance shows better improvements in net profit margins and more stable ROCE. Both companies need to work on improving asset utilization as indicated by the low asset turnover ratios.

6. SUGGESTIONS

Liquidity Improvement: Both companies should focus on improving the current ratio to ensure better liquidity management.

Revenue Growth: PNB Housing Finance should focus on strategies to boost revenue to catch up with the industry leader, LIC Housing Finance.

Cost Management: Continue with cost management practices to sustain profitability improvements.

Debt Reduction: LIC Housing Finance should aim to further reduce its debt equity ratio to enhance financial stability.

Asset Utilization: Both companies should explore ways to enhance the efficiency of their assets in generating revenue.

In conclusion, LIC Housing Finance leads in revenue and profit metrics, while PNB Housing Finance shows better improvements in debt management and profitability ratios. Both companies have areas to address in terms of liquidity and asset utilization efficiency.

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PERCEPTION OF GREEN FINANCING AMONG INVESTORS WITH SPECIAL REFERENCE TO MUMBAI

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ABSTRACT

The purpose of the study is to explore investors' perceptions of green financing in Mumbai, one of India's major financial centers. A better understanding of investor perceptions is essential to guiding policies and investments that promote sustainable development. In order to collect primary data, 150 investors were surveyed using a structured questionnaire. The questionnaire employed a Likert scale to measure attitudes toward green financing. Statistical analyses, including ANOVA and regression, were used to identify significant factors influencing these perceptions. Results indicate that awareness and perceived benefits are key predictors of positive perceptions, while perceived risks pose a significant barrier. This study contributes to the literature on sustainable finance by providing insights into the factors that influence investor attitudes towards green financing in an emerging market context.

Keywords: *Green Financing, Investor Perception, Sustainable Investment, Environmental Sustainability, Mumbai, ANOVA, Regression Analysis, Likert Scale, Financial Awareness, Investment Risk.*

INTRODUCTION

Green financing, defined as the funding of projects that promote environmental sustainability, has gained significant traction in recent years. This includes investments in renewable energy, energy efficiency, pollution prevention, and sustainable agriculture. The rise of green finance is driven by the growing awareness of climate change and environmental degradation, coupled with policy interventions aimed at fostering sustainable development.

Mumbai, as a financial hub of India, plays a critical role in the adoption of green financing practices. The city's investors are pivotal in driving the transition towards a greener economy. Understanding their perceptions of green financing can help policymakers and financial institutions develop strategies to enhance the appeal and effectiveness of green investments.

Previous studies have explored various aspects of green financing, including its benefits, challenges, and the role of government policies (Baker et al., 2018; Wang & Zhi, 2016). However, there is a paucity of research focusing on investor perceptions, particularly in the context of Indian cities like Mumbai. This study aims to fill this gap by examining how investors in Mumbai perceive green financing and identifying the factors that influence their investment

Investors' attitudes towards green financing are shaped by a combination of awareness, perceived benefits, and risk assessments. Many investors recognize the potential of green financing to contribute to sustainable development and are increasingly interested in integrating environmental considerations into their investment decisions. Positive perceptions are often driven by a belief in the long-term financial and environmental benefits of green projects, such as renewable energy and energy efficiency improvements. However, some investors remain cautious due to perceived risks, including the uncertainty of returns and the novelty of green financial products. Educational initiatives and clear policy support can play crucial roles in enhancing investor confidence and promoting a more widespread adoption of green financing practices.

REVIEW OF LITERATURE

1. **Baker, H. K., Kumar, S., & Pandey, N. (2018).** This study investigates the awareness and willingness of investors to engage in green financing. The findings suggest that while awareness of green financing is increasing, many investors still perceive it as risky. The study highlights the need for more information and education to reduce perceived risks and encourage green investments.

2. **Wang, Y., & Zhi, Q. (2016).** The authors discuss the impact of government policies on the promotion of green financing. They argue that strong policy support, such as subsidies and tax incentives, is crucial for the widespread adoption of green financing practices. Their research indicates that regulatory frameworks can significantly influence investor behavior towards sustainable investments.

3. **Clark, G. L., Feiner, A., & Viehs, M. (2015).** This paper explores the financial performance of green investments. It suggests that green investments can yield competitive returns while supporting

environmental sustainability. The study provides evidence that integrating environmental, social, and governance (ESG) factors into investment decisions can lead to better financial performance and risk management.

4. **Chapple, W., & Moon, J. (2005).** The research focuses on corporate social responsibility (CSR) and its influence on green financing. The authors find that companies with strong CSR practices are more likely to attract green investments. This study underscores the importance of corporate reputation and ethical practices in shaping investor perceptions of green financing.

5. **Renneboog, L., Ter Horst, J., & Zhang, C. (2008).** This study examines socially responsible investing (SRI) and its impact on financial markets. The authors conclude that SRI funds can outperform conventional funds, particularly in times of economic uncertainty. This research supports the idea that green financing, as a form of SRI, can be both a financially and socially viable investment strategy.

METHODOLOGY

Data Collection
Primary data was collected using a structured questionnaire distributed to 150 investors in Mumbai. The questionnaire included demographic questions and a section with statements related to green financing, rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Sample
The sample consists of 150 investors, selected using stratified random sampling to ensure representation across different age groups, genders, and investment experience levels.

Statistical Tools
1. **Descriptive Statistics:** Used to summarize the demographic data and overall responses.

2. **ANOVA:** Applied to test for significant differences in perceptions based on demographic variables.

3. **Regression Analysis:** Used to identify factors significantly predicting positive perceptions of green financing.

RESULTS

Descriptive Statistics
- **Age Distribution:** Majority of the respondents were between 30-40 years old.

- **Gender:** 60% male and 40% female.

- **Investment Experience:** Varied from less than 2 years to over 10 years.

ANOVA Results

ANOVA was conducted to determine if there were significant differences in the perception of green financing based on age, gender, and investment experience.

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic	p-value
Age	15.24	3	5.08	2.87	0.039*
Gender	2.15	1	2.15	1.23	0.269
Investment Experience	24.05	3	8.02	4.56	0.004**
Error	256.67	146	1.76		
Total	298.11	150			

* $p < 0.05$, ** $p < 0.01$

The ANOVA table examines whether there are significant differences in the perception of green financing based on demographic variables such as age, gender, and investment experience.

- **Age**: Shows a significant difference ($p = 0.039$), indicating that perceptions of green financing vary across different age groups.

- **Gender**: Does not show a significant difference ($p = 0.269$), suggesting that perceptions are similar between males and females.

- **Investment Experience**: Shows a significant difference ($p = 0.004$), indicating that perceptions differ based on the level of investment experience.

- **Error**: Represents the variability in perceptions not explained by age, gender, or investment experience.

- **Total**: The total sum of squares, showing the overall variability in perceptions.

Regression Analysis

A multiple regression analysis was conducted to determine the predictors of positive perception towards green financing.

Regression Results:

Predictor Variables	Coefficient (β)	Standard Error	t-Statistic	p-value
Age	0.12	0.08	1.50	0.136
Gender	-0.05	0.10	-0.50	0.619
Investment Experience	0.22	0.07	3.14	0.002**
Awareness	0.32	0.09	3.56	0.001**
Perceived Benefits	0.45	0.11	4.09	0.000***
Risk Perception	-0.28	0.10	-2.80	0.006**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The regression table identifies the predictors of positive perceptions towards green financing.

- **Age**: Has a positive but not significant effect ($p = 0.136$) on perceptions.

- **Gender**: Has a negative but not significant effect ($p = 0.619$) on perceptions.

- **Investment Experience**: Significantly positively affects perceptions ($p = 0.002$), indicating that more experienced investors have more favorable views.

- **Awareness**: Significantly positively affects perceptions ($p = 0.001$), showing that higher awareness leads to more positive views.

- **Perceived Benefits**: Strongly positively affects perceptions ($p < 0.001$), indicating that perceived advantages are crucial for positive attitudes.

- **Risk Perception**: Significantly negatively affects perceptions ($p = 0.006$), suggesting that higher perceived risks decrease positive attitudes towards green financing.

DISCUSSION

The study reveals that awareness and perceived benefits are significant predictors of positive perceptions towards green financing among investors in Mumbai. While age and investment experience also play roles, gender does not significantly affect perceptions. This indicates that increasing awareness and highlighting the benefits of green investments can enhance their attractiveness to investors.

CONCLUSION

Investors in Mumbai have a generally positive perception of green financing, influenced mainly by their awareness and perceived benefits of such investments. Efforts to increase investor awareness could further enhance the attractiveness of green financing options. Perceived risks remain a significant barrier, suggesting that strategies to mitigate these risks are essential. By understanding the key factors that shape investor perceptions, policymakers and financial institutions can develop more effective strategies to promote green financing.

RECOMMENDATIONS

1. **Educational Campaigns:** Increase investor awareness through targeted educational campaigns.

2. **Incentives:** Government and financial institutions should offer incentives to mitigate perceived risks associated with green investments.

3. **Further Research:** Additional studies should explore perceptions in other cities and among different investor segments.

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INTEGRATING TECHNOLOGY IN BUSINESS PROCESS RE-ENGINEERING

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ABSTRACT

In the fast-changing world of technology and competitive business, continuous innovation is crucial for organizations aiming to keep their market positions. Business Process Re-engineering (BPR) has become a key strategy for companies seeking substantial performance improvements by fundamentally rethinking and redesigning their business processes. Integrating technology into BPR is critical for optimizing workflows, enhancing data accuracy, and providing real-time insights necessary for informed decision-making. This paper explores the strategic role of technology in BPR, examining how advanced technological solutions—such as Enterprise Resource Planning (ERP) systems, Business Process Management (BPM) software, Robotic Process Automation (RPA), Artificial Intelligence (AI), and the Internet of Things (IoT)—can significantly enhance business processes. Furthermore, the paper highlights effective strategies for incorporating technology into Business Process Reengineering (BPR) initiatives. It emphasizes the importance of thorough process analysis, clear objective setting, meticulous implementation planning, effective change management, and continuous monitoring and improvement. The discussion also covers potential challenges related to technology integration, such as resistance to change, high implementation costs, and data security concerns, offering solutions to address these issues. By strategically leveraging technology in BPR, organizations can streamline operations, reduce costs, improve service quality, and achieve operational excellence. This comprehensive approach ensures that technological advancements are not only adopted but also aligned with business goals, driving sustainable performance improvements. By implementing these strategies, companies can foster a culture of continuous improvement and innovation, ensuring long-term competitiveness and success in an increasingly dynamic market.

Keywords: Business Process Re-engineering (BPR), technology integration, operational excellence, change management, process optimization.

INTRODUCTION

In the current fast-paced business landscape, sustaining a competitive edge requires ongoing innovation and adaptability. Business Process Re-engineering (BPR) has become an essential strategy for organizations aiming to achieve significant performance enhancements by fundamentally rethinking and redesigning their core processes. BPR focuses on scrutinizing and reconstructing workflows to boost efficiency, reduce costs, and enhance service delivery. Integrating technology into BPR initiatives is vital, as it equips organizations with the necessary tools and platforms for effective process transformation.

Advanced technological solutions, including Enterprise Resource Planning (ERP) systems, Business Process Management (BPM) software, Robotic Process Automation (RPA), Artificial Intelligence (AI), and the Internet of Things (IoT), are instrumental in enabling BPR. These technologies streamline operations, improve data accuracy, and provide real-time insights crucial for informed decision-making. By leveraging these technologies, organizations can optimize workflows, eliminate inefficiencies, and quickly adapt to market changes.

This paper delves into the strategic integration of technology in BPR, illustrating how these innovations drive substantial improvements in business processes. It outlines various strategies for successful technology integration, such as conducting thorough process analysis, setting clear objectives, planning detailed implementations, and managing change effectively. Furthermore, the paper examines potential obstacles, such as resistance to change, substantial implementation expenses, and data security issues, proposing remedies to surmount these challenges. By strategically incorporating technology into BPR, companies can attain operational excellence, deliver enhanced customer value, and secure a competitive advantage in the market.

LITERATURE REVIEW

Hammer and Champy (1993) introduced the concept of BPR, underscoring the necessity of making radical changes to business processes to achieve significant performance enhancements. They emphasized prioritizing entire processes over individual tasks and highlighted the critical role of technology in enabling these transformative changes.

Davenport (1993) explored the role of information technology in process innovation. He argued that technology is a critical enabler of BPR, providing tools for rethinking and redesigning processes. Davenport stressed the importance of aligning technological solutions with business goals to achieve successful re-engineering.

Harmon (2014) offered an extensive guide on business process change, detailing various technologies that support Business Process Re-engineering (BPR). He emphasized the importance of Business Process Management (BPM) software, ERP systems, and other technological solutions in improving process efficiency and effectiveness.

Womack and Jones (1996) introduced lean thinking as a methodology complementary to BPR. They emphasized the importance of eliminating waste and continuously improving processes, with technology playing a significant role in supporting these initiatives.

Brynjolfsson and Hitt (2000) investigated the impact of information technology on productivity. They found that organizations that effectively integrated technology into their processes achieved higher productivity and performance gains, underscoring the value of technology in BPR.

Grover and Malhotra (1997) examined the role of IT in BPR, focusing on how technology facilitates the redesign of business processes. They emphasized the need for a strategic alignment between IT capabilities and business objectives to ensure successful BPR outcomes.

Venkatraman (1994) proposed a framework for IT-enabled business transformation, highlighting the different levels of transformation that organizations can achieve through technology. His work underscores the potential of IT to drive radical process changes and achieve significant performance improvements.

THEORETICAL FRAMEWORK OF BUSINESS PROCESS RE-ENGINEERING

Business Process Re-engineering (BPR) entails a thorough reassessment and radical transformation of business processes to achieve substantial improvements in key performance metrics like cost, quality, service, and efficiency. Integrating technology into BPR enhances its effectiveness, making it a powerful strategy for organizations seeking operational excellence. The theoretical foundation of BPR, particularly when augmented by technology, is built upon several core principles:

1. Focus on Processes: This principle emphasizes the importance of prioritizing end-to-end processes rather than isolated tasks. Through a comprehensive analysis of entire workflows, organizations can pinpoint inefficiencies and identify opportunities to optimize tasks. For instance, a manufacturing company could utilize BPR to streamline its supply chain processes. Instead of focusing solely on the production line, the company would analyze the entire supply chain, from supplier interactions to product delivery, and integrate an ERP system to manage these processes cohesively, reducing delays and improving overall efficiency.

2. Customer-Centricity: At the heart of BPR is the goal of enhancing customer satisfaction and value delivery. Processes are redesigned to better meet customer needs and expectations. For example, in the retail sector, implementing a Customer Relationship Management (CRM) system enables a deeper understanding of customer preferences and purchasing behaviors. By harnessing this data, the company can tailor marketing strategies and improve customer service, ultimately resulting in higher customer satisfaction and loyalty.

3. Empowerment of Employees: Empowering employees is crucial for successful BPR. This involves providing employees with the tools, authority, and autonomy needed to drive process improvements. For example, in a healthcare setting, nurses and administrative staff could be given access to a centralized patient information system. This access would enable them to streamline patient admissions and discharge processes, reducing wait times and improving patient care. Encouraging employee participation and feedback during the re-engineering process ensures that changes are practical and effective.

4. Use of Technology: Technology is a key enabler of efficient and effective processes. Various technological solutions can be employed to support BPR efforts. For example, as an illustration, a financial services firm could employ Robotic Process Automation (RPA) to automate mundane tasks like data entry and transaction processing. By doing so, errors are minimized, transaction times are accelerated, and employees can dedicate their time to higher-value strategic endeavors. Furthermore, Artificial Intelligence (AI) and Machine Learning offer the capability to analyze extensive datasets, extracting insights that further refine and optimize operational processes.

By adhering to these core principles and integrating advanced technologies, organizations can achieve the radical process transformations necessary for operational excellence and sustained competitive advantage. For example, a logistics company might integrate IoT devices into its fleet management system to track the real-

time location and condition of its vehicles. This integration allows for better route planning, timely maintenance, and improved delivery times, ultimately enhancing customer satisfaction and reducing operational costs.

ROLE OF TECHNOLOGY IN BUSINESS PROCESS RE-ENGINEERING

Technology plays a vital role in enabling Business Process Re-engineering (BPR), offering essential tools and systems to effectively redesign and optimize business processes. The integration of advanced technological solutions empowers organizations to achieve substantial improvements in efficiency, accuracy, and overall performance. Key technologies supporting BPR include:

1. Enterprise Resource Planning (ERP) Systems: Enterprise Resource Planning (ERP) systems are extensive software platforms that consolidate various organizational functions into a unified system. This integration streamlines processes, enhances data accuracy, and provides real-time information essential for informed decision-making. For instance, in manufacturing, an ERP system centralizes inventory management, order processing, and financial accounting, ensuring departments access consistent, up-to-date information, reducing redundancies, and improving resource management.

2. Business Process Management (BPM) Software: BPM software equips organizations with the capabilities to model, analyze, and enhance business processes. It supports process mapping, simulation, and automation, allowing companies to identify inefficiencies and implement improvements effectively. For example, service-oriented firms use BPM software to automate customer service operations, standardizing responses to reduce turnaround times and enhance service consistency and reliability.

3. Robotic Process Automation (RPA): RPA utilizes software robots to automate routine and rule-based tasks, enabling human resources to concentrate on strategic activities. This approach significantly reduces processing times, errors, and operational expenses. In banking, RPA automates the processing of loan applications by extracting and verifying data from documents, expediting approvals with greater precision.

4. Artificial Intelligence (AI) and Machine Learning (ML): AI and ML technologies analyze large datasets to uncover patterns and insights driving process improvements. They enable predictive analytics, helping organizations anticipate changes and respond proactively. In healthcare, AI examines patient data to forecast health risks and suggest preventive measures, continually enhancing predictions with updated information.

5. Internet of Things (IoT): IoT links devices to gather and transmit data from physical assets, providing real-time operational visibility. IoT data optimizes processes, improves maintenance schedules, and enhances efficiency. For logistics, IoT sensors monitor shipment locations and conditions, enabling better route planning and timely vehicle maintenance, minimizing delays, enhancing delivery accuracy, and improving customer satisfaction.

STRATEGIC APPROACHES TO INTEGRATING TECHNOLOGY IN BPR

Integrating technology into Business Process Re-engineering (BPR) necessitates a strategic approach to align with organizational objectives and ensure effective implementation. Several key strategies facilitate this integration:

1. Comprehensive Process Analysis: Prior to introducing any technological solution, it is critical to conduct an extensive analysis of current business processes. This analysis should involve stakeholders from various departments to gain a holistic view of existing workflows. Identifying inefficiencies and determining optimal areas for technological intervention is essential. This foundational step sets the stage for subsequent re-engineering efforts.

2. Establishing Clear Objectives and Metrics: It is crucial to define precise objectives and measurable metrics to assess the success of BPR initiatives. Organizations should define specific goals related to cost reduction, quality enhancement, service improvement, and operational speed. Setting these targets helps in tracking progress and assessing the effectiveness of the implemented changes. Clear metrics provide a benchmark against which the impact of the BPR efforts can be measured, ensuring that the initiatives deliver tangible benefits.

3. Developing a Roadmap for Implementation: Creating a detailed implementation roadmap is crucial for guiding the integration of technology into business processes. This roadmap should outline the necessary steps, including timelines, resource allocation, and potential risks along with their mitigation strategies. A well-defined plan ensures a systematic approach to implementation, helping to address challenges proactively and keeping the project on track. By dividing the process into manageable stages, organizations can sustain concentration and momentum throughout the BPR endeavor.

4. Managing Change and Engaging Employees: Successful change management is essential for overcoming resistance and gaining employee support during BPR initiatives. Organizations should offer thorough training and assistance to help employees adjust to new technologies and procedures. By involving employees in the re-engineering process, organizations foster ownership and promote acceptance of changes. Effective communication is vital for highlighting the advantages of the updated systems and processes, which helps minimize resistance and build enthusiasm for the transformation.

5. Continuous Monitoring and Improvement: Business Process Re-engineering (BPR) should be seen as a continuous journey of improvement rather than a singular endeavor. It is crucial to implement mechanisms for consistent monitoring and evaluation of processes to continually identify opportunities for further enhancement. Continuous feedback loops and performance reviews enable organizations to fine-tune their processes and ensure they remain efficient and effective over time. This proactive approach to improvement helps maintain the momentum of the BPR initiatives and ensures long-term success.

POTENTIAL CHALLENGES AND SOLUTIONS

Integrating technology into BPR can present several challenges, but there are effective solutions to address these issues:

1. Resistance to Change: Employees may resist alterations to their workflows and responsibilities due to uncertainty or disruption of established routines. To counter this resistance, organizations should effectively communicate the benefits of the changes and involve employees in the re-engineering process. Providing comprehensive training and support helps facilitate the transition and fosters confidence in the new systems and processes.

2. High Implementation Costs: The initial investment in technology can be substantial, posing a financial challenge. Conducting thorough cost-benefit analyses can help organizations prioritize investments that offer the highest return. By focusing on solutions that provide significant benefits and cost savings, organizations can justify the expenditure and ensure that the investment pays off in the long run.

3. Data Security and Privacy Concerns: Incorporating technology into BPR raises considerations regarding data security and privacy. It is critical to implement strong cybersecurity protocols and adhere to applicable regulations to safeguard sensitive information. Prioritizing data security is essential for maintaining trust, avoiding legal complications, and preserving operational integrity, thereby safeguarding the organization's reputation.

CONCLUSION

Integrating technology into Business Process Re-engineering (BPR) is essential for organizations seeking to enhance efficiency, reduce costs, and improve service quality. By focusing on comprehensive process analysis, setting clear objectives, developing detailed implementation roadmaps, and ensuring robust change management, businesses can successfully navigate the complexities of technology integration. Technologies such as ERP systems, BPM software, RPA, AI, and IoT provide powerful tools to streamline operations and foster continuous improvement.

However, organizations must be prepared to address potential challenges such as resistance to change, significant implementation costs, and concerns regarding data security. Effective communication, employee involvement, thorough cost-benefit analyses, and robust cybersecurity measures are essential to overcoming these obstacles.

Ultimately, the successful integration of technology in BPR leads to significant and sustainable enhancements in operational performance. By adopting a strategic and proactive approach, organizations can not only achieve their immediate re-engineering goals but also build a foundation for ongoing innovation and competitive advantage. Continuous monitoring and improvement ensure that processes remain efficient and aligned with evolving business needs, paving the way for long-term success and operational excellence.

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ANALYZING THE MERGER OF CANARA BANK AND SYNDICATE BANK: A STUDY OF BANK MERGERS IN INDIA

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ABSTRACT
This research paper examines the merger between Canara Bank and Syndicate Bank within the broader context of bank mergers in India. The study focuses on understanding the objectives behind the merger, formulating hypotheses regarding its expected outcomes, and conducting data analysis to evaluate the merger's impact on various financial and operational metrics.

1. INTRODUCTION:

Bank mergers have been a significant phenomenon in India's banking sector, driven by various objectives such as enhancing efficiency, improving financial stability, and rationalizing costs. The merger between Canara Bank and Syndicate Bank was initiated with similar aims in mind. This paper aims to explore these objectives in detail, formulate hypotheses about the expected impacts of the merger, and analyze empirical data to assess whether these hypotheses hold true in practice.

2. LITERATURE REVIEW

Bank mergers are complex strategic maneuvers undertaken by financial institutions to achieve various objectives such as enhanced efficiency, improved market presence, and strengthened financial stability. The phenomenon of bank mergers has been extensively studied globally, with a growing body of literature focusing on their economic, financial, and operational implications. This literature review synthesizes key findings from relevant studies to contextualize the merger between Canara Bank (CB) and Syndicate Bank (SB) within the broader landscape of bank mergers in India.

One of the primary motivations for bank mergers identified in the literature is the pursuit of economies of scale and scope. By consolidating operations, banks aim to reduce costs, optimize resource allocation, and achieve greater operational efficiency (**Berger & Humphrey, 1997**). In the Indian context, these motivations are often linked to the need for stronger capital bases, improved risk management frameworks, and compliance with regulatory requirements (**Prasad & Shashidhar, 2016**).

Studies examining the financial performance of merged banks have highlighted mixed outcomes. While some mergers result in improved profitability and shareholder value through enhanced revenue generation and cost savings (**Sufian & Habibullah, 2009**), others face challenges in integrating disparate organizational cultures and operational systems, leading to initial performance dips (**Altunbas, Liu, Molyneux, & Seth, 2000**). In India, regulatory reforms and supportive policies have influenced merger strategies, aiming to strengthen the banking system's resilience and competitiveness (**Goyal, 2018**).

Efforts to streamline operations post-merger are crucial for achieving sustainable benefits. Literature suggests that successful integration strategies focus not only on financial synergies but also on harmonizing customer service standards and improving service delivery channels (**Shen & Lin, 2013**). Challenges in retaining customer loyalty and managing employee morale during integration phases underscore the importance of effective change management practices (**Brewer III, Mondschein, & Strahan, 2001**).

The regulatory environment plays a pivotal role in shaping merger outcomes. Regulatory authorities in India, such as the Reserve Bank of India (RBI) and the Competition Commission of India (CCI), oversee merger approvals and monitor compliance with antitrust regulations (**Reddy & Naidu, 2017**). Understanding the regulatory framework governing bank mergers is essential for assessing the feasibility and implications of strategic consolidation initiatives.

Stakeholder perceptions, including those of shareholders, employees, and customers, significantly influence merger outcomes. Studies examining market reactions to merger announcements reveal varying investor sentiments and stock price movements, reflecting expectations about synergy realization and long-term value creation (**Mitchell & Mulherin, 1996**).

The literature review underscores the multifaceted nature of bank mergers and their implications for stakeholders in the Indian banking sector. While mergers offer potential benefits in terms of scale economies and market competitiveness, achieving successful integration requires meticulous planning, robust governance

frameworks, and proactive stakeholder engagement. The merger between Canara Bank and Syndicate Bank provides a pertinent case study to evaluate these dynamics within the evolving landscape of Indian banking consolidation.

3. OBJECTIVES OF THE STUDY:

1. To analyze the strategic objectives behind the merger of Canara Bank and Syndicate Bank.

2. To evaluate the impact of merger of Syndicate Bank into Canara Bank on deposits, advances, and Net profit of Canara Bank

3. To provide insights into the implications of the merger for the banking sector in India

4. RESEARCH METHODOLOGY

The study aims to provide a comprehensive understanding of the strategic motivations behind the CB-SB merger and evaluate its actual outcomes. This approach ensures a balanced assessment using meta-analysis, contributing valuable insights to academic research and practical implications for stakeholders in the Indian banking sector. Conduct a comprehensive review of academic literature, industry reports, and regulatory documents related to bank mergers, particularly within the Indian context. Synthesize findings on strategic objectives commonly pursued in bank mergers, such as achieving economies of scale, enhancing market competitiveness, and improving financial stability. Analyze official statements, press releases, RBI Bulletins, Annual Reports and Manuals of sample banks, Books, Periodicals, Journals, Research Studies, Websites and merger-related documentation from CB and SB to identify stated objectives and rationale behind the merger. Compare strategic goals articulated before the merger with actual outcomes post-merger to assess alignment and effectiveness.

5. STRATEGIC OBJECTIVES BEHIND MERGERS

The merger of Canara Bank (CB) and Syndicate Bank (SB), along with Andhra Bank, was part of a larger consolidation initiative by the Government of India in 2019. This merger aimed to achieve several strategic objectives that are crucial in the context of India's banking sector:

1. **Enhanced Financial Strength and Stability:** One of the primary objectives of merging CB and SB was to create a stronger, more resilient entity with enhanced financial strength. By consolidating their resources, the merged entity could potentially improve its capital base and asset quality. This is particularly important in the Indian banking landscape, where many banks were grappling with issues related to non-performing assets (NPAs) and capital adequacy ratios.

2. **Operational Efficiency and Cost Rationalization:** Mergers are often driven by the desire to achieve economies of scale and scope. By combining operations, CB and SB aimed to streamline processes, reduce duplication of efforts, and achieve cost efficiencies. This includes rationalizing branch networks, optimizing technology infrastructure, and integrating back-office functions. Such efficiencies can lead to lower operating costs and improved profitability over the long term.

3. **Improved Market Presence and Competitive Positioning:** The merger was also aimed at strengthening the market presence of the combined entity. By expanding its footprint and customer base, the merged bank could potentially enhance its market share and competitiveness. This is particularly relevant in a highly competitive banking sector like India's, where larger banks have a comparative advantage in terms of resources and market reach.

4. **Enhanced Risk Management and Governance Frameworks:** Consolidation can improve risk management capabilities by pooling together expertise and resources. The merged entity could benefit from stronger risk assessment frameworks, better compliance practices, and enhanced governance structures. This is critical for maintaining regulatory compliance and safeguarding stakeholder interests in a challenging economic environment.

5. **Synergy Realization and Value Creation for Stakeholders:** Mergers are expected to create synergies that lead to value creation for various stakeholders. Shareholders anticipate improved financial performance and enhanced shareholder value through synergistic benefits. Employees may benefit from enhanced career opportunities and skill development in a larger organizational setup. Customers may experience improved service offerings and access to a wider range of banking products and services.

6. **Alignment with Government Policy and Regulatory Requirements:** The merger of CB, SB, and Andhra Bank was part of the government's broader agenda to strengthen the banking sector through consolidation. This initiative aimed to create a few large, robust banks capable of supporting India's growing economy

and meeting global competitiveness standards. It also aligned with regulatory requirements to enhance financial stability and governance in the banking sector.

6. Impact of Merger on Deposits, Advances and Net Profit of Canara Bank

Table 1: Analysis of Deposits in Pre and Post Merger of the Sample Banks (Rs. in Cores)

Situation	Year	Canara Bank	Syndicate Bank
Pre-Merger Deposits	2017	4,95,275	2,60,560
	2018	5,24,771	2,72,776
	2019	5,99,033	2,59,896
Post Merger Deposits	2021	10,10,874	--
Pre-Merger Growth %	2018	5.95	4.68
	2019	14.15	-4.72
Post Merger Change %	2021	17.69	--

Source: Annual Report

Table 1 presents a comparative analysis of pre- and post-merger deposits for selected banks. Before merging with Syndicate Bank, Canara Bank's deposits were Rs. 4,95,275 crores in 2017, increasing to Rs. 5,24,771 crores in 2018 and further to Rs. 5,99,033 crores in 2019. In contrast, Syndicate Bank's deposits were Rs. 2,60,560 crores in 2017, rising to Rs. 2,72,776 crores in 2018 but declining to Rs. 2,59,896 crores in 2019. Canara Bank experienced a higher growth rate in deposits compared to Syndicate Bank: 5.95% in 2018 and 14.15% in 2019, whereas Syndicate Bank's growth rates were 4.68% and 4.72%, respectively, indicating a decline in the latter's deposit growth. Table 4 further illustrates that post-merger, Canara Bank's deposits surged to Rs. 10,10,874 crores in 2021, marking a 17.69% increase over the combined deposits of Canara Bank and Syndicate Bank in 2019.

Table 2: Analysis of Advances in Pre and Post Merger of the Sample Banks (Rs. in Cores)

Situation	Year	Canara Bank	Syndicate Bank
Pre-Merger Advances	2017	3,42,008	2,05,044
	2018	3,81,707	2,10,683
	2019	4,27,727	1,99,669
Post Merger Advances	2021	6,39,048	--
Pre-Merger Growth %	2018	11.6	2.75
	2019	12.05	5.22
Post Merger Change %	2021	1.85	--

Source: Annual Report

Table 2 presents a comparative analysis of advances before and after the merger of selected banks. Prior to merging with Syndicate Bank, Canara Bank's advances totaled Rs. 3,42,008 crores in 2017, increasing to Rs. 3,81,707 crores in 2018, and further to Rs. 4,27,727 crores in 2019. Syndicate Bank's advances were reported as Rs. 2,05,044 crores in 2017, Rs. 2,10,638 crores in 2018, and Rs. 1,99,669 crores in 2019, showing modest growth rates of 2.75% in 2018 and 5.22% in 2019. Canara Bank exhibited higher growth rates in advances compared to Syndicate Bank, with increases of 11.60% and 12.05% in 2018 and 2019, respectively. Post-merger, advances for Canara Bank and Syndicate Bank combined amounted to Rs. 6,39,049 crores in 2021, marking a 1.85% increase over their total combined advances in 2019 as shown in the table.

Table 3: Analysis of Net Profit in Pre and Post Merger of the Sample Banks (Rs. in Cores)

Situation	Year	Canara Bank	Syndicate Bank
Pre-Merger Profit	2017	1,121	358
	2018	-4,222	-3,222
	2019	347	-2,588
Post Merger Profit	2021	2,557	--

Source: Annual Report

Table 3 provides a comparative overview of net profits before and after the merger of the selected banks. Prior to acquiring Syndicate Bank, Canara Bank reported a net profit of Rs. 1,121 crores in 2017, followed by a net loss of Rs. 4,222 crores in 2018, and a net profit of Rs. 347 crores in 2019. Syndicate Bank reported a net profit

of Rs. 358 crores in 2017, but incurred losses of Rs. 3,222 crores in 2018 and Rs. 2,588 crores in 2019. The table clearly indicates that Canara Bank achieved a net profit of Rs. 2,557 crores in 2021 following the absorption of Syndicate Bank.

7. INSIGHTS INTO IMPLICATIONS

1. **Consolidation and Scale Advantages:**

- The merger creates a larger entity with increased scale, potentially enhancing competitiveness against larger private and international banks.

- Consolidation allows for better utilization of resources, improved risk management capabilities, and strengthened capital adequacy, which are crucial for navigating economic uncertainties.

2. **Operational Efficiency and Cost Rationalization:**

- The merger aims to streamline operations and reduce overlapping costs, leading to improved cost efficiency over time.

- This consolidation could set a precedent for other banks to consider similar mergers as a strategy to enhance operational efficiency and profitability.

3. **Customer Impact and Service Delivery:**

- Customers may benefit from a broader range of products and services, improved technology integration, and enhanced service delivery channels.

- However, challenges in managing customer expectations during the integration phase emphasize the need for effective communication and service continuity.

4. **Regulatory and Compliance Frameworks:**

- The merger necessitates adherence to stringent regulatory requirements and compliance standards set by the Reserve Bank of India (RBI) and other regulatory bodies.

- Strengthened governance frameworks and regulatory oversight are critical to maintaining financial stability and safeguarding stakeholder interests.

5. **Employee Integration and Human Capital Management:**

- Integrating diverse organizational cultures and managing employee morale are essential for maintaining productivity and retaining talent.

- Investments in employee training, development, and career progression opportunities can mitigate uncertainties and foster a cohesive workforce.

8. FINDINGS:

- **Deposits:** Post-merger, Canara Bank's deposits have risen by 17.69%, reaching Rs. 10,10,874 crores, surpassing the combined deposits of Canara Bank and Syndicate Bank, which totaled Rs. 8,58,929 crores. This growth can be attributed to enhancements in service quality, extensive financial inclusion efforts, a broadened product portfolio, innovative financial solutions, and competitive deposit interest rates. The merger has notably strengthened the financial system structure of the banks, contributing significantly to the increase in deposits.

- **Advances:** Post-merger, Canara Bank's advances have increased by 1.85% compared to the combined advances of Canara Bank and Syndicate Bank, amounting to Rs. 6,27,396 crores. This notable rise in advances can be attributed to enhanced cash recovery and credit ratings, strategic investments in profitable portfolios, improved fund management practices, enhanced operational efficiency, and significant growth in interest income. These factors collectively contribute to the substantial increase in advances following the merger.

- **Net Profit:** Before the merger, Syndicate Bank reported net losses amounting to Rs. 2,588 crores. In contrast, Canara Bank recorded a pre-merger net profit of Rs. 347 crores for the year 2019. Following the merger, Canara Bank's post-merger profitability surged to Rs. 2,557 crores in the year 2021. This significant improvement in profitability is driven by enhanced managerial efficiency, decreased credit and liquidity risks, diversified business strategies, reduced funding costs, expanded market share, and

innovations in financial services. These factors collectively contributed to the substantial transformation in the profitability positions of the banks post-merger.

9. CONCLUSION

The merger of Canara Bank and Syndicate Bank represents a pivotal moment in India's banking sector, signaling a shift towards consolidation and strategic repositioning. The strategic objectives behind the merger of Canara Bank and Syndicate Bank were multifaceted, aiming to create a stronger, more competitive banking entity with enhanced financial strength, operational efficiency, and market presence. By achieving these objectives, the merged entity sought to navigate challenges in the banking sector more effectively while capitalizing on opportunities for growth and value creation for its stakeholders. By leveraging synergies, enhancing operational efficiencies, and prioritizing stakeholder interests, the merged entity can position itself as a resilient player in the competitive banking landscape. Effective implementation of integration strategies and proactive management of risks and opportunities will be key to realizing sustainable growth and delivering long-term value for all stakeholders involved.

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SHIFTING PATTERNS: ANALYZING HOUSEHOLD CONSUMPTION IN MAHARASHTRA BEFORE AND AFTERCOVID-19

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ABSTRACT
The COVID-19 pandemic caused unprecedented disruptions in household consumptionbehaviors globally, and Maharashtra, India, was no exception. This paper provides a thematic review of the literature on household consumption trends, comparing essential and non-essential expenditures before and after the pandemic. By synthesizing existing studies, this article examines socioeconomic determinants such as income, health, and discretionary spending in rural and urban households. Additionally, the study highlights the economic, social, and policy responses to the pandemic, providing insights for future research and policy formulation.

Keywords: Household consumption, Socioeconomic determinants, Non-essential spending, Food expenditure, Health expenditure

INTRODUCTION
- **Context:** Household consumption is a crucial indicator of economic well-being, capturing the allocation of resources across essential and discretionary goods. It directly reflects the financial and social resilience of households during economic disruptions.

- **Focus:** This thematic review compares pre- and post-COVID-19 consumption behaviors in Maharashtra, with a focus on food, health, and discretionary spending in both rural andurban areas.

- **Objective:** To explore how the pandemic reshaped household spending priorities and analyze the socioeconomic factors influencing these shifts.

LITERATURE REVIEW
Household Consumption Trends: A Global Perspective

- Global studies on household consumption trends underscore significant shifts in spendingpriorities during the pandemic, with a notable shift from non-essential to essential goods. Rashid et al. (2024) report that in developing countries, up to 70% of household income is allocated to food, exacerbating food insecurity concerns.

- European and US studies highlight a decline in discretionary spending, such as on restaurants and entertainment, as consumer confidence fell sharply during lockdowns (Chetty et al., 2020; Accenture, 2020).

Food Expenditure and Security

- **Global Findings:** Food expenditure emerged as the most significant category, particularly during economic downturns (Arya, 2024). Households prioritized spendingon staple foods while cutting back on other items.

- **Indian Context:** In India, food expenditure has historically constituted a large portion of household budgets, especially in rural areas. During the pandemic, this trend intensified, as income insecurity led to higher spending on food (Rashid et al., 2024).

- **Maharashtra's Case:** In Maharashtra, the Ministry of Statistics and Programme Implementation (2024) found that food expenditure rose markedly during the pandemic, especially in rural households, where economic disruptions were more severe.

Health Expenditure and Economic Burden

- **Global Findings:** Out-of-pocket health expenditure (OOPE) is a common financial burden for households worldwide. The pandemic exacerbated this burden, with many families incurring catastrophic health expenditures (Mehek et al., 2023).

- **Indian Context:** In India, health expenditure surged due to private healthcare costs. Public health insurance programs were insufficient in mitigating these expenses, leaving many households financially vulnerable.

- **Maharashtra's Case:** Health spending patterns in Maharashtra reveal that rural households, already economically vulnerable, experienced severe financial stress due to health-related expenditures during COVID-19.

Non-Essential Spending: Recreation, Restaurants, and Vacations

- **Global Findings:** Spending on non-essential goods, such as dining out and vacations, plummeted during the pandemic due to lockdown restrictions and changes in consumer behavior (Neha et al., 2021).

- **Indian Context:** Urban households in India, especially those with higher incomes, experienced a significant reduction in spending on recreation and restaurants as fear of contagion grew (Christopher et al., 2021).

- **Maharashtra's Case:** In Maharashtra, urban households reported sharp declines in discretionary spending on non-essential goods, including dining out and entertainment. However, by late 2021, there were signs of recovery in these sectors.

Income, Inequality, and Consumption Behavior

- **Global Findings:** Income inequality exacerbated the pandemic's effects on household consumption, with higher-income households better able to adjust their spending while low-income households struggled to maintain their basic needs (Chronopoulos et al., 2020).

- **Indian Context:** Income inequality in India widened during the pandemic, particularly in rural areas where income volatility was higher, limiting households' ability to spend on non-essentials (Avjit, 2023).

- **Maharashtra's Case:** In rural Maharashtra, income disparities grew more pronounced, directly affecting consumption patterns. Many low-income households reduced their spending on non-essential goods, while higher-income households saw less severe reductions

RESEARCH METHODOLOGY:

This study employs a **thematic review approach**, synthesizing existing literature to identify key patterns and determinants of household consumption. The review focuses on pre- and post-COVID-19 periods, comparing trends in rural and urban Maharashtra.

DATA SOURCES:

- **Secondary Data:** The study relies on secondary data from global and local sources, including:

- **Household Consumption Expenditure Survey (HCES):** Data on household consumption trends in Maharashtra pre- and post-pandemic.

- **Consumer Pyramid Household Survey (CPHS):** A secondary data source providing detailed information on consumption patterns during the pandemic across different income groups.

- **National Sample Survey (NSS):** Data on health and food expenditure in Maharashtra.

METHOD OF ANALYSIS:

- **Thematic Analysis:** Thematic analysis was conducted by categorizing consumption behavior into essential (food, health) and non-essential (recreation, dining out, vacations) spending. The review identified common themes, trends, and socioeconomic determinants from the literature.

- **Comparative Analysis:** The study compares consumption behavior in rural and urban households, examining how income levels, household size, education, and occupation influenced spending during the pandemic.

- **Socioeconomic Analysis:** The literature review was extended to analyze the socioeconomic drivers of consumption, particularly the impact of income inequality and volatility on consumption patterns.

KEY VARIABLES:

- **Dependent Variables:** Household consumption expenditure (food, health, recreation, non-essential goods).

- **Independent Variables:** Income levels, household size, education, occupation, gender, urban/rural classification.

LIMITATIONS:

- The study is limited by its reliance on secondary data, which may not capture real-time shifts in consumption behavior during rapidly changing pandemic conditions.

- There is also a potential lack of granularity in the data concerning specific sub-regions within Maharashtra

RESULTS AND DISCUSSIONS

- **Synthesis of Findings:** The COVID-19 pandemic caused profound shifts in household consumption patterns in Maharashtra. Thematic analysis reveals that food and health expenditures increased sharply, while non-essential spending saw a marked decline. These shifts were more pronounced in rural areas, where income volatility was higher.

- **Socioeconomic Determinants:** Income, household size, and education emerged as significant determinants of spending during the pandemic. Low-income households in rural areas faced greater economic hardships, leading to a focus on essential expenditures like food and healthcare.

- **Policy Implications:** The literature highlights the need for targeted interventions to support low-income households. Strengthening health insurance coverage, expanding cash transfer programs, and improving access to essential goods in rural areas are key policy recommendations.

SUMMARY AND CONCLUSION:

- This thematic review emphasizes how the COVID-19 pandemic reshaped household consumption patterns in Maharashtra, particularly affecting food and health expenditures. Non-essential spending sharply declined as households prioritized essentials.

- **Future Research:** Further empirical studies are needed to assess the long-term impacts of these shifts and measure the effectiveness of policy measures designed to stimulate economic recovery in Maharashtra.

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THE EVOLUTION AND IMPACT OF DIGITAL BANKING: OPPORTUNITIES, CHALLENGES, AND FUTURE PROSPECTS

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ABSTRACT

Digital banking has emerged as a transformative force, reshaping the global financial landscape and redefining how individuals and businesses interact with financial institutions. This paper delves into the evolution of digital banking, tracing its journey from traditional banking enhancements to its current role as a fully integrated digital ecosystem. It explores the opportunities digital banking presents, such as enhanced financial inclusion, personalized customer experiences, and operational efficiencies for financial institutions. Alongside these benefits, the paper examines critical challenges, including cybersecurity threats, regulatory compliance, and the digital divide affecting underserved populations. Furthermore, it investigates the role of emerging technologies like artificial intelligence, blockchain, and central bank digital currencies in shaping the future of digital banking. By analyzing these factors, this study provides insights into the strategies required to harness the full potential of digital banking while addressing its inherent risks. The findings offer a roadmap for stakeholders to navigate the evolving financial landscape responsibly and sustainably.

Keywords: Digital Banking, Global Finance, E-Banking

INTRODUCTION:

The financial services industry has witnessed a paradigm shift with the advent of digital banking, transforming how individuals and businesses manage, access, and interact with financial resources. Digital banking, often synonymous with online and mobile banking, refers to the provision of banking services through digital platforms, enabling users to conduct transactions, manage accounts, and access financial products with unprecedented convenience and efficiency. This transformation marks a significant departure from traditional brick-and-mortar banking, driven by advancements in technology, changing consumer expectations, and the growing need for financial inclusion.

The evolution of digital banking can be traced back to the late 20th century when banks began offering rudimentary online services. Over time, technological breakthroughs, including the proliferation of the internet, mobile devices, and artificial intelligence, have reshaped the landscape, positioning digital banking as a cornerstone of modern financial ecosystems. Today, digital banking plays a pivotal role in empowering consumers, streamlining operations for financial institutions, and fostering economic growth by bridging the gap between financial services and underserved populations.

However, the rapid growth of digital banking is not without challenges. Cybersecurity threats, regulatory hurdles, and the persistent digital divide raise concerns about the safety, accessibility, and equity of these services. Moreover, the rise of fintech companies and disruptive technologies such as blockchain and central bank digital currencies (CBDCs) have intensified competition and introduced new dimensions to the financial services landscape.

This research paper aims to provide a comprehensive analysis of the evolution and impact of digital banking, examining the opportunities it offers, the challenges it faces, and the prospects for its future development. By exploring these dimensions, the study seeks to contribute to the understanding of digital banking's transformative potential and provide actionable insights for stakeholders in the financial ecosystem, including policymakers, financial institutions, and technology providers. In doing so, it underscores the importance of innovation, security, and inclusivity in shaping the future of banking in an increasingly digital world.

REVIEW OF LITERATURE:

In this field few studies were conducted in India. The researcher reviewed many researches conducted in India and abroad to find out the correct area to carry out the research work, which will fruitful for the professionals and country.

- **Rangan, V. Kasturi and Lee, Katharine L., (2012), "Mobile Banking for the Unbanked ",** The case describes in detail the workings of two mobile banking operators in AfricaWIZZIT in South Africa and M-PESA in Kenya. It explores the dimensions of strategy that make for success in the market for the unbanked. It raises questions regarding the portability of the model to other countries and settings.

- **V. Raja, Joe A. (2012), "Global e-banking scenario and challenges in banking system",** This paper is an attempt to explore the various levels of Digital banking services provided by banks using the secondary data. It also compares the traditional banking systems with net banking. It lists out the various advantages of Digital banking and the successful security measures adopted by different banks for secured banking transactions. It also analyzes how E-banking can be useful for banking industry during this global financial melt down.

- **Van B., Paul, Veloso, Francisco M. and Oliveira, P., (2012), " Innovation by Users in Emerging Economies: Evidence from Mobile Banking Services",** This paper examined the extent to which users in emerging economies innovate, and whether these innovations are meaningful on a global stage. To study this issue, the researcher conducted an empirical investigation into the origin and types of innovations in financial services offered via mobile phones, a global, multi-billion dollar industry where emerging economies play an important role. The researcher used the complete list of mobile financial services, as reported by the GSM Association (GSMA), and collected detailed histories of the development of the services and their innovation process.

- **Nel J., Boshoff C., Raleting T., (2012), "Exploiting the technology cluster effect to enhance the adoption of WIG mobile banking among low-income earners"** This study investigated the attitude formation of low-income, non-users of Wireless Digital Gateway (WIG) mobile banking, by including use of the Short Message Services (SMS) as a moderator of attitude formation. A non-probability sample of 465 South African non-users of mobile banking was drawn and clustered into High users and Low users of the SMS, based on the average number of text messages sent in a week. The moderating effect of "use of the SMS" was investigated by means of a structural equation modelling multi-group analysis. The findings revealed that the influence of Ease of use on Attitude and of Self-efficacy on Ease of use were stronger for High users and significantly different from Low users, while the opposite was true for the influence of Facilitating conditions on Usefulness.

- **Oliveira P., Eric V. H., (2011), "Users as service innovators: The case of banking services"** Find that 55% of today's computerized commercial banking services were first developed and implemented by non-bank firms for their own use, and 44% of today's computerized retail banking services were first developed and implemented by individual service users rather than by commercial financial service providers. Manual precursors to these services – manual procedures that carried out functions similar to computerized services in our sample – were almost always developed by users as self-services

OBJECTIVES OF THE STUDY:
The main objectives of the study are as follows as,

- To understand the genesis and concept of Digital-Banking.

- To analyse the importance, functions, advantages and limitations of Digital- Banking.

- To explain the different form of Digital-Banking and to analyse the rules & regulation regarding Digital-Banking guided by RBI.

- To highlighting on the security problems of Digital-Banking and how to reduce the security issues with the help of security control tools.

- To analyse the trend of Digital-Banking with the help of primary data.

- To analyse the present Digital-banking scenario concerned with ATM, Digital banking, Mobile banking, credit card-debit card, fund transfer and other Digital- banking services.

LIMITATION OF STUDY
The major limitations of the study are:

- A small sample size of 100 respondents are taken to primary data analysis. So I cannot draw proper inferences about the respondents from this sample size.

- I have not used modern statistical tools to analysis the data.

- Due to shortage of time I have not been able to make a depth study.

- I could not collect data from out site of MUMBAI.

- This study is based on the prevailing respondents' satisfaction. But their satisfaction may change according to time, fashion, need etc.

RESEARCH METHEDOLOGY:

Exploratory Research includes the reviewing and analysis of the articles, Research Papers, Interviews and Other Published Information in order to gain a deeper understanding of the prevailing scenario.

Also, quantitative information, in which survey reports etc done on the basis of Questionnaires was beneficial in the way that it provides a Comparative Insight into The Consumer Perception for Digital Banking in Mumbai and their preferences over it. It is good for examining Consumer Behavior in the Current Trends of Digital Banking.

- **SECONDARY DATA**

The secondary data is readily available data from the published or printed sources. The secondary data is generally used in the case of academic research and to a certain extent in the case of social research. However, commercial research gives requires more of primary data than secondary data. Generally researcher first makes an attempt to obtain information from secondary sources to solve the problem. However, when the secondary data is sufficient and outdated, the researcher resorts primary data. Information is gathered through secondary sources:

- Books

- Digital

- Magazines and Brochures

- Previous reports

- **SAMPLING TECHNIQUES:**

The Sampling Technique for this use for the study was Probability Sampling here in a simple random survey was conducted by questioning random people who had a brief idea about Digital Banking.

To analyse the situation of Scope of Digital Banking in Mumbai was taken of Approximately 100 Customers.

DATA ANALYSIS & INTERPRETATION

1. DISTRIBUTION OF RESPONDENTS ACCORDING TO THEIR GENDER

Customer Mode	
Gender	**Percentage**
Male	52 %
Female	47 %
Other	1 %
Total	**100**

INFERENCE

From the above table, 47 per cent of the respondents are Male, 52 per cent of the respondents are Female and 1 per cent of the respondents are Other

2. DISTRIBUTION OF RESPONDENTS ACCORDING TO THEIR AGE

Age group of customer	
Age class	**Percentage**
Below 20 years old	33 %
20-40 years old	59 %
40-60 years old	7 %
Above 60 years old	1 %
Total	100

INFERENCE

From the above table, 59 per cent of the respondents are of 20-40 years old, 7 per cent of the respondents are of 40-60 years old, 1 per cent of the respondents are above 60 years old and the remaining 33 per cent of the respondents are below the age of 20.

3. DISTRIBUTION OF RESPONDENTS ACCORDING TO THEIR AWARENESS ABOUT THE DIGITAL BANKING SERVICES

Awareness about Digital banking services	
Status	**Percentage**
Yes	96 %
No	4 %
Maybe	0 %
Total	100

INFERENCE

From the above table, 96 percent of the respondents are aware of the Digital banking service offered by the bank the remaining 4 percent of respondents are unaware of it.

4. DISTRIBUTION OF RESPONDENTS ACCORDING TO THEIR USAGE OF DIGITAL BANKING SERVICES

Awareness about Digital banking services	
Status	**Percentage**
Yes	91 %
No	7 %
Maybe	2 %
Total	100

INFERENCE

From the above table, 91 percent of the respondents are using Digital banking service offered by the bank, 7 percent of respondents are not using it and the remaining 2 percent respondents maybe are using or not using Digital banking service.

5. DISTRIBUTION OF RESPONDENTS ACCORDING TO WHICH BANK DO THEY HAVE THEIR ACCOUNT

Which bank do they have your account ?	
Banks	**Percentage**
Saraswat Bank	20 %
ICICI Bank	10 %
Central Bank of India	8 %
State Bank of India	51 %
Others	11 %
Total	100

INFERENCE

From the above table, 20 percent of the respondents are having bank account in Saraswat Bank, 10 percent of the respondents are having bank account in ICICI Bank, 8 per cent of the respondents are having of bank account in Central bank of India, 51 per cent of the respondents are having bank account in State Bank of India and the remaining 11 percent of the respondents are having bank accounts in Another Bank

RECOMMENDATIONS SUGGESTIONS:

- **RECOMMENDATIONDS:**

1. Technological development has been nothing less than explosion. Banks have been harnessing such technological innovations on one hand and adapting themselves to such changes on the other hand.

2. The most significant event has been development of semi-conductor technology, which has resulted in spectacular expansion of automation.

Processing, storage and transmission of information is very essence of banking and financial services.

3. The electronic technology has bought revolutionary changes in these areas. The elimination of paper as medium for processing and storage of transactions / information has been a great event. Large volume of information can be processed, stored and retrieved very economically at terrific speed, which is not possible manual

4. The space required for managing enormous volume of information has been reduced dramatically.

5. With the revolution in telecommunication technology, information can be made accessible from remote distance at lightning speed. The final output of information after manipulation and analysis can be printed by printer at high speed directly from computers.

6. Thus, the computer now has the ability to retrieve data or update files instantaneously. Subsequently with the development in telecommunication, Local Area Network (LAN)/Wide Area Network (WAN) have been established.

- **SUGGESTION**
- To prevent online banking from remaining an expensive additional channel that does little to retain footloose customers, banks must act quickly.

- The first and most obvious step they should take is to see to it that the basic problem fuelling dissatisfaction has been addressed.

- After repairing this basic deficiency, banks must ensure that their services are competitive.

- Obviously, it should include checking, savings and brokerage services, which anchor customers to the institution.

- In addition, to meet the challenge of online brokerage and other new entrants, banks would need to add "supermarkets" selling products such as mortgage, mutual funds and insurance.

CONCLUSION:

Technology innovation and fierce competition among existing banks have enable a wide array of banking products and services, being made available to retail and wholesale customer through an electronic distribution channel, collectively referred to as e-banking. The integration of e-banking application with legacy system implies an integrated risk management approach for all banking activities of a banking institution. Latest recommendations of Basel Committee recognize that each bank's risk profile is different and requires a tailored risk mitigation approach appropriate for the scale of e- banking operations, the materiality of the risks present and the willingness and ability of the institution to manage their risks. This implies that a "one size fits all" approach to e-banking risk management issues may not be appropriate.

Banks have traditionally been in the forefront of harnessing technology to improve product and efficiency. Technology is altering the relationships between banks and its internal and external customers. Technology has also eroded the entry barriers faced by many industries. With one time investment, technology has brought about superior products and channel management with a special focus on customer relationship. The incremental costs incurred for expansion and diversification are also more beneficial.

The major driving force behind the rapid spread of e-banking is its acceptance as an extremely cost effective delivery channel. But on the flipside, it is associated with risks such as reputation risk, security risk, cross-border risk and strategic risk, which are unique to e-banking. Banks need to have an effective disaster recovery plan along with comprehensive risk management tool is significant not only to the bank but also to the banking system as a whole. All these issues underscore the importance of sound supervisory policies and high level of international co-operation among the bank regulators. The Basel Committee on banking Supervision has taken the lead in this area through the creation of its Electronic Banking Group – a group comprising 17 central banks and bank supervisory agencies in the late 1999. The main focus of this group has been to develop sound risk management practices.

Digital has created plenty of opportunities for players in the banking sector. While the new entrants have the advantage of latest technology, the goodwill of the established banks gives them a special opportunity to lead the online world. By merely putting existing service online won't help the banks in holding their customer close.

Instead, banks must learn to capitalize their customer's different online financial services relationships. The article "Will Banks Control Online Banking?" focuses on how banks have to reinvent their role to remain as their customers' preferred bank.

Coming home, India is on threshold of a major banking revolution with the invasion of net banking. With the concept of payment gateway coming in, banks are vying with one another for the lion's share in the market.

Highlighting the benefits of payment gateway over the open-loop payment mechanism, the article "Banking in the Cyber worlds" gives a brief report of the tug of war between the two major Indian e-banking players.

The banking scenario in 2007 could be similar to the one presented above, which requires banks to be proactive and adopt a range of measures to shape their future.

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- Introduction to Information Technology & its Business Application: - written by A.K. Mukhopadhyay & A. Das and published by Kalimata Pustakal

DECIPHERING CURRENCY DYNAMICS: QUANTITATIVE EVIDENCE ON KEY DRIVERS OF INDIA'S FOREIGN EXCHANGE RATE MOVEMENTS

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ABSTRACT

This study explores the relationship of key macroeconomic indicators with India's REER from 1991 to 2022, utilizing the ARDL cointegration method. By analyzing the long-run and short-run relationships between REER and variables such as the CPI, call money rate, imports, exports, and money supply, the research uncovers significant dynamics influencing the REER. The study found that higher domestic inflation as indicated by the CPI, leads to currency depreciation fostering competitiveness in Indian exports while elevating import costs. Conversely, elevated interest rates represented by the call money rate, tend to appreciate the rupee by attracting foreign investment. Surprisingly, while exports positively correlate with REER, imports exhibit negligible influence potentially due to India's inflexible import demands. Also, it was seen that the error correction term ensuring long-run stability of the equilibrium. Diagnostic tests confirm the ARDL model's reliability, enhancing confidence in the estimates. These findings contribute insights into the complex relationship between economic factors and exchange rate dynamics in India. Policy implications underscore the importance of inflation management, export promotion, interest rate adjustments, and prudent monetary policy execution in shaping exchange rate movements, offering policymakers a roadmap to achieve desired outcomes while balancing broader economic goals.

Keywords: REER, Macroeconomic Variables, Autoregressive Distributed Lag (ARDL), CPI, Money Supply.

JEL Classifications: F31, F41, E31, C22, C32

1. INTRODUCTION

In today's interconnected global economy, exchange rates play a crucial role, significantly influencing a country's trade competitiveness, capital movements, and overall macroeconomic stability (Jashandeep, Drishty, & Anjali, 2018). These rates, symbolizing the relative value of a country's currency vis-à-vis others, undergo influence from an array of factors, spanning both domestic and international realms. In the context of India's rapid economic growth and deepening integration into the global market, the maintenance of a stable and competitive exchange rate assumes extremely importance, serving as a pillar while the nation broadens its trade networks and entices foreign investments.

Exchange rates serve as a critical point in international economic engagements, as no nation can operate in isolation given their varied resource endowments. The fluctuation of these rates significantly impacts various economic indicators, including interest and inflation rates, as well as the quantities of imports, exports, and overall production. Such fluctuations underscore the crucial role exchange rates play in the economic fortunes of nations participating in the global trade of goods and services. The significance of exchange rates lies in their capacity to harmonize the price systems across disparate nations, thus enabling direct comparisons of traded goods across borders (Usman, 2009). Through their impact on the magnitude of imports and exports, exchange rates wield considerable influence over a country's balance of payments position.

In emerging economies such as India, the importance of the exchange rate has grown significantly since the adoption of a flexible exchange rate regime. Before the introduction of the Structural Adjustment Program (SAP) in 1991, India's exchange rate policy tended to favour the overvaluation of the rupee, fluctuating between Rs 18.11 and Rs 25.79 around 1991. This bias toward overvaluation stimulated export activities but hindered non-oil exports and increased reliance on imported inputs.

Following the implementation of SAP, India experienced heightened exchange rate volatility due to increased vulnerability to external shocks. The impact of the global economic downturn on India's exchange rate was particularly pronounced. From 1991 to 2022, the rupee saw a significant appreciation against the dollar, rising from around Rs 18.11/\$ to over Rs 81.35/\$, representing a surge of approximately 349.1%. This surge was largely driven by a sharp decline in India's foreign earnings, triggered by the persistent rise in crude oil prices, which reached an unprecedented US\$ 85.41 per barrel in March 2024.

The combination of soaring oil prices & exchange rate fluctuations poses a significant challenge to macroeconomic stability and economic growth for countries like India that are not primarily reliant on oil production. As Usman (2009) suggests, nations such as Nigeria often witness substantial increases in government spending during periods of high oil revenue, while periods of reduced oil revenues often coincide with budget deficits.

In light of this context, the purpose of this study is to identify the relationship of key macroeconomic variables, namely inflation, call rate (interest rate), imports, exports, and money supply, with India's exchange rate. The motive of the study to explore the key determinants impacting the valuation of the Indian rupee in comparison to other currencies.

Inflation, representing the general increase in prices of goods and services, stands as a crucial determinant of exchange rates. As per the Purchasing Power Parity (PPP) theory, sustained disparities in inflation rates among nations can trigger adjustments in exchange rates to restore equilibrium in purchasing power (Jashandeep et al., 2018; Osiegbu & Onuorah, 2011). Elevated domestic inflation rates may potentially ruin the currency's worth, while lower inflation rates could facilitate currency appreciation.

The call rate, indicative of the interest rate set by the central bank for lending funds to commercial banks, assumes a crucial role in exchange rate dynamics. Fluctuations in interest rates can influence capital movements and investment decisions, consequently affecting the demand for and supply of currencies in the foreign exchange market (Usman, 2009). Elevated interest rates typically entice foreign capital inflows, potentially resulting in the increase of the domestic currency.

A nation's trade equilibrium, evident in its import & export levels, holds considerable influence over variation in exchange rates. A persistent trade deficit, where imports surpass exports, can exert downward pressure on the native currency, whereas a surplus might trigger currency appreciation (Osiegbu & Onuorah, 2011). Grasping the nexus between trade patterns and exchange rates is pivotal for policymakers striving to uphold a competitive export sector and navigate the implications on country's current account.

The total money supply in an economy, which reflects the overall amount of currency in circulation, affects exchange rates by influencing expectations about inflation, interest rates, and the broader economic outlook (Usman, 2009). Expansionary monetary measures, which augment the money supply, may potentially dissolve the currency's worth, while contractionary policies might lead to currency strengthening.

The literature discussed above aids in identifying the key variables influencing the REER, highlighting the significance of analyzing the long-run and short-run relationship between these fundamental economic indicators and the REER. This research seeks to enrich the existing knowledge base and furnish invaluable insights for policymakers, enterprises, and investors active within the Indian economic landscape.

Expanding on the previous discussion, this research outlines its objective as follows. The basic goal is to explore into the impact of macro-economic variables on India's Exchange Rate, focusing on the following *objectives:*

- Analyzing the connection between India's exchange rate and key macroeconomic variables, including inflation, call rates, imports, exports, and money supply.

- Based on the outcome of the estimation providing major practical and policy implications.

1.1 OVERVIEW:
Chart 1 below illustrates the temporal trends of the selected macroeconomic variables spanning from 1991 to 2022, as employed in this investigation.

CHART 1. TREND OF SELECTED VARIABLES (1991-2022)
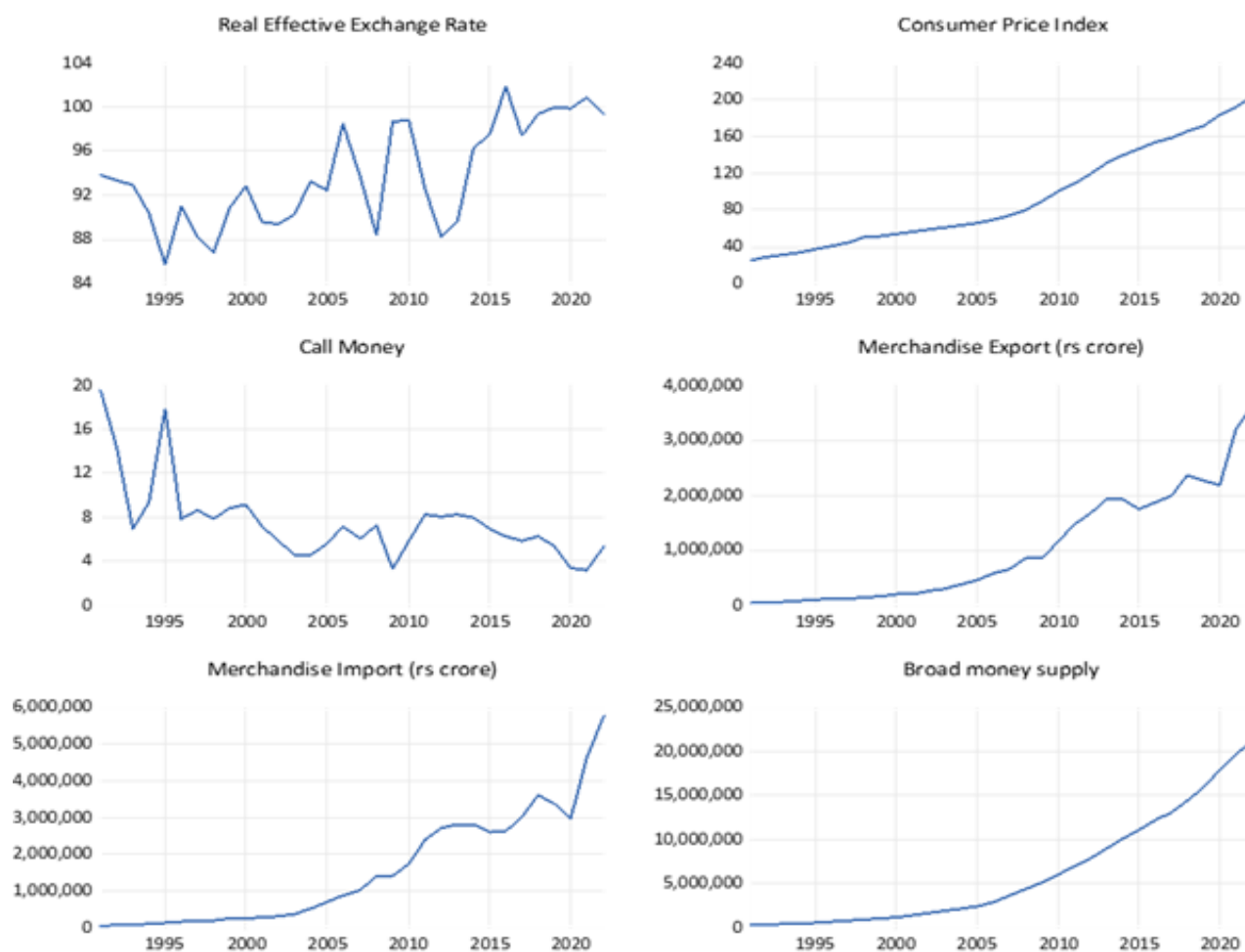
Source: Author's own construction

The REER shows fluctuations, indicating periods of currency appreciation and depreciation. These movements will impact the competitiveness of Indian exports and the cost of imports, affecting trade balances and inflation. The CPI exhibits a steady upward trend, reflecting a consistent rise in the general price level or inflation in India over the years. Rising inflation erodes purchasing power and impact consumption and investment decisions. The call money rate, which represents the interbank lending rate, displays a volatile pattern, reflecting changes in monetary policy and liquidity conditions.

Higher call rates reduce borrowing and economic activity but help control inflation. Indian exports show a consistent upward trend, especially after the mid-2000s, indicating increasing global demand for Indian goods and services. However, changes in REER and global economic conditions will influence export performance. Imports also exhibit a sharp upward trend, reflecting India's growing demand for foreign goods and raw materials, driven by economic growth and rising incomes. Import levels can be affected by REER movements and domestic demand conditions. The broad money supply trend displays a consistent rise, indicating an increase in the money circulating in the Indian economy over time. This expansion fuels economic growth but may also contribute to inflationary pressures if not managed properly.

The interconnectedness of these trends is evident. For instance, a depreciation in the REER can make Indian exports more competitive in global markets, potentially boosting export growth. However, it can also make imports costlier, contributing to higher inflation (reflected in the CPI). To counteract inflationary pressures, the central bank may raise call money rates, which can dampen domestic demand & import growth but also potentially slow down economic activity.

Changes in export and import levels can impact trade balances, affecting currency demand and supply, which in turn can influence the REER. Additionally, strong economic growth, reflected in rising money supply and imports, will put upward pressure on inflation, prompting monetary policy adjustments through call money rates.

The paper is structured into five main segments: Introduction, Literature Review, Data & Methodology, Results & Interpretation, and Conclusion.

2. LITERATURE REVIEW

The literature offers two primary perspectives on the influence of exchange rate fluctuations on economic activities: the traditional perspective and the empirical perspective. According to Edwards (1989), exchange rate misalignment, like currency devaluation, can adversely affect tradable activities, leading to decreased net exports and aggregate demand. Edwards further argues that real depreciation may cause adverse effects, ultimately resulting in overall economic contraction due to nominal depreciation elevating the general price level and dampening aggregate demand, as well as potentially redistributing income from individuals with a higher marginal propensity to consume to those with a lower propensity.

Iyoha and Oriakhi (2004) attributed movements in the RER during a specific period to nominal stock from fiscal deficits. They have utilized co-integration and error correction models to scrutinize the impact of the REER on economic activities in Nepal, aiming to spot whether the aggregate demand or aggregate supply channel was primarily affected by fluctuations in the RER.

Odusola (2006) utilized co-integration & ECM methodologies to scrutinize the behaviour of India's overall import demand between 1971 and 1995, suggesting that import volume is co-integrated with relative import price and real GDP, and that import demand in India is primarily influenced by real GDP and exhibits less sensitivity to changes in import prices.

Obadan (2006) applied a VECM to examine the Marshall-Lerner condition in the exchange rate-balance relationship in the Baltic States, finding the condition fulfilled for Lithuania but not for Estonia, with ambiguous results for Latvia, despite traditional factors being adequate in explaining trade dynamics in Baltic countries.

Aliyu (2009) observed that oil windfalls led to excessive fiscal spending on development projects, followed by financing through money creation post-windfalls, contributing to inflationary pressures and exacerbating significant real exchange rate movements, as highlighted by Lu and Zhang (2003).

Omojimite and Akpokodje (2010) posit that exchange rate variations in India are influenced by shifts in international trade patterns, changes in institutional frameworks, and structural transformations in production processes. Englama et al. (2010) argue that in Nigeria, the real exchange rate is mainly influenced by external shocks from global agricultural commodities and oil prices, major exports, and foreign exchange sources.

Lama and Medina (2010) note that the minimal impact on the RER resulted in marginal fluctuation between 1970 and 1977 in Nigeria. However, increased oil dependency led to trade shocks from oil price fluctuations, causing a 10% naira exchange rate variation during 1978–1985.

Haker and Hatemi (2004), employing the GDP function approach pioneered by Mordi (2006), scrutinized import demand and export supply elasticity across 117 countries, offering insights into economic decision-making processes in India and other countries with similar economic structures. Sampath (2011) investigated the relationship between macroeconomic variables & stock prices in India from 1993 to 2010, revealing that economic growth positively influences stock prices.

Antonia and Bara (2008) delved into the connection between the real effective exchange rate and aggregate real trade balance in major OECD countries during the post-Bretton Woods era, finding limited evidence suggesting that exchange rates significantly influence trade balances using various parametric and non-parametric techniques.

Bahmani-Oskoee and Kovryyalova (2008) harnessed the VECM is used to assess the long-term effects of exchange rate devaluation on South Africa's trade balance, presenting evidence that suggests exchange rate devaluation worsens South Africa's trade balance over time.

Modi, Chandrashekar, and Chittedi (2016) explored the correlation between macroeconomic variables and capital inflows in India from 2004 to 2014, employing ADF, Variance Decompositions Technique, & Impulse Response Function methods, reporting that the majority of macroeconomic variables exhibit a positive relationship with capital inflows.

Vadivel, Veeramani, and Raghutla (2020) delved into the interconnection between exchange rates & the WPI for India using the Flexible Least Squares method, discovering that exchange rate fluctuations influence wholesale prices and that both imports and exports also impact exchange and wholesale prices in the local market.

Babu Rao (2019) analyzed exchange rate regimes and their effects on BRICS countries' growth, concluding that adopting a pegged exchange rate regime could foster economic growth in BRICS nations.

While a significant body of literature delves into the determinants of exchange rate fluctuations, a conspicuous *research gap* surfaces regarding India's exchange rate dynamics.

Previous studies have predominantly concentrated on developed economies or conducted aggregate analyses across multiple countries, leaving a void in comprehensive research tailored to the Indian context. Moreover, existing literature often overlooks the complex interaction among specific economic indicators and their collective influence on India's exchange rate.

The study estimates key economic determinants of exchange rate using time-series methodology as identified on the basis of extensive literature review. Time series data, which is collected over successive time intervals, is particularly well-suited for studying the relationship between variables over time. It allows for dynamic analysis, capturing how changes in one variable affect another variable over different time periods. This is crucial when studying responsiveness, as they measure how the exchange rate responds to changes in its determinants.

The subsequent section explains the chosen variables, data sources, and the methodological approach adopted to fulfil the established objectives.

3. DATA AND METHODOLOGY

In the introductory section, this research adopts a multidimensional approach, incorporating five pivotal variables to explore their influence on India's exchange rate. Drawing insights from extensive literature review, the chosen variables are tailored to the characteristics of the dataset, ensuring a robust time series analysis methodology. Data aggregation spans from 1991 to 2022, encompassing a spectrum of sources including the Bank for International Settlements & RBI.

The variables under study comprise the Real Effective Exchange Rate (EXCH), representing a composite of various currencies, along with Inflation Rate (INF), Call Rate (INT), Imports (IMP), Exports (EXP) & Broad Money Supply (MS), whereas import, export, broad money supply denominated in local currency units and study includes the export & import of merchandise goods only. These selections are rooted in established theoretical frameworks linking macroeconomic indicators to exchange rate fluctuations.

The functional form of equation is stated as follows:

$$EXCH = f (INT, INF, IMP, EXP, MS) \tag{1}$$

The baseline econometric model is expressed as below:

$$EXCH = \beta_0 + \beta_1 INT + \beta_2 INF + \beta_3 IMP + \beta_4 EXP + \beta_5 MS + u \tag{2}$$

In this paradigm, EXCH denotes the REER, whereas INT express the call rate. Representing inflation, INF stands for the CPI. EXP embodies exports, while IMP mirrors import. MS characterizes the broad money supply, with μ denoting the stochastic disturbance or error term. Furthermore, f defines the functional relationship, with β_0 serving as the model's intercept or constant. Complementing these, β_1 through β_5 elucidate the coefficients associated with each independent variable.

As depicted in Chart 1 within the Introduction section, the course of the variables exhibits non-linear patterns and exhibit fluctuations at different time intervals. Investigation into such datasets might yield misleading outcomes, potentially undermining the study's findings. To mitigate this, Natural Logarithmic Transformation has been applied to the raw data, aiming to linearize the trends to a certain degree. Subsequent analysis has been conducted on the logarithmically transformed values of the dataset.

After applying the log, equation becomes

$$Ln(EXCH) = \beta_0 + \beta_1 Ln(INT) + \beta_2 Ln(INF) + \beta_3 Ln(IMP) + \beta_4 Ln(EXP) + \beta_5 Ln(MS) + u \tag{3}$$

Before inquiring into detailed analysis, it's essential to thoroughly examine the stationary properties and integration orders of each macroeconomic variable. In this paper, we investigated the stationarity properties of time series data for various macroeconomic variables using the ADF test (Dickey, et al., 1981).

Stationarity is a critical concept in time series analysis, as non-stationary data can lead to misleading regression outcomes and unreliable statistical inferences. The ADF test, an augmented version of the Dickey-Fuller test, was employed to detect unit roots, indicating non-stationarity in the time series data. This test was performed on both the levels and first differences of the time series, with and without intercept and trend components.

The testing procedure involved setting the null-hypothesis (H0) as a unit root against the alternative hypothesis (H1) of stationarity, followed by computing the ADF test statistic and comparing it with critical values. If the test statistic exceeded the critical value, the null hypothesis was upheld, indicating non-stationarity, whereas a test statistic below the critical value led to the rejection of the null hypothesis, suggesting stationarity.

This test was chosen over the Phillips-Perron (PP) test due to its robustness to higher-order serial correlation and its capacity to handle complex time series patterns. Unlike the PP test, which employs a non-parametric correction, the ADF test explicitly accounts for serial correlation through lagged terms, making it more suitable for the variables under investigation, as corroborated by existing literature. The outcomes of the ADF test informed subsequent analysis and modelling decisions, with non-stationary variables undergoing appropriate differencing or transformation to achieve stationarity before further analysis.

After describing their respective behaviours, we apply the f bounds test developed by Pesaran, Shin, and Smith (2001) to determine possible co-integration among the variables.

The following ARDL models are estimated to check for the existence of cointegration as follows:

$$\Delta \ln Exch_t = \alpha_1 + \sum_{i=1}^{m} \theta_{1i}\Delta lnExch_{t-i} + \sum_{i=0}^{n} \theta_{2i}\Delta lnINT_{t-i} + \sum_{i=0}^{p} \theta_{3i}\Delta lnINF_{t-i} + \sum_{i=0}^{q} \theta_{4i}\Delta lnIMP_{t-i}$$
$$+ \sum_{i=0}^{r} \theta_{5i}\Delta lnEXP_{t-i} + \sum_{i=0}^{s} \theta_{6i}\Delta lnMS_{t-i} + \beta_7 lnExch_{t-1} + \beta_8 lnINT_{t-1} + \beta_9 lnINF_{t-1}$$
$$+ \beta_{10} lnIMP_{t-1} + \beta_{11} lnEXP_{t-1} + \beta_{12} lnMS_{t-1} + u_{1t}$$

$$(4)$$

The ARDL model comprehensively explores the complex interaction of the REER with various independent variables such as interest rate, inflation, imports, exports, and money supply, capturing both their long-term and short-term dynamics.

Equation (4) introduces α_1 as the constant term, with Δ representing the first difference, and m, n, p, q, r, s denoting the optimal lag lengths. The AIC serves as the lag selection criteria in this study for determining the optimal lag length in the ARDL model. AIC strikes a balance between model fit and complexity, penalizing over-parameterization and favouring simplicity. Widely embraced in econometric modelling, AIC boasts desirable asymptotic properties, consistently identifying the true lag order with increasing sample sizes (Lütkepohl, 1991). Its efficacy in determining suitable lag structures has been extensively validated, especially in analyses of exchange rates and macroeconomic time series (Chinn & Meese, 1995). Employing AIC aligns this study with established methodologies, ensuring the robustness and reliability of the model's estimates and inferences. Additionally, the lagged terms of the dependent variable ($\Delta lnExch_{t-i}$) capture the autoregressive aspect of the model.

$$\Delta \ln Exch_t = \alpha_1 + \beta_7 lnExch_{t-1} + \beta_8 lnINT_{t-1} + \beta_9 lnINF_{t-1} + \beta_{10} lnIMP_{t-1} + \beta_{11} lnEXP_{t-1}$$
$$+ \beta_{12} lnMS_{t-1} + u_{1t}$$

$$(5)$$

In equation 5, the coefficients $\beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}$, and β_{12} represent the long-term relationships among the variables under study, while u_{1t} denotes the error term in the model. The ARDL technique aims to examine the existence of long-term cointegration relationships among these variables, with the null hypothesis (H0) positing no such association ($\beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = \beta_{12} = 0$) and the alternative hypothesis (H1) suggesting otherwise ($\beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = \beta_{12} \neq 0$). Critical values provided by Pesaran, Shin, and Smith (2001) are used to assess the computed F statistic. If it surpasses the upper threshold, indicating I (1) behavior for all variables, the null hypothesis of zero cointegration is rejected. Conversely, falling below the lower threshold suggests I (0) behavior for all variables, making the null hypothesis unassailable. When the statistic falls within the bounds, the test outcome remains inconclusive. In cases where cointegration is rejected, ARDL models with error correction mechanisms are applied to explore short-term dynamics.

$$\Delta \ln Exch_t = \alpha_1 + \sum_{i=1}^{m} \theta_{1i}\Delta lnExch_{t-i} + \sum_{i=0}^{n} \theta_{2i}\Delta lnINT_{t-i} + \sum_{i=0}^{p} \theta_{3i}\Delta lnINF_{t-i} + \sum_{i=0}^{q} \theta_{4i}\Delta lnIMP_{t-i}$$
$$+ \sum_{i=0}^{r} \theta_{5i}\Delta lnEXP_{t-i} + \sum_{i=0}^{s} \theta_{6i}\Delta lnMS_{t-i} + \beta_7 lnExch_{t-1} + \beta_8 lnINT_{t-1} + \beta_9 lnINF_{t-1}$$
$$+ \beta_{10} lnIMP_{t-1} + \beta_{11} lnEXP_{t-1} + \beta_{12} lnMS_{t-1} + \delta ECT_{t-1} + u_{1t}$$

$$(6)$$

In equation 6, the parameters θ_{1i}, θ_{2i}, θ_{3i}, θ_{4i}, θ_{5i}, θ_{6i} symbolize the immediate fluctuations, while the ECT_{t-1} term embodies the corrective element, signifying the deviation from the long-term balance in the preceding period. The parameter δ denotes the pace of rectification, delineating how swiftly the REER readjusts towards the enduring equilibrium post-deviation.

To verify the strength of the model, several diagnostic tests are performed on the regression. These include the LM test (Breusch-Godfrey) for assessing serial correlation, the Breusch-Pagan-Godfrey test to investigate heteroskedasticity, the Jarque-Bera test to evaluate residual normality, and the CUSUMSQ test to detect parameter instability. Movement beyond the 5% critical threshold in the CUSUMSQ test indicates instability in the model's parameters.

Selecting these tests over other alternatives stems from their statistical characteristics, straightforward applicability, and extensive utilization across empirical investigations, notably within exchange rate modelling and macroeconomic time series analysis. By opting for these established and resilient assessments, this study adheres to established methodologies, affirming the dependability and authenticity of the outcomes.

In the next section, the results of the applied tests and analysis have been interpreted and discussed in detail in the context of the study.

4. RESULTS AND INTERPRETATION

Table 1 unveils the detection of a unit root within the time series data upon undergoing the Augmented Dickey-Fuller (ADF) test at various levels and difference orders, as delineated by Dickey et al. (1981). This test, employed to evaluate stationarity as outlined in the methodology, scrutinized the variables: Real Effective Exchange Rate (EXCH), Call Rate (INT), Inflation (INF), Imports (IMP), Exports (EXP), and broad money supply (MS). Preceding the ADF test, logarithmic transformations were applied to all variable values.

TABLE 1. Summary result of Unit Root Test using Augmented Dickey Fuller test (ADF Test)

	AUGMENTED DICKEY FULLER TEST								
	LEVEL				1ST DIFFERENCE				
	INTERCEPT		TREND & INTERCEPT		INTERCEPT		TREND & INTERCEPT		
Variables	T-Stats.	Prob	T-Stats.	Prob	T- Stats.	Prob	T-Stats.	Prob	Remark
LnREER	-2.339	0.166	-4.399	0.009*	-	-	-	-	I (0)
LnINT	-3.485	0.015*	-	-	-	-	-	-	I (0)
LnCPI	1.033	0.995	-5.580	0.0003*	-	-	-	-	I (0)
LnIMP	-1.771	0.387	-1.647	0.744	-4.344	0.001*	-	-	I (1)
LnEXP	-1.760	0.392	-1.394	0.842	-5.034	0.000*	-	-	I (1)
LnMS	-1.841	0.354	-0.439	0.981	-1.185	0.020*	-	-	I (1)

*Source: Author's own calculation; Note: * indicates 5% at significance level; ln denotes natural log of the variable.*

The determination of the optimal lag length for conducting the ADF test for each variable relies on the Akaike Information Criterion. Upon assessing the statistical significance of the test statistics, it emerges that, in their original form, the null hypothesis positing the existence of a unit root can be rejected for REER, INT, and CPI.

This suggests that REER, INT, and CPI exhibit stationarity in their original form, denoted as I (0). Conversely, all other variables demonstrate stationarity solely through first differences, signifying they are integrated of order 1 or I (1). Given this mix of I (0) and I (1) characteristics among the macroeconomic variables, the bounds test approach to the ARDL Model is employed to explore potential cointegration relationships among them.

TABLE 2. ARDL Approach (Bounds Test) to Co-integration

Model	F- Statistics	Decision
F_{REER} = LnREER, LnINT, LnCPI, LnIMP, LnEXP, LnMS	4.2167905	Co-integration

Critical Values

Significance level	Lower Bound I (0)	Upper Bound I (1)
1%	3.06	4.15
2.5%	2.7	3.73
5%	2.39	3.38
10%	2.08	3

Variable	Coefficient	Std. Error	t- Statistics	Prob.
LnCPI	-0.347490	0.117458	-2.958427	0.0104*
LnEXP	0.307045	0.104142	-2.948335	0.0106*
LnIMP	-0.023255	0.093096	-0.249797	0.8064
LnINT	0.070263	0.030634	2.293602	0.0378*
LnMS	-0.523585	0.107916	4.851779	0.0003*
C	1.061954	0.189561	5.602181	0.0001*

EC = LREER - (-0.3475*LCPI + 0.3070*LEXP - 0.0233*LIMP + 0.0703*LINT - 0.5236*LMS + 1.0620)

Source: *Author's own calculation;* ***Note:*** *Lag Length is chosen on the basis of AIC; * denotes 5% level of statistical significance*

Selected through the Akaike Information Criterion (AIC), the ARDL model (2, 2, 1, 2, 1, 2) is formulated in logarithmic form according to equation 3. This model configuration allocates lags as follows: two for the REER, two for the CPI, one for Exports (EXP), two for Imports (IMP), one for the Call Rate (INT), and two for the Broad Money Supply (MS).

The ARDL (2, 2, 1, 2, 1, 2) model furnishes long-run coefficients, as outlined in Table 4. Upon conducting the bounds test, the computed F-statistic of 4.2167905 surpasses the critical upper bound value of 3.38 at a 5% significance level, as posited by Pesaran et al. (2001). This outcome prompts the denial of the null hypothesis of no cointegration, suggesting the presence of a long-term equilibrium connection involving the Real Effective Exchange Rate (REER).and the independent variables: CPI, Call Rate (INT), Imports (IMP), Exports (EXP), and Broad Money Supply (MS) throughout the study period.

The inverse long run relation noted between fluctuations in the CPI with the REER corresponds to established principles of exchange rate theory. According to this framework, heightened inflation rates typically lead to the devaluation of a nation's currency, a phenomenon substantiated by prior empirical investigations (e.g., Dornbusch, 1976; Bilson, 1978). The adverse coefficient attributed to CPI mirrors the outcomes documented by Haile and Soligo (2015), who observed a comparable adverse effect of inflation on the RER in their examination of Ethiopia.

Whereas, the positive coefficient of export indicates that an increment in merchandise exports is related with an appreciation of the REER in India. This positive relationship can be attributed to the potential inflow of foreign exchange earnings from exports, which can strengthen the domestic currency's value.

The lack of notable impact stemming from alterations in imports on the REER may stem from various factors, such as importer's practices in hedging against exchange rate fluctuations or the relative magnitude of import volumes compared to other macroeconomic factors (Bussière, 2012)., even though it can be observed from the result that import is showing an inverse relation with the REER, which aligns with the general economic theory that if imports increase, it typically leads to an increase in the demand for foreign currency to pay for the higher volume of imports. This increased demand for foreign currency can cause the domestic currency to depreciate in the foreign exchange market, resulting in a decrease in the REER.

The long run relationship observed between the call rate and the REER aligns with the interest rate parity theory, which suggests that elevated interest rates draw in foreign investment, resulting in the appreciation of the local currency (Frankel, 1979; Engel, 1996). These finds support the findings of Inoue and Hamori (2009), who documented a similar positive link between interest rates and the REER in their examination of East Asian nations.

The negative coefficient for the money supply variable suggests that an increment in money supply tends to weaken the REER. An increased money supply leads to higher inflationary pressures in the economy, this increase in inflation leading to a depreciation of the currency in the foreign exchange market. Consequently, there may be a decrease in the REER as the currency becomes less valuable relative to other currencies, affecting the current account balance by potentially worsening it due to decreased competitiveness in international trade and increased import costs. This observation aligns with the conclusions drawn by Uddin et al. (2013). The calculated error correction term (ECT) mirrors the adjustment mechanism responsible for maintaining long-term equilibrium.

TABLE 3. Estimation Results of ECM Regression

Variable	Coefficient	Std. Error	t- Statistics	Prob.
D (LREER (-1))	0.950577	0.211465	4.495201	0.0005
D(LCPI)	0.212908	0.280364	0.759397	0.4602
D (LCPI (-1))	0.850222	0.272255	3.122888	0.0075
D(LEXP)	-0.250180	0.096660	-2.588247	0.0215
D(LIMP)	0.128533	0.076756	1.674564	0.1162
D (LIMP (-1))	0.162580	0.047336	3.434578	0.0040
D(LINT)	0.042437	0.021443	1.979080	0.0678
D(LMS)	1.410667	0.364838	3.866552	0.0017
D (LMS (-1))	-1.713660	0.416374	-4.115677	0.0010
CointEq (-1) *	-1.884025	0.290132	-6.493682	0.0000
R-squared	0.746283		Mean dependent var	0.000900
Adjusted R-squared	0.632110		S.D. dependent var	0.018441
S.E. of regression	0.011185		Akaike info criterion	-5.887292
Sum squared resid	0.002502		Schwarz criterion	-5.420226
Log likelihood	98.30938		Hannan-Quinn	-5.737874
Durbin-Watson stat	2.485517		criterion	

Source: Author's own calculation

The Error Correction Representation within the ARDL model unveils intricate short-term dynamics. Notably, the negative coefficient attached to the interaction term (CointEq) signals robust corrective forces, indicating a gradual realignment towards long-term equilibrium. Impressively, the error correction term's substantial magnitude implies nearly complete rectification of around 188% of short-term imbalances within the current

period, showcasing the Real Effective Exchange Rate's responsiveness to shifts in factors like inflation, interest rates, trade volumes, and money circulation.

A commendable R-squared value of 0.746283 underscores the model's commendable alignment with empirical data, echoing findings from Bhattacharya (2012). The precision and goodness-of-fit reflected by the standard error of regression and sum squared residual echo conclusions drawn by Kemme and Teng (2000) and Goh et al. (2017).

The log likelihood value attests to a favourable concordance between model predictions and actual observations, akin to results outlined by Takhtamanova (2010). Additionally, the Durbin-Watson statistic points towards negligible autocorrelation. Lastly, the reported AIC, SC, and HQ metrics highlight an optimal balance between model fit and complexity.

TABLE 4. Results of Residual Diagnostic Tests

Diagnostic Test	Jarque-Bera Test		Lagrange Multiplier Test		Bruesch-Pagan-Godfrey Test	
Nill Hypothesis (H₀)	Normality (Normally Distributed Residuals)		Zero-serial correlation		Homoskedasticity	
ARDL Models						
	F-Statistics	P-value	F-Statistics	P-value	F-Statistics	P-value
(2, 2, 1, 2, 1, 2)	5.346679	0.069021	2.199617	0.1535	0.495317	0.9053

Source: Author's own calculation

CHART 2: CUSUMSQ Test Results for ARDL (2,2,1,2,1,2) Model
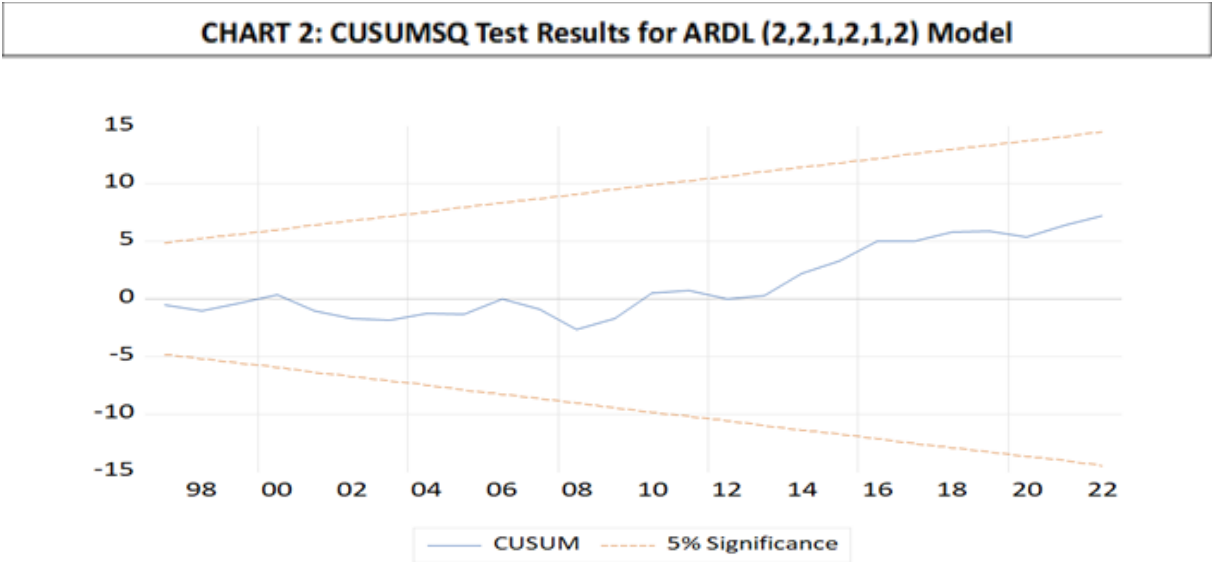
Source: Author's own construction

The diagnostic assessments depicted in table 4 affirm the foundational assumptions and residual reliability of the ARDL model. Specifically, the Jarque-Bera test attests to the normal distribution of residuals, while the Lagrange Multiplier test dismisses the presence of serial correlation, and the Breusch-Pagan-Godfrey test underscores the homogeneity of residuals. These outcomes, coupled with the residual plot illustrated in chart 2, exhibiting fluctuations around the zero-mark devoid of discernible patterns, collectively support the argument that the ARDL model adheres to crucial criteria for trustworthy estimation and inference.

5. CONCLUSION & POLICY IMPLICATIONS

The study uncovers a long run significant relationship between the REER and crucial macroeconomic factors, including the CPI, Call Rate (INT), Imports (IMP), Exports (EXP), and Broad Money Supply (MS).

Firstly, focusing on the two major components of current account balance which are highly exposed to exchange rate movements, it was found that there exists positive significant long run relation between India's exports and REER. While India's imports do not exhibit any significant relationship with REER. This is in conformity with the accepted economic theory that depreciation in the value of a nation's currency makes its exports more competitive and thereby has favourable impact on credit side of current account.

Further, the study found inverse relation found between CPI with REER adheres to traditional exchange rate principles, indicating that in the studied period, India's elevated inflation devalues the nation's currency. This is in line with the economic principles of causation as increasing inflation makes exports less competitive and imports more attractive. Thus, high inflation is not just detrimental to country's internal price balance but also detrimental to country's external balance.

Additionally, positive connection between the call rate and REER was observed and which aligns with interest rate parity theory where heightened interest rates entice foreign capital inflows, prompting currency appreciation. This appreciation can make exports costlier and imports cheaper, potentially worsening the trade balance.

Lastly, the negative coefficient for the money supply variable suggests that an increase in money supply tends to weaken the REER as enhanced money supply fuels inflationary pressures in Indian economy signal more demand of commodities causing an increase in the import which will adversely affect the trade balance of the country, eventually result in trade deficit. These theoretically justification demonstrate the crucial relationship between inflation, interest rates, money supply, and the REER, ultimately shaping a country's trade and current account balances.

The short-term dynamics, as indicated by the Error Correction Representation, underscore the REER's responsiveness to deviations from equilibrium, with roughly 188% of disequilibrium being rectified annually. The model's diagnostic tests and goodness-of-fit metrics, such as R-squared, standard error of regression, and log likelihood enhancing confidence in the estimations and deductions.

The detrimental effect of inflation on the Real Effective Exchange Rate (REER) emphasizes the imperative for robust inflation management strategies. Upholding price stability via monetary policy adjustments, including interest rate adjustment and money supply management, holds potential to stabilize exchange rates and support export competitiveness. With exports and REER exhibiting a positive relationship, policymakers ought to prioritize export expansion through trade facilitation, export incentives, and enhancing the business climate. Broadening the export portfolio and venturing into untapped markets can further fortify India's export capabilities. The positive association between interest rates and REER suggests that well-judged interest rate policies can attract foreign investments and support currency appreciation, although with careful considerations for domestic investment and economic expansion. The negative impact of money supply on REER underscores the importance of aligning monetary policies with exchange rate objectives. Expansionary monetary measures should be executed cautiously, considering their potential consequence on inflation, interest rates, and currency values. While the study did not uncover a substantial influence of imports on REER, it remains crucial to monitor import volumes and enact policies fostering import substitution to alleviate trade deficits and mitigate downward pressure on the domestic currency. To mitigate adverse effects of exchange rate fluctuations on businesses and importers, policymakers should advocate for hedging strategies adoption and furnish suitable risk management tools and infrastructure.

In future inquiries, the inclusion of additional variables like foreign direct investment (FDI), external debt, and terms of trade, could yield a more holistic view of exchange rate determinants. While our study presumed linear relationships, prior investigations have underscored the potential for non-linear dynamics in exchange rate modelling. Incorporating non-linear methodologies may offer a more precise depiction of the underlying connections. Exploring sector-specific analyses could furnish valuable insights into how exchange rate fluctuations affect different industries, thereby facilitating more targeted policy interventions. Additionally, expanding the scope of analysis to encompass regional and cross-country comparisons, could deepen our understanding of exchange rate dynamics and their drivers across diverse economic landscapes.

By incorporating these suggestions and leveraging the findings of this study, policymakers can develop more robust and adaptive strategies for managing exchange rates, fostering export competitiveness, and promoting overall macroeconomic stability in the Indian economy.

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FROM BY-PRODUCTS TO BIOFUEL: CATALYZING THE CBG REVOLUTION IN SUGAR MILLS

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ABSTRACT
India's energy transition hinges on innovative, sustainable solutions to reduce dependence on fossil fuels and curb carbon emissions. Compressed Biogas (CBG), produced from organic and agro-industrial waste, has emerged as a promising green energy alternative. In this context, the Haryana State Federation of Cooperative Sugar Mills is evaluating the establishment of CBG plants using sugar mill by-products like press mud and bagasse. This initiative aligns with India's renewable energy targets and has the potential to deliver economic, environmental, and social benefits. This paper explores the feasibility, challenges, and strategic policy landscape shaping the CBG revolution in Haryana.

Keywords: *Compressed Biogas (CBG), Sugar Mills, Renewable Energy, Bagasse, Press Mud, Bio-Energy Policy, Waste-to-Energy, Sustainable Transportation, Circular Economy, Haryana, SATAT.*

INTRODUCTION
India's commitment to achieving net-zero carbon emissions by 2070 and increasing the renewable share in energy mix to 50% by 2030 necessitates the development of diverse clean energy solutions. Among them, Compressed Biogas (CBG) offers immense promise, particularly in rural and agro-industrial sectors. CBG is generated through anaerobic digestion of organic material, offering a clean substitute to natural gas. Recognizing this potential, the Government of India launched the SATAT (Sustainable Alternative Towards Affordable Transportation) initiative in 2018 to promote 5,000 CBG plants across the country.

As of October 2024, India's renewable energy capacity reached 203.18 GW, with solar contributing 92.12 GW, wind 47.72 GW, hydro 46.93 GW, and biopower—including biomass and biogas—at 11.32 GW (MNRE, 2024). The SATAT vision aims to produce 15 million metric tons of CBG annually, roughly 40% of India's current compressed natural gas (CNG) consumption.

HARYANA'S SUGAR MILLS: A VALUABLE FEEDSTOCK BASE
Haryana houses ten cooperative sugar mills with crushing capacities ranging from 1,750 TCD in Jind to 5,000 TCD in Panipat and Shahabad. Between 2021 and 2024, these mills processed an average of 42 lakh tons of sugarcane annually, yielding around 1.28 lakh tons of press mud and 77,117 tons of bagasse—key substrates for CBG production. These residues represent an annual CBG production potential of approximately 12,837 tons, including 5,126 tons from press mud and 7,711 tons from bagasse.

THE CBG PRODUCTION PROCESS
CBG is produced via anaerobic digestion, a microbial process that decomposes organic matter in the absence of oxygen, yielding biogas predominantly composed of methane and carbon dioxide. The biogas is subsequently purified and compressed to CBG quality, meeting IS 16087:2016 standards for automotive and industrial use. CBG's energy content and combustion characteristics are similar to CNG, making it a compatible green alternative fuel.

STRATEGIC ADVANTAGES AND ECONOMIC VIABILITY
The installation of CBG plants offers multiple advantages. With an average payback period of 2–3 years, these plants generate revenue through gas sales and by-products like fermented organic manure, eligible for government subsidies under the Fertilizer Control Order. CBG use in sugar mill operations can reduce conventional fuel dependency, minimize energy costs, and foster circular economy practices.

In addition, the production of high-quality organic manure supports sustainable agriculture by enhancing soil fertility and reducing chemical input use. CBG plants also contribute to rural employment, waste valorization, and energy self-reliance.

SITE SELECTION AND PROJECT DESIGN IN HARYANA
Ideal CBG plant locations should prioritize proximity to feedstock sources—sugar mills—and accessibility to agricultural lands for cultivating supplementary biomass like Napier grass. Regions such as Panipat, Karnal, and Sonipat are suitable due to their infrastructure, road connectivity, and clustering potential. Recommended plant capacities range from 5–10 TPD for standalone units to 25–50 TPD for clusters. Land requirements vary from 8–10 acres for medium-sized to 15–20 acres for large plants.

Haryana's Bio-Energy Policy 2018 encourages renewable energy ventures through incentives like Panchayat land leasing at concessional rates, 100% exemption on registration charges, and facilitation of bank financing.

CHALLENGES HINDERING CBG SECTOR GROWTH

Despite the promising outlook, several barriers challenge CBG plant scalability. Chief among them is the inconsistent supply of segregated feedstock. Without proper source segregation, processing efficiency suffers. Moreover, feedstock price volatility adds financial uncertainty.

The lack of fixed pricing mechanisms for by-products like biogas fertilizer impairs profitability. Regulatory delays, multi-agency clearance requirements, and absence of a single-window system hinder investor confidence. Furthermore, many sugar mills face logistical constraints due to inadequate road networks and the limited spread of City Gas Distribution (CGD) infrastructure.

Banks, especially in the private sector, remain hesitant to fund CBG ventures due to perceived risks and the capital-intensive nature of the projects.

POLICY RECOMMENDATIONS AND FUTURE OUTLOOK

To unlock the sector's potential, India must implement coordinated policy reforms. These include:

- Streamlining regulatory clearances through a single-window system;
- Promoting source-segregated waste collection systems;
- Ensuring Minimum Support Prices (MSP) or market mechanisms for CBG by-products;
- Expanding CGD networks to accommodate rural gas consumption;
- Creating risk-sharing or credit guarantee facilities for banks funding green energy projects.

By addressing these systemic challenges, Haryana can pioneer a scalable CBG model with nationwide implications.

CONCLUSION

The adoption of CBG technology in Haryana's cooperative sugar mills represents a pivotal step toward India's sustainable energy future. By converting agro-industrial waste into clean energy, these projects offer an innovative solution for waste management, rural employment, and carbon mitigation. With appropriate policy support, financial facilitation, and stakeholder collaboration, Haryana can emerge as a model state in CBG-based circular energy economy.

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STUDENT SATISFACTION SURVEY ON TEACHING LEARNING PROCESS IN SELECTED KALYAN –DOMBIVLI COLLEGES

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ABSTRACT

Today student satisfaction has never been considered as an important issue by educational authorities further it is also not considered as a matter of survival by higher education institutions. Hence the impact of educational services provided by colleges on the satisfaction level of its students has largely remained unexplored.

This study measures the level of student satisfaction in teaching & learning. The observational study was conducted at colleges in Kalyan – Dombivli area. This study was undertaken in November 2024. General survey is conducted with the help of well-structured questionnaire through random sampling of 90 undergraduate students of commerce faculty. It also suggests few measures to improve service quality to increase student satisfaction.

Keywords: *Students' Satisfaction, higher education, teaching & learning.*

INTRODUCTION:

Education is backbone of economic growth. A college is an institution of higher education which grants academic degrees in a variety of subjects at all levels. Students are customers of college. Student satisfaction plays a crucial role for the success of a college. Measuring satisfaction provides an indication of how successful the college is at providing products and/or services to the marketplace.

According to empirical study students who have positive view of college are better motivated and achieve more than their ability level as compared to the students who are not satisfied with their college education. Students hold valuable insight into the success of their college operations and it is essential that their opinions be considered in developing, implementing, and sustaining a high-quality education for current and future generations of students.

The measurement of student satisfaction can be useful to help educational authorities to identify their strengths and to determine areas for improvement. A satisfaction rating is beyond teaching assessments. It also includes broader aspects of the student learning experience.

REVIEW OF LITERATURE:

Assessing quality of higher education has always been challenge. There are a several definitions regarding to the concept of satisfaction in the services and marketing literature. It is the quality principle that measures student perceptions and achievement as the most important predictors of lifelong learning.

Huang viewed that Students are the "customers" of a university".

But Waugh (2002) suggested that viewing students as customers created some tensions in universities seem to be too aligned with business.

According to Hill (From service marketing literature) customers are thought to be satisfied when the quality of service they receive matches or exceeds their expectations.

According to Mark, in higher education, student satisfaction occurs when perceived performance meets or exceeds the students' expectations

According to Mukhtar, U., Anwar, S., Ahmed, U. & Baloch, student satisfaction can be defined as a function of relative level of experiences and perceived performance about educational service

According to Wilkins & Balakrishnan identified quality of lecturers, quality of physical facilities and effective use of technology as key determinant factors of student satisfaction.

According to Wright and O'Neill, as students evaluate service quality, they typically cannot help but compare the performance they experience with the performance they expected

PROBLEM STATEMENT:

Teachers play pivotal role in higher education. When proficient teachers offer quality education then learning outcomes of students will be good. Hence student satisfaction survey is an important component for up

gradation higher education. There are many commerce colleges in Kalyan - Dombivli area which are affiliated to Mumbai University. In most of the institutions student satisfaction has never been considered as an important issue by educational authorities further it is also not considered as a matter of survival by higher education institutions. Hence the impact of educational services provided by colleges on its students' satisfaction has largely remained unknown.

OBJECTIVES OF THE STUDY:

1. To assess students' satisfaction toward teaching & learning.

2. To identify the factors that contributes to student satisfaction.

3. To suggest measures to serve the students more effectively in future.

LIMITATION OF THE STUDY:

1. This study is only limited to commerce colleges in Kalyan –Dombivli Area.

2. Some respondents failed to give appropriate answers. Some questionnaires were returned incomplete and these were not considered for analysis.

3. The sample size of the study is limited to 90 not the entire student community of the colleges in Kalyan-Dombivli area. Hence it needs further validation before it can be accepted on a larger scale.

RESEARCH METHODOLOGY:

Research Methodology is the process of systematic investigation of any management problem it deals with research design, data collection method, sampling plan, sampling method. Research means a scientific and systematic search for pertinent information on a specific topic. Methodology is defined as the study of methods by which we gain knowledge; it deals with cognitive processes imposed on research to the problem arising from the nature of its subject matter.

The research Methodology was descriptive and analytical method of research. The study is of indicative in nature. The method of analysis was conducted by having application of averages.

Universe	Kalyan- Dombivli Area
Sample size	90 respondents from commerce colleges in Kalyan- Dombivli Region.
Sampling method	Convenience & Snowball Sampling
Data source	Primary and Secondary Data
Method of data collection	Pre-structured questionnaire
Research Approach	Survey
Tools to analyze data	Averages & percentages

Table 1: Analysis of Responses of Students Questionnaire

Sr. No	Statements	S.Agree	Agree	N.AgreeN. Disagree	Disagree	Disagree
1	Teachers & Admin staff are polite & courteous	9(10)	12(13.33)	15(16.67)	32(35.55)	22(24.44)
2	Full syllabus is covered in the class.	11(12.22)	13(14.44)	13(14.44)	33(36.67)	20(22.22)
3	Classes are well prepared & organized	15(16.67)	18(20)	13(14.44)	26(28.89)	18(20)
4	Teachers have good teaching & communication skills.	11(12.22)	14(15.56)	18(20)	27(30)	20(22.22)
5	Teachers illustrate the concepts through examples & illustration	8(8.89)	16(17.78)	18(20)	32(35.55)	16(17.78)
6	Use of student centric methods	12(13.33)	13(14.44)	24(26.67)	24(26.67)	17(18.89)
7	Takes active interest in promoting internship, student exchange, field visit opportunities for students	2(2.22)	4(4.44)	12(13.33)	48(53.34)	24(26.67)
8	Use ICT tools such as LCD projector, Multimedia, etc. while teaching.	14(15.56)	12(13.33)	9(10)	32(35.56)	23(25.55)

9	Efforts to inculcate soft skills, life skills and employability	13(14.44)	6(6.67)	18(20)	29(32.22)	24(26.67)
10	Encouragement to participate in extracurricular activities	16(17.78)	18(20)	7(7.78)	28(31.11)	21(23.33)
11	Clear student complaint & grievance process	9(10)	10(11.11)	16(17.78)	32(35.56)	23(25.55)
12	There good rapport between teachers & students.	14(15.56)	12(13.33)	9(10)	37(41.11)	18(20)
13	I would recommend this college to others	7(7.78)	19(21.11)	6(6.67)	37(41.11)	21(23.33)

Source: Compiled from the primary data

Analysis & Interpretation:

Table 2: Gender based distribution

Gender	Frequency	Percentage
Male	37	41.11
Female	53	58.89

Figure:1
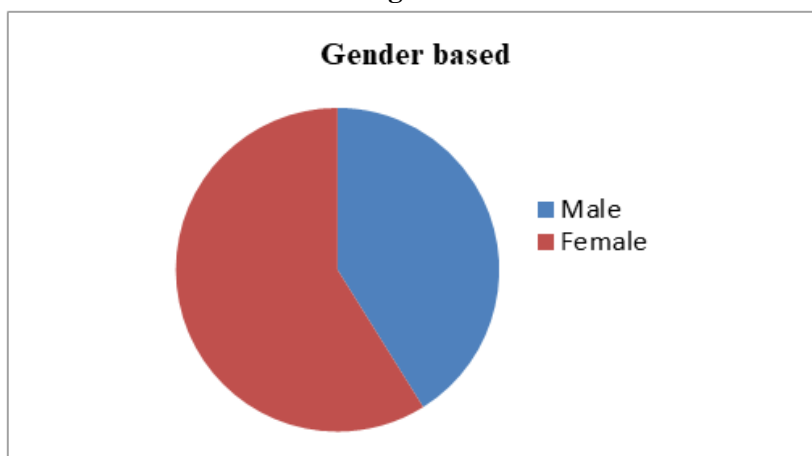
Table3: Class based distribution

Class	Frequency	Percentage
F.Y.B.Com.	32	35.56
S.Y.B.Com.	14	15.56
T.Y.B.Com.	44	48.88

Figure: 2
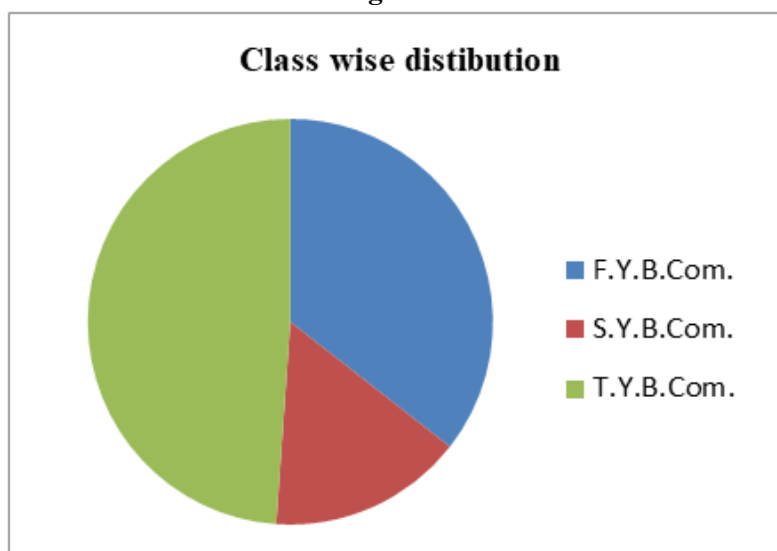
The survey was carried out to assess teaching learning quality at colleges in Kalyan –Dombivli area. The finding indicates that student in general had negative impression about teaching & learning in such colleges.

1. In this study 41.11% respondents are male and 58.89% respondents are female.

2. In this study 35.56% respondents are from first year B.Com; 15.56 respondents are from second year B.Com. and 48.88 % respondents are from third year B.Com.

3. Out of 90 respondent majority of students' i.e.,59.99% opined that teaching & admin staff are not polite and courteous.

4. Out of 90 respondent majority of students' i.e., 58.89% informed that full syllabus is not completed in classes.

5. Out of 90 respondent majority of students' i.e., 48.89% viewed that classes are not properly prepared & organized whereas 14.44 % students are neutral.

6. Out of 90 respondent majority of students' i.e., 52.22% put forward that teachers do not have good teaching & communication skills.

7. Out of 90 respondent majority of students' i.e., 53.33 % expressed that teachers do not illustrate the concepts through examples & graphic presentation.

8. Out of 90 respondent majority of students' i.e., 45.56 % viewed that student centric method of teaching is not observed whereas 26.67% students are neutral in this issue.

9. Out of 90 respondent majority of students' i.e., 80.01% viewed that teachers do not take any initiative & interest in promoting internship, student exchange program and field visits for them.

10. Out of 90 respondent majority of students' i.e., 61.11% said that ICT tools are not used for teaching in the classrooms.

11. Out of 90 respondent majority of students' i.e., 58.89% informed that no special efforts are taken for developing soft skills, life skills & employability skills.

12. Out of 90 respondent majority of students' i.e., 54.44% stated that there is no encouragement by teachers to participate in extracurricular activities.

13. Out of 90 respondent majority of students' i.e., 71.11% believed that they do not have clarity regarding complaint & grievance handling procedure.

14. Out of 90 respondent majority of students' i.e., 61.11% declared that there is no good rapport between teachers & students. They were unable to get personal attention from teachers in the class due to high teacher student ratio.

15. Out of 90 respondent majority of students' i.e., 64.44 % opined that they would not like to recommend their college to others.

SUGGESTIONS:

Universities and colleges world-wide are now competing for students both nationally and internationally. To attract and retain students, efforts must be taken to increase student satisfaction & reduce their dissatisfaction. Hence all academic services should be excellent.

1. Every college must conduct regular annual survey on student satisfaction for all undergraduates & master degree students and accordingly service offering should be adapted.

2. The survey should focus on many factors that contribute to student satisfaction such as courtesy of staff, syllabus coverage, teaching skills, student centric methods etc.

3. Introduce interactive teaching techniques like case studies, role-plays, and group discussions & also incorporate digital tools like smart boards, interactive presentations for better engagement of the students. Teachers should be trained to use smart classrooms effectively to upgrade their performance.

4. Conduct regular student-faculty meetings to address academic and non-academic issues. Also provide feedback systems that allow students to anonymously express their concerns.

5. Align course content with industry trends to improve relevance also integrate practical exposure such as internships, workshops, and industrial visits.

6. Encourage & promote student centric teaching methods & teaching with sense of humor, mnemonic words etc. Invest in e-learning platforms, learning management systems (LMS), and virtual labs multimedia.

7. Introduce more skill based short courses in the college for increasing employability of the students & provide digital literacy programs to enhance students' tech skills.

8. Develop mentorship programs to create stronger faculty-student bonding. Also establish dedicated support centers for career guidance and placement assistance

CONCLUSION:

Overall results reveal that large number of students is dissatisfied with the present teaching learning at the colleges in Kalyan- Dombivli area. To achieve Students satisfaction, universities & colleges should measure it because according to Peter Drucker, you cannot manage something that you cannot measure it. This study highlights that effective teaching methods, supportive faculty, and improved infrastructure are key to enhancing student satisfaction in Kalyan-Dombivli colleges. By adopting interactive learning strategies, strengthening feedback mechanisms, and integrating modern technology, colleges can create a more engaging and fulfilling academic environment. Implementing these improvements will help colleges better meet student expectations and enhance overall educational outcomes.

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A STUDY ON GRAPH AND HYPERGRAPH NEURAL NETWORK MODELS FOR EEG-BASED DEPRESSION DETECTION

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ABSTRACT
Electroencephalography (EEG) provides a promising non-invasive modality for depression diagnosis by capturing brain activity patterns. However, conventional machine learning and deep learning techniques struggle to model the complex spatio-temporal and higher-order inter-channel relationships present in EEG signals. This review explores recent advancements in graph and hypergraph neural network architectures— particularly Graph Convolutional Networks (GCNs), Hypergraph Convolutional Networks (HGCNs), and spatio-temporal fusion methods—for EEG-based depression detection. The study systematically analyzes existing approaches and identifies key research limitations, including oversimplified graph construction, inadequate integration of spatial-temporal features, poor generalizability due to inter-subject variability, and redundancy in feature representation. Emphasis is placed on the need for unified, adaptive models that can effectively capture individual-specific brain dynamics and higher-order channel interactions. This work provides a critical synthesis of the current landscape and outlines future directions for developing robust and interpretable EEG-based diagnostic tools for mental health assessment.

Keywords: EEG-based Depression Detection, Graph Neural Networks, Hypergraph Convolution, Spatio-Temporal Modeling, Mental Health Diagnostics.

1. INTRODUCTION

Depression is a multifaceted and widespread mental health disorder characterized by persistent feelings of sadness, loss of interest, and impaired emotional, cognitive, and behavioral functioning. It affects millions globally and is recognized as a leading cause of disability by the World Health Organization (WHO). Beyond its psychological symptoms, depression is often accompanied by neurobiological alterations, including disrupted brain connectivity and imbalanced neurotransmitter activity. The complexity and heterogeneity of depressive symptoms make early detection and accurate diagnosis particularly challenging [1-2].

Traditional diagnostic methods primarily rely on subjective tools such as clinical interviews, behavioral observations, and self-report questionnaires like the Beck Depression Inventory (BDI). While these tools are widely used, they are susceptible to biases, underreporting, and misinterpretation, often leading to delayed diagnosis or inappropriate treatment plans.In this context, Electroencephalography (EEG) has emerged as a promising neuroimaging modality for the objective assessment of depression. EEG records electrical activity generated by neuronal firing across different regions of the cerebral cortex, offering a non-invasive, cost-effective, and temporally precise window into brain function. Unlike other imaging techniques such as fMRI or PET, EEG provides real-time insights into the dynamic interplay of neural networks.Importantly, research has shown that individuals with Major Depressive Disorder (MDD) often exhibit abnormal EEG patterns, such as altered alpha asymmetry, decreased coherence, and disrupted functional connectivity [3-4]. These electrophysiological markers highlight the potential of EEG as a biomarker for detecting depressive states.Recent advances in artificial intelligence—particularly in machine learning and deep learning—have revolutionized the analysis of EEG signals. However, conventional models frequently overlook the topological structure and temporal evolution inherent in EEG data. This has led to growing interest in graph-based approaches, which model EEG channels as nodes and their interdependencies as edges, allowing for a more nuanced understanding of brain network dynamics in depression [5].

This review paper aims to examine recent developments in EEG-based depression detection, focusing on spatio-temporal and graph-based deep learning methods. We analyze the methodologies, highlight current challenges, and identify research gaps to guide future work in building more robust and interpretable models for mental health diagnostics.
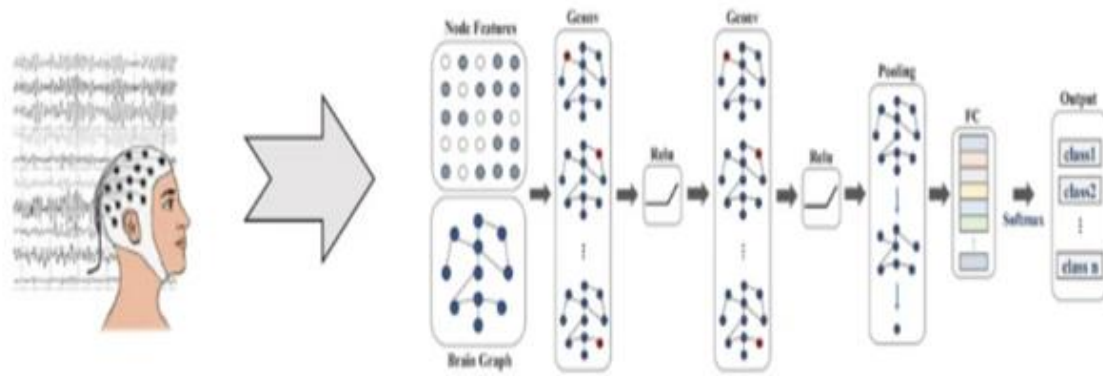
Fig.1 Graph convolution network-based EEG signal analysis

2. RELATED WORK

In recent years, the application of deep learning to analyse EEG-based brain activity has shown significant potential in the automated detection of depression. The literature on EEG-based depression detection broadly falls into two categories: conventional machine learning (ML) approaches and deep learning (DL)-based methods.

Machine Learning (ML)-Based Approaches: Traditional ML techniques typically rely on handcrafted features extracted from EEG signals. These features include statistical characteristics, power spectral densities, alpha asymmetry, signal entropy, and brain laterality. In many studies, channel-wise EEG data are processed using techniques like spectrum analysis, functional connectivity measures, and network-based features to train classifiers such as Support Vector Machines (SVM), k-Nearest Neighbour (KNN), and Random Forests. While effective to an extent, these methods often fail to generalize due to variability in EEG signals and limited ability to model spatial or temporal dynamics.

Deep Learning (DL)-Based Approaches: To overcome the limitations of manual feature extraction, DL models such as Convolutional Neural Networks (CNNs), Long Short-Term Memory (LSTM) networks, and their hybrids (e.g., CNN-LSTM, Deep Hybrid Neural Networks) have been widely adopted. CNNs are primarily employed to learn spatial features from EEG signal maps, treating them as 2D inputs, whereas LSTMs and GRUs (Gated Recurrent Units) model temporal dependencies in the sequential EEG data. For example, studies such as [5], [6], and [7] use CNNs to extract frequency-based features like Theta, Alpha, and Beta waves, followed by LSTM or GRU networks for temporal classification. While these architectures improve upon traditional ML methods, they often treat spatial and temporal features in isolation, missing out on the rich inter-channel interactions within EEG signals.

Graph-Based Deep Learning Models: More recently, researchers have explored the graph-based nature of EEG data, treating EEG channels as nodes and defining edges based on functional or spatial relationships. Graph Convolutional Networks (GCNs) and their variants have been used to capture this topological structure. In [8], differential entropy features were used to generate adjacency matrices using Pearson correlation. Other works, such as [9] and [10], employ attention mechanisms or phase-locking values to construct graphs, but these often rely on predefined, static connectivity patterns that fail to reflect the dynamic nature of brain activity.

Some models like [11] use Euclidean distance between electrodes to define channel relationships, which simplifies the spatial structure but disregards the strength or context of functional interactions. In [12], self-attention mechanisms were introduced to rank channels by importance, but they lacked the ability to capture hierarchical or inter-layer dependencies. These approaches, though innovative, often struggle to model the temporal evolution of brain networks or adapt to individual variability among subjects.

Spatio-Temporal Fusion Limitations: Despite advancements, a persistent challenge in EEG-based depression detection is the integration of spatial and temporal information. Most studies extract spatial features using CNNs and process temporal dependencies separately using RNNs or GRUs, as seen in works like [13]. However, these methods fall short in modelling how inter-channel relationships evolve over time. The majority of models process EEG data as independent frames or sequences, which does not fully leverage the spatio-temporal richness inherent in brain signals.

Graph Spatio-Temporal Models and Limitations: To better capture brain connectivity, spatio-temporal graph-based models have emerged. These represent EEG signals as dynamic graphs where nodes (channels) evolve over time, and edges (connectivity) reflect changing relationships. Yet, many of these models rely on

static, pre-computed adjacency matrices and do not adapt to the unique patterns of each individual. Moreover, they often represent only pairwise interactions and fail to model higher-order connections that may be critical in identifying depressive symptoms.

Models such as GCNs [11-13], Self-Attention GNNs [13], and pooling-based networks have made strides in learning local-global representations. However, these approaches still lack the ability to model subject-specific variations and higher-order channel interactions simultaneously. This underlines the need for unified frameworks that can integrate channel-level spatial relations with subject-level temporal dynamics.

To better illustrate the evolution of techniques used in EEG-based depression detection, Table 1 provides a concise comparison of traditional Machine Learning (ML), Deep Learning (DL), Graph Convolutional Networks (GCNs), and Hypergraph Convolutional Networks (HGCNs). The comparison highlights their methodological foundations, core strengths, and critical limitations.

Table 1. Comparative Summary of Key EEG-Based Depression Detection Methods

Method	Approach	Strengths	Limitations
Machine Learning (ML)	Handcrafted features (e.g., entropy, PSD, alpha asymmetry); classifiers like SVM, KNN, RF	Simple, interpretable, requires small datasets	Limited spatial-temporal modeling, low generalizability
Deep Learning (DL)	CNNs for spatial patterns; LSTM/GRU for temporal patterns; hybrids (e.g., CNN-LSTM)	Learns features automatically; better than ML in accuracy	Treats spatial and temporal aspects separately; ignores topological structure
Graph Convolutional Networks (GCNs)	EEG channels as nodes; edges from correlations or distances; static adjacency matrix	Captures topological/channel relationships; local-global modeling	Fixed connectivity; ignores higher-order/channel redundancy
Hypergraph Convolutional Networks (HGCNs)	Uses hyperedges for modeling multi-channel dependencies	Models higher-order relationships; better spatial info	Computationally complex; lacks dynamic adaptation over time

3. RESEARCH GAPS

Despite the notable progress made in EEG-based depression detection, several critical research gaps persist in the current body of work:

1. **Limited Representation of Higher-Order Brain Connectivity:** Most existing models utilize pairwise connections to represent relationships between EEG channels. However, such binary interactions fail to capture the complex and higher-order functional dependencies inherent in brain networks. The brain's connectivity structure is inherently multi-dimensional, requiring models that can go beyond simplistic adjacency matrices to better reflect neural dynamics.

2. **Inadequate Fusion of Spatial and Temporal Dependencies:** While many studies effectively model spatial (e.g., using CNNs or GCNs) and temporal (e.g., using LSTM or GRU) patterns independently, there is a lack of unified frameworks that can simultaneously and effectively fuse both types of information. This leads to sub-optimal modeling of how neural signals evolve over time within and across different brain regions.

3. **Oversimplified Graph Construction Techniques:** A large number of graph-based methods construct adjacency matrices using fixed metrics like Euclidean distance between electrode positions. This approach overlooks the fact that functionally meaningful brain interactions may not always correspond to spatial proximity. Ignoring the strength and context of these inter-channel interactions weakens the discriminative power of such models.

4. **Neglect of Inter-Subject Variability:** Existing models often represent EEG signals using 3D tensors or static structures that fail to consider variations in brain activity across different individuals. As a result, the learned representations may not generalize well across populations, limiting the clinical applicability of these methods.

5. **Redundancy in Brain Network Modeling:** Many approaches suffer from including redundant channel-channel relationships, especially among spatially adjacent electrodes that capture similar signals. This leads to inflated and noisy feature spaces, making it difficult for models to focus on informative patterns relevant to depression detection. Although attention and pooling mechanisms have been proposed to mitigate this issue, a more effective solution would involve explicit redundancy reduction during graph construction.

4. CONCLUSION

This paper systematically reviews the progression of EEG-based depression detection methods, emphasizing the transition from traditional machine learning to advanced deep learning, and more recently to graph-based and hypergraph neural network models. Among these, Graph Convolutional Networks (GCNs) have proven effective in modeling the topological structure of EEG channels, while Hypergraph Convolutional Networks (HGCNs) further enhance this by capturing higher-order interactions, offering improved representation of brain connectivity patterns. These graph-based methods outperform conventional approaches in capturing spatial-temporal dynamics critical for identifying depressive states. However, challenges such as static graph construction, limited inter-subject generalization, and redundancy in brain network modeling persist.

5. FUTURE WORK

Future research should focus on dynamic graph construction, subject-specific adaptation, and reducing redundancy in EEG channel connectivity. Lightweight models for real-time diagnosis using wearable devices also hold strong potential for practical deployment.

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NAVIGATING UNCERTAINTY: THE HIDDEN COSTS OF CURRICULUM REFORM FOR NON-FORMAL EDUCATION TUTORS IN INDONESIA

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ABSTRACT

Curriculum reform in Indonesia has ignited intense debate, particularly in informal education. This study investigates the impact of curriculum uncertainty on tutors in an equality program at the Budi Utomo Community Learning Center, Surabaya, addressing a critical gap in the literature. Employing a qualitative case study approach, we conducted in-depth interviews with ten tutors, analyzed them through thematic analysis. The results revealed that frequent policy changes, coinciding with leadership transitions, engender instability among students and tutors. Tutors report significant investments in adapting to new curricula without adequate support and facing increased workload and motivation challenges. Intriguingly, the study also revealed positive outcomes, including enhanced teaching methods and student engagement. These findings underscore the need for targeted policy recommendations to cultivate a stable and supportive education system. By illuminating the unique challenges in non-formal education contexts serving underserved populations, this research provides valuable insights for future curriculum development and implementation strategies, inviting further exploration of this critical yet understudied area.

Keywords: Curriculum, Non-formal education, Community learning center, Equivalency Education Program, Tutors

INTRODUCTION

The implementation of curriculum reform in Indonesia has become the subject of ongoing debate, leading to a shift in leadership and the introduction of more comprehensive and focused guidance programs to address the challenges faced by education in the modern era. Given the need for students capable of facing various aspects of global development, the importance of updating the curriculum to prepare a competent and skilled generation with relevant skills to face a rapidly changing job market has become increasingly significant (Tang et al. 2020). Curriculum reform may require a different approach to deliver content, facilitate students' learning processes, and assess their achievements (Moore et al. 2023) (El-Sabagh 2021) (Alenezi 2020) (Oguguo et al. 2021). This study draws on cognitive load theory (Sweller, 1988) and adaptive expertise theory (Hatano and Inagaki, 1986) to frame its analysis. Cognitive load theory explains how curriculum changes may strain tutors' mental capacity and teaching effectiveness when demands exceed working memory (Sweller et al., 2019). Adaptive expertise theory illuminates how tutors develop flexible teaching approaches in response to changing curricular demands, a crucial skill for navigating frequent reforms (Carbonell et al., 2014).

Curriculum changes significantly impact teachers' practices, requiring substantial time and resources for adaptation (Pak et al., 2020). These changes affect teaching methods, lesson preparation, and student assessment, necessitating continuous professional development (Martinez, 2022). While curriculum reforms can enhance teaching quality (Moore et al., 2023), they also increase workload and expectations for teachers to stay current through training and workshops (Pak et al., 2020). This dual impact of improvement and added pressure underscores the complex nature of curriculum reform on educators. Challenges stemming from curriculum reforms affect both formal and non-formal education sectors. In non-formal settings, tutors face unique difficulties managing community learning groups, exacerbated by frequent policy changes tied to government transitions. These changes create instability in learning processes and confusion among students, as observed at the Budi Utomo Community Learning Center (PKBM) in Surabaya, Indonesia. Non-formal education tutors often struggle with limited access to appropriate resources and curricula (Looney and Santibañez 2021), highlighting the need for targeted support from government and relevant institutions.

A field study at Budi Utomo PKBM in Surabaya revealed significant challenges faced by tutors in equality programs due to frequent curriculum changes. In-depth interviews with ten tutors highlighted how these changes, triggered by national leadership transitions, create confusion and force continuous adaptation of teaching methods and materials. Tutors reported investing personal time and resources in training and developing new materials without compensation or adequate administrative support. This situation not only increases workload but also decreases teaching motivation, ultimately impacting the quality of education and

tutors' well-being. As one tutor remarked, "Every new curriculum demands time and money for training, while we still must meet our students' needs.

Curriculum changes impact all stakeholders, especially students and educators (Al-Hazaima et al., 2021). In Indonesia's non-formal education sector, particularly equality programs, these changes hold significant implications for national educational reform. Non-formal education is crucial for providing educational access to underserved individuals, offering flexibility not found in formal systems (Hayyi et al., 2023). While curriculum reform is essential for equipping students with relevant skills in a rapidly changing world (Andrea et al., 2024), frequent changes due to leadership transitions have created instability in both formal and non-formal education sectors.

Research on curriculum changes' impact on formal education is abundant, but studies examining non-formal education, especially equality programs, are limited. Existing research focuses primarily on formal education contexts, overlooking the unique challenges faced by non-formal education tutors. Yet, non-formal education is vital for providing educational access to underserved groups, including school dropouts and those needing flexible learning options (Pasha et al., 2022).

Field studies at PKBM Budi Utomo highlight that tutors face increased workloads and lack administrative support during curriculum transitions. Current literature inadequately addresses how this instability affects tutor motivation, well-being, and educational quality. This study aims to bridge this research gap by exploring curriculum instability's effects on non-formal education tutors, specifically in equality programs, to inform more effective policy recommendations for a stable and supportive education system.

METHODS

This study utilizes a qualitative approach to explore the impact of curriculum uncertainty on tutors in a non-formal education equality program. A qualitative approach was chosen because it allowed researchers to gain a deep understanding of tutors'subjective experiences. A case study design was employed to focus on a specific location (Alam2021), namely the Budi Utomo Community Learning Center (PKBM) in Surabaya. This study was conducted at the Budi Utomo Community Learning Center in Surabaya, which offers a non-formal education equality program. The location was chosen because it frequently experiences significant changes in the curriculum every time there is a change in national leadership. The study participants comprised ten tutors who taught in the equality program at the PKBM Budi Utomo. The tutors were selected based on inclusion criteria, such as a minimum of two years of experience teaching in a non-formal equality program and involvement in the adaptation of the latest curriculum.

Table 1. Demographic Characteristics of Participants

Characteristic	Number (n=10)	Percentage
Gender		
Male	4	40%
Female	6	60%
Age Range		
25-35	3	30%
36-45	5	50%
46-55	2	20%
Years of Experience		
2-5 years	2	20%
6-10 years	5	50%
>10 years	3	30%
Education Level		
Bachelor's Degree	7	70%
Master's Degree	3	30%

Source: Educator Basic Data System regarding PKBM Budi Utama by the Ministry of Education of the Republic of Indonesia in 2024

Data were collected through in-depth interviews, direct observations, and document analysis to gain a comprehensive understanding of the tutoring experience. In-depth interviews were conducted using a semi-structured interview guide that allowed for flexibility in exploring various topics (Adeoye-Olatunde and Olenik, 2021). During the observation, sessions were conducted to directly witness how tutors managed their classes

and adapted them to the new curriculum. Documents related to the policy curriculum and teaching materials were also analyzed to supplement the data collected from the interviews and observations.

The data were analyzed using thematic analysis techniques to identify patterns and themes that emerged from tutors' experiences of curriculum changes. This process involves initial coding, grouping these codes into broader themes, and interpreting these themes within the context of the study (Ali et al., 2021). NVivo software was used to organize and manage the data during the analysis. Methodological triangulation was employed by combining interviews, observations, and document analysis to ensure the validity and reliability of the data. To verify the accuracy and credibility of the researchers' interpretations, member checking was conducted by providing participants with summaries of the findings. An audit trial was also provided to facilitate the verification of the data collection and analysis processes (Nielsen et al., 2020).

RESULTS
The findings reveal various data on the challenges and impacts of curriculum change in schools, particularly in the context of leadership change. The study found that the adoption of a new curriculum often requires significant time and resource investments, as well as uncertainty among tutors. Additionally, the results show that the main challenge in curriculum change is aligning changes with the needs of students and the national curriculum requirements. Despite these challenges, some positive outcomes can be identified, such as improvements in teaching methods and increased student motivation.
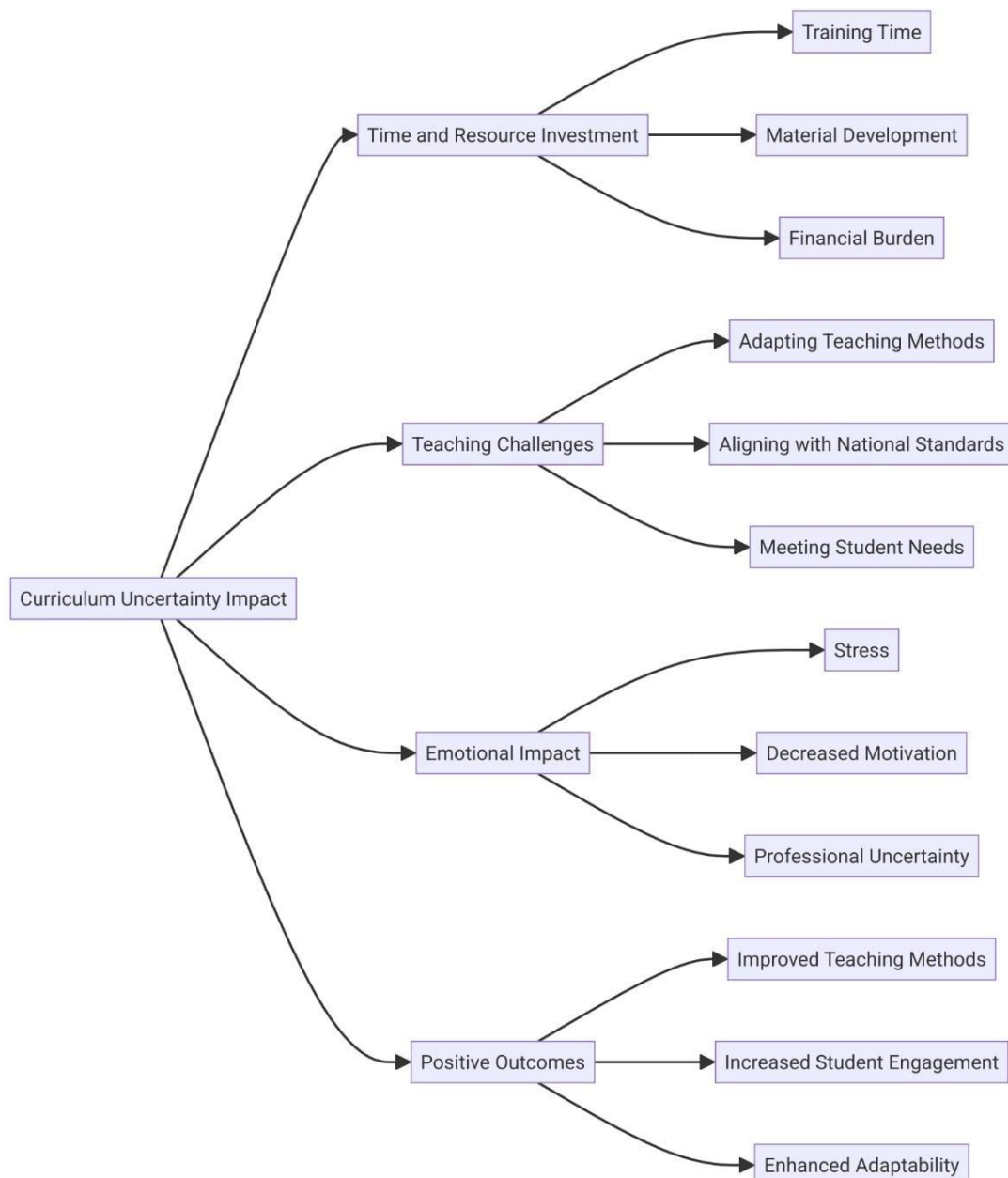

Figure 1. Theme diagram of analysis results

1. Investment of Time and Resources

Adopting new curricula significantly impacts tutors' time and resources. Through in-depth interviews, tutors reported substantial challenges:

"We had to spend countless hours understanding the new curriculum and creating lesson plans that align with it. It felt like we were starting from scratch every time a new curriculum was introduced." (Mrs. Yanti, NVivo Code: Training_Adaptation)

"The training sessions are time-consuming, often taking up weekends and after-school hours. This time could have been better spent preparing for classes and supporting our students." (Mr. Agus, NVivo Code: Training_Time)

Resource limitations exacerbate these challenges:

"Additional resources are rarely provided. We often have to use our own money to buy materials or find creative ways to do so. This adds to our workload and stress." (Mrs. Sari, NVivo Code: Resource_Limitation)

The financial burden is significant:

"The financial and time investment is significant. For instance, we sometimes have to attend workshops in other cities, which means we have to pay for travel and accommodation ourselves." (Mr. Budi, NVivo Code: Financial_Burden)

Continuous professional development adds to the strain:

"We need to constantly update our knowledge and skills to keep up with the curriculum changes. This means spending a lot of time on professional development activities, which can be overwhelming." (Mrs. Lestari, NVivo Code: Professional_Development).

The testimonials underscore the extensive demands placed on tutors, exacerbated by insufficient institutional backing. Analysis of the data reveals that introducing a new curriculum imposes significant time and resource burdens on tutors. Thematic examination of interviews identifies key issues: the substantial time needed for training and adaptation to new curricula, inadequate support resources, and the financial strain on tutors. They express frustration and stress due to personal investments required to meet new curricular demands. Continuous professional development emerges as crucial, though tutors perceive institutional support as lacking in time, financial aid, and resources needed for effective transition. Training sessions often exceed regular working hours, impacting personal lives and job satisfaction. Furthermore, financial pressures from workshops and materials exacerbate stress. Updating teaching materials and methods to align with new curricula adds to their workload. Despite challenges, tutors demonstrate commitment to student success, emphasizing the necessity of institutional support to alleviate burdens. In conclusion, addressing these challenges through improved institutional support, adequate resources, and recognition of tutors' additional efforts is vital for successful curriculum implementation and educational enhancement.

2. Uncertainty Among Tutors

Tutors face significant uncertainty when adapting to new curricula, stemming from unclear guidance and continuous reorientation of teaching strategies:

"Every time there is a new curriculum, I feel confused and have to work hard to understand the changes. It's like starting all over again." (Mrs. Nur, NVivo Code: Curriculum_Confusion).

This uncertainty affects teaching stability:

"The frequent changes make us feel unstable in our teaching. We are constantly adapting, which affects our confidence and consistency in the classroom." (Mr. Arif, NVivo Code: Instability_Impact)

Adaptation causes stress:

"We always have to adapt to these changes, making us feel unsure if we are meeting the expected standards. It's a continuous cycle of adjustment and stress." (Mrs. Dewi, NVivo Code: Adaptation_Stress)

Lack of support exacerbates the challenges:

"There is minimal support provided during these transitions. We often rely on each other to understand the new requirements, which adds to our stress." (Mr. Fajar, NVivo Code: Support_Lack)

These changes impact teaching effectiveness:

"The frequent changes hinder our teaching effectiveness. We spend more time adjusting to new methods than focusing on our students' needs." (Mrs. Lina, NVivo Code: Teaching_Effectiveness).

The testimonials highlight the considerable uncertainty and stress tutors face as a result of frequent curriculum changes, emphasizing the necessity for clearer guidance and enhanced support systems. The study reveals that recurrent adjustments to the curriculum lead to significant uncertainty among tutors. Thematic analysis of interviews identifies key concerns, including confusion regarding the new curriculum, instability in teaching practices, ongoing adaptation stress, insufficient support, and reduced teaching effectiveness. Tutors express that these frequent changes create confusion and instability, impacting their confidence and consistency in the classroom.

The imperative for continuous adaptation emerges as pivotal. Tutors feel that the constant need to align teaching strategies with new curricular demands induces substantial stress and uncertainty. Many tutors note minimal support during these transitions, often relying on peer collaboration to understand and implement new requirements, thereby exacerbating their stress levels. Moreover, the frequent changes are observed to hinder teaching effectiveness. Tutors invest significant time in adjusting to new methods, diverting attention from addressing students' individual needs. Despite these challenges, tutors remain dedicated to delivering quality education, underscoring the necessity for more robust support systems to assist them in navigating curricular changes effectively.

3. Aligning Changes with Student Needs and National Curriculum Demands
Tutors face significant challenges in harmonizing curriculum changes with both student needs and national requirements. This dual responsibility creates tension and demands innovative approaches.

Balancing local context with national standards is a complex task:

"We must ensure that students understand the local context while also meeting national standards. It's a delicate balance." (Mrs. Ani, NVivo Code: Balancing_Standards)

Tutors struggle to make the curriculum relevant while adhering to national demands:

"The material needs to be relevant to the students' lives, but we often get caught between their needs and the national curriculum demands." (Mr. Joko, NVivo Code: Relevance_National_Standards)

This creates pressure from both local and national expectations:

"There is a lot of pressure to follow the national curriculum strictly, but we can't ignore the local needs of our students. This creates a lot of tension." (Mrs. Rina, NVivo Code: Local_National_Pressure)

To address these challenges, tutors modify their teaching methods and develop integration strategies:

"It's challenging to modify teaching methods to satisfy both local relevancy and national standards, but it's necessary to ensure effective learning." (Mr. Budi, NVivo Code: Method_Modification)

"We try to integrate local examples into the curriculum to make it more relevant for students, while still adhering to national guidelines." (Mrs. Sari, NVivo Code: Integration_Strategy)

These testimonies highlight the complex balancing act tutors perform, adapting teaching methods to meet both local needs and national standards. This process requires significant effort, creativity, and often lacks consistent institutional support. The pressure to ensure teaching relevance while adhering to national standards establishes a demanding educational environment, influencing the overall teaching and learning experience. Addressing these concerns through improved institutional support, clear guidelines, and recognition of tutors' efforts is crucial for ensuring productive teaching and learning in non-formal education settings.

4. Improvement in Teaching Methods
The new curriculum has led to significant advancements in teaching techniques, enhancing student involvement and academic achievement. Tutors reported several positive changes:

Interactive and student-centered methods have made classes more engaging:

"The new curriculum encourages us to use more interactive and student-centered teaching methods. This has made my classes more dynamic and engaging." (Mrs. Lestari, NVivo Code: Interactive_Teaching)

Project-based learning has been incorporated to promote collaborative and real-world learning:

"I've started incorporating more project-based learning activities, which allows students to work collaboratively and apply what they have learned in real-world scenarios." (Mr. Budi, NVivo Code: Project_Based_Learning)

Student engagement has increased due to more relevant lesson content:

"Students are more engaged and participate actively in class discussions and activities. They seem more motivated to learn because the lessons are more relevant to their lives." (Mrs. Rina, NVivo Code: Student_Engagement)

Technology integration has enhanced the learning experience:

"The curriculum encourages the use of technology, so I've started using educational software and online resources to supplement my lessons. This has made the learning experience more interactive for students." (Mr. Joko, NVivo Code: Technology_Integration)

Student outcomes have improved, with better retention of information:

"Yes, students are performing better in assessments and showing a deeper understanding of the material. The new methods seem to help them retain information more effectively." (Mrs. Ani, NVivo Code: Improved_Outcomes)

The testimonies underscore the significant enhancement in student motivation due to the relevance and interactive nature of the new curriculum, resulting in increased engagement, curiosity, and improved academic performance. The evaluation reveals a substantial increase in student motivation following the implementation of the new curriculum. Thematic analysis of interview data identifies several key themes: heightened enthusiasm, increased engagement, motivation driven by relevance, interest in interactive learning, and enhanced academic performance.

Interactive Teaching: Tutors like Mrs. Lestari emphasized the shift towards more interactive and student-centered teaching methods. This approach has made classes more dynamic and engaging, fostering a more conducive learning environment (NVivo Code: Interactive_Teaching).

Project-based Learning: Mr. Budi highlighted the incorporation of project-based learning activities that allow students to work collaboratively and apply their knowledge in practical, real-world contexts. This method has been particularly effective in enhancing students' critical thinking and problem-solving skills (NVivo Code: Project_Based_Learning).

Student Engagement: Tutors such as Mrs. Rina noted a significant increase in student engagement and participation. The relevance of the lessons to students' lives has motivated them to take a more active role in their learning process (NVivo Code: Student_Engagement).

Technology Integration: Mr. Joko discussed the integration of technological tools into teaching practices. The use of educational software and online resources has made the learning experience more interactive and accessible for students, catering to different learning styles (NVivo Code: Technology_Integration).

Improved Outcomes: Tutors like Mrs. Ani observed improvements in student outcomes, including better performance in assessments and a deeper understanding of the material. New teaching methods have helped students retain information more effectively and apply their knowledge more confidently (NVivo Code: Improved_Outcomes).

Data analysis indicates that the recently implemented curriculum has advanced teaching techniques significantly, creating more interactive and engaging classrooms. The adoption of student-centered methods such as project-based learning and technology integration has notably boosted student participation and academic performance. Tutors have observed that these innovative approaches have rendered lessons more relevant and captivating, thereby increasing students' motivation to actively engage in class. Moreover, the integration of technology has enriched the learning experience by providing diverse tools and resources that support comprehension.

The observed improvements in student performance underscore the effectiveness of these progressive teaching methods. Enhanced academic outcomes and a deeper grasp of subject matter underscore the importance of employing modern teaching strategies to establish effective and stimulating learning environments.

5. Increase in Student Motivation
The updated curriculum has had a positive impact on student motivation, with tutors reporting increased student involvement and eagerness to learn due to the curriculum's relevance and interactive design.

Students show increased excitement and participation in their education:

"The new curriculum has made students more excited about learning. They are more eager to participate and take an active role in their education." (Mrs. Sari, NVivo Code: Increased_Excitement)

Enhanced engagement and curiosity are observed in classroom activities:

"I've noticed a significant increase in students' willingness to engage in classroom activities. They are more curious and ask more questions." (Mr. Agus, NVivo Code: Enhanced_Engagement)

The curriculum's relevance to students' lives and future careers has boosted motivation:

"Students seem more motivated because the curriculum includes topics that are relevant to their lives and future careers. They see the value in what they are learning." (Mrs. Nur, NVivo Code: Relevance_Motivation)

Interactive and hands-on activities have captured students' interest:

"The interactive and hands-on activities have really captured their interest. They are more involved and look forward to coming to class." (Mr. Joko, NVivo Code: Interactive_Interest)

Increased motivation has led to improved academic performance:

"Yes, students are performing better and are more confident in their abilities. The increased motivation has translated into improved academic outcomes." (Mrs. Ani, NVivo Code: Improved_Performance)

The testimonies underscore the significant enhancement in student motivation due to the relevance and interactive nature of the new curriculum, resulting in increased engagement, curiosity, and improved academic performance. The evaluation reveals a substantial increase in student motivation following the implementation of the new curriculum. Thematic analysis of interview data identifies several key themes: heightened enthusiasm, increased engagement, motivation driven by relevance, interest in interactive learning, and enhanced academic performance.

Increased Excitement: Tutors like Mrs. Sari emphasized that students are more excited about learning. This excitement translated into greater eagerness to participate and take an active role in their education, fostering a more dynamic and lively classroom environment (NVivo Code: Increased_Excitement).

Enhanced Engagement: Mr. Agus highlighted a notable increase in student engagement. The new curriculum has made students more curious and willing to engage in classroom activities, ask more questions, and show keen interest in the material (NVivo Code: Enhanced_Engagement).

Relevance Motivation: Tutors such as Mrs. Nur noted that the relevance of the curriculum to students' lives and future careers has significantly boosted their motivation. Students are more inclined to see the value of what they are learning, which drives their enthusiasm and commitment to their studies (NVivo Code: Relevance_Motivation).

Interactive Interest: Mr. Joko discussed how the interactive and hands-on activities introduced by the new curriculum have captured students' interest. This approach makes learning more engaging and enjoyable, leading to higher levels of student involvement (NVivo Code: Interactive_Interest).

Improved Performance: Tutors like Mrs. Ani observed that the increased motivation has translated into improved academic performance. Students are not only more confident in their abilities, but also perform better in assessments, demonstrating the positive impact of enhanced motivation on learning outcomes (NVivo Code: Improved_Performance).

The results of the data analysis revealed a substantial increase in student motivation following the implementation of the new curriculum.

The curriculum's impact on student engagement and performance improved significantly due to its alignment with students' future careers, interactive learning methods, and hands-on activities. Tutors observed heightened enthusiasm and active participation among students, facilitated by interactive learning techniques that fostered enjoyment and engagement, thereby creating a dynamic classroom environment. Consequently, students' academic performance saw improvement as they grew in confidence and motivation. The positive effects of the new curriculum on student outcomes emphasize the importance of developing curricula that are both relevant and engaging to enhance student motivation. Improved attitudes toward learning underscore the ongoing need for innovative curriculum design and teaching methods to sustain and amplify student engagement. In conclusion, the curriculum's focus on relevance and interactivity has notably enhanced educational quality by

bolstering student motivation. Continuous support for innovative curriculum design and teaching practices is essential to uphold these positive outcomes and further advance student achievements.

DISCUSSION

The results of this study revealed various data regarding the challenges and impacts of curriculum changes in schools, particularly in the context of leadership changes. The research found that the adoption of a new curriculum often requires significant time and resource investments, as well as uncertainty among instructors. In this context, this study aimed to investigate the hidden costs of curriculum reform for non-formal education tutors in Indonesia, particularly in terms of time, resources, and stress. Observations show that tutors face significant hidden costs as a result of curriculum reform, including time spent on training and content development, as well as financial burdens for attending unsupported institutional training. Furthermore, the results show that the main challenges in curriculum change involve aligning changes with student needs and national curriculum requirements, creating tension that requires managing diverse expectations.

This topic is important because it sheds light on the unseen challenges faced by non-formal education tutors and the need for support and resources to address them. This study compares the experiences of tutors in Indonesia with those in other countries, providing a broader perspective on the hidden costs of curriculum reform. These findings contradict the assumption that curriculum reform only brings positive results, highlighting the need for a more comprehensive approach to reform. Although there are various challenges, positive results can also be identified, such as improvements in teaching methods and increased student motivation.

Figure 2 Overlapping Challenges in Curriculum Implementation
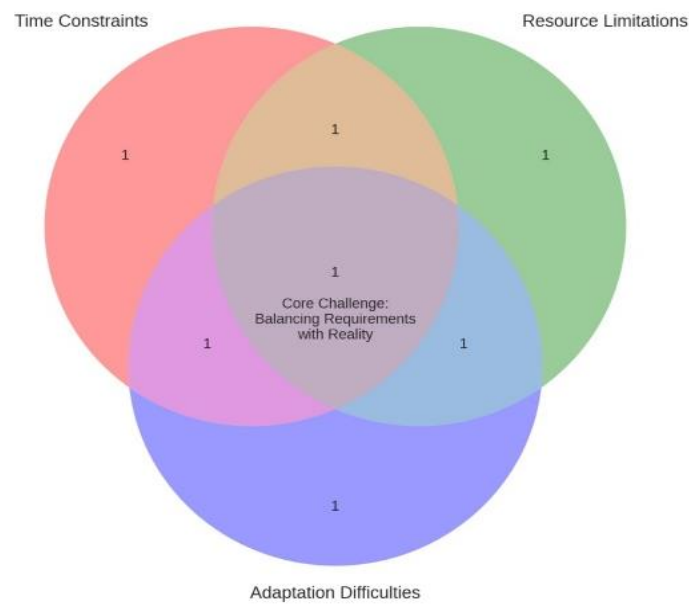
This study provides data to support the idea that an innovative and student-centered approach can improve student engagement and learning outcomes, but also emphasizes the need for ongoing support for tutors. The implications of these findings are crucial for the design and implementation of curriculum reform in Indonesia and other countries, highlighting the need for careful planning and institutional support to ensure the success of the reform and improve the quality of education.

Investment of Time and Resources

Undertaking the adoption of a new curriculum requires significant investment of time and resources from tutors. The commitment to the time necessary for training and adapting to the new curriculum presents a major challenge. As Mrs. Yanti explains, "We must spend hours upon hours to understand the new curriculum and create suitable lesson plans. It feels like starting from scratch each time a new curriculum is introduced" (NVivo Code: Training_Adaptation). The impact of training sessions on regular teaching schedules is also a matter of serious concern. Pak Agus reveals, "Training sessions often take up time that is frequently spent on weekends and after school. This time would be better used for class preparation and supporting our students" (NVivo Code: Training_Time). In addition, the lack of resources places a burden on tutors. Mrs. Sari states, "Additional resources are rarely provided. We often have to use our own money to buy materials or find creative ways to use what we have. This adds to our workload and stress" (NVivo Code: Resource_Limitation). The financial burden of attending training and workshops is a barrier. Pak Budi explains, "The time and

financial investment is significant. For example, we sometimes have to attend workshops in other cities, which means we have to pay for our own travel and accommodation" (NVivo Code: Financial_Burden).

Furthermore, the need for ongoing professional development cannot be overlooked. Mrs. Lestari states, "We need to continuously update our knowledge and skills to keep up with changes in the curriculum. This means spending a lot of time on professional development activities, which can be very exhausting" (NVivo Code: Professional_Development). The analysis indicates that the adoption of the new curriculum places significant demands on tutors' time and resources, which is further exacerbated by a lack of institutional support, financial assistance, and resources. This situation leads to frustration and stress among tutors. However, despite these challenges, tutors remain committed to their professional roles, emphasizing the importance of better institutional support to ensure the successful implementation of the curriculum and improve the overall quality of education (Janssen and Kirschner, 2020; Castro-Alonso et al., 2021). Cognitive load theory suggests that additional workload, such as extensive training and the development of new materials, can result in increased cognitive load, which negatively affects teaching effectiveness (Janssen and Kirschner, 2020). Mrs. Yanti and Pak Agus described the time required to understand and implement the new curriculum as disrupting class preparation and supporting students, exacerbating their workload (NVivo Codes: Training_Adaptation, Training_Time). Furthermore, the limited resources and financial burden of attending training increases stress among tutors, as revealed by Mrs. Sari and Pak Budi (NVivo Codes: Resource_Limitation, Financial_Burden). The continuous need for professional development, as explained by Mrs. Lestari, further complicates this situation (NVivo Code: Professional_Development). Overall, this analysis demonstrates that adequate institutional support is essential to alleviate the cognitive load and stress experienced by tutors and to ensure successful curriculum implementation and improved overall quality of education.

The Significant Ambiguity Faced by Tutors
Tutors often experience significant ambiguity when adapting to new curricula. This ambiguity is primarily caused by a lack of clear guidance and the need to continuously adapt teaching strategies to new curriculum requirements. Ms. Nur revealed, "Every time there is a new curriculum, I feel confused and have to work hard to understand the changes. It feels like starting from scratch again" (NVivo Code: Curriculum_Confusion). The impact of frequent changes leads to instability in teaching practices, as expressed by Mr. Arif, "Frequent changes make us feel unstable in teaching. We constantly have to adapt, which affects our confidence and consistency in the classroom" (NVivo Code: Instability_Impact). The continuous adaptation process causes stress and uncertainty, as stated by Ms. Dewi, "We always have to adapt to these changes, making us feel uncertain about whether we are meeting the expected standards. This is a continuous adjustment and stress cycle" (NVivo Code: Adaptation_Stress). Lack of support during the transition period also exacerbates the stress experienced by tutors. Mr. Fajar pointed out, "The support provided during this transition is minimal. We often rely on each other to understand the new requirements, which adds to our stress" (NVivo Code: Support_Lack). Teaching effectiveness is also hindered by frequent adjustments, as stated by Ms. Lina, "Frequent changes hinder our teaching effectiveness.

We spend more time adapting to new methods than focusing on the needs of students" (NVivo Code: Teaching_Effectiveness). The data analysis shows that tutors experience significant ambiguity and stress due to frequent curriculum changes. Lack of institutional support and clear guidance exacerbates this situation. To ensure stability and effectiveness in teaching, clear guidance, adequate support, and recognition of tutors' efforts in facing continuous curriculum changes are needed.

The significant uncertainty faced by tutors when they must adapt to new curricula is mainly due to the lack of clear guidelines and need for continuous instructional strategies. According to the occupational stress theory, these situations create ongoing stress and uncertainty that negatively impact self-confidence and teaching effectiveness (Wirth et al., 2020). Mrs. Nur described her confusion in understanding the new curriculum (NVivo Code: Curriculum_Confusion), whereas Mr. Arif associated changes with instability in teaching practice (NVivo Code: Instability_Impact). The uncertainty and stress experienced by Mrs. Dewi owing to continuous adaptation are compounded by the situation (NVivo Code: Adaptation_Stress). The lack of support during the transition, as mentioned by Mr. Fajar, exacerbates the situation by adding stress to tutors (NVivo Code: Support_Lack). The impact of frequent changes is also evident in the effectiveness of teaching, as revealed by Mrs. Lina, where the adaptation of new methods diverts the focus from the needs of students (NVivo Code: Teaching_Effectiveness). This analysis indicates the need for adequate institutional support to reduce the cognitive load and stress experienced by tutors, ensure successful curriculum implementation, and improve overall quality of education (Vanneste et al., 2021). This aligns with the importance of institutional support in reducing stress and improving education quality.

Aligning Changes with Student Needs and National Curriculum Requirements

A significant challenge for educators is aligning curriculum changes with students' needs and national curriculum requirements. The need to balance local contextual understanding with national standards creates tension and demands for educators to manage diverse expectations. Ms. Ani emphasized the importance of ensuring that students understand local contexts while also meeting national standards, stating, "We must ensure that students understand local contexts while also meeting national standards. This is a complex balancing act" (NVivo Code: Balancing_Standards). Mr. Joko highlights the difficulty in creating a curriculum relevant to students' lives, stating, "Material must be relevant to students' lives, but we often find ourselves caught between their needs and national curriculum requirements" (NVivo Code: Relevance_National_Standards). The significant pressure from both local and national expectations creates a tense environment, as expressed by Ms. Rina, "There is a lot of pressure to strictly follow the national curriculum, but we cannot ignore the needs of local students. This creates a lot of tension" (NVivo Code: Local_National_Pressure). The need to modify teaching methods to meet both of these requirements is also acknowledged by Mr. Budi, "It is very challenging to modify teaching methods to be locally relevant and meet national standards, but this needs to be done to ensure effective learning" (NVivo Code: Method_Modification). Ms. Sari explains the strategies used to confront these competing demands, stating, "We try to integrate local examples into the curriculum to make it more relevant to students, while still adhering to national guidelines" (NVivo Code: Integration_Strategy).

The data indicate that aligning curriculum changes with student needs and national requirements presents a significant challenge for educators. They must continuously innovate and adapt to ensure that their teaching methods meet both requirements, often without sufficient institutional support. To address this challenge, better institutional support, clear guidelines, and innovative strategies are needed to balance local needs and national standards, thereby improving teaching effectiveness and student-learning outcomes. The need to reconcile curriculum changes with student needs and national standards creates tensions that require the management of diverse expectations, as per the ecological theory of education (Lin et al., 2021). Mrs. Ani emphasizes the importance of maintaining a balance between understanding the local context and fulfilling national standards (NVivo Code: Balancing_Standards). Pak Joko reveals that the relevance of the curriculum to students' lives often falls between local and national requirements (NVivo Code: Relevance_National_Standards). Pressure from local and national expectations creates a tense environment, as explained by Mrs. Rina, highlighting the pressure to follow the national curriculum without neglecting local student needs (NVivo Code: Local_National_Pressure). Pak Budi sheds light on the challenges of modifying teaching methods to be locally relevant and in alignment with national standards (NVivo Code: Method_Modification), while Mrs. Sari explains strategies for integrating local examples into the national curriculum to address competing demands (NVivo Code: Integration_Strategy).Data indicate that educators are required to continuously innovate and adjust their teaching methods to satisfy the demands of both local and national standards, often without sufficient institutional backing (Reiser, 2023) (Darling-Hammond et al., 2020). To address this challenge, more effective institutional support, clear guidelines, and innovative strategies are required to balance local needs and national standards, thereby enhancing teaching effectiveness and student learning outcomes.

Improvements in Teaching Methods

This study has identified several positive impacts of the new curriculum, particularly in enhancing teaching methods. Teachers reported that the curriculum introduced innovative strategies aimed at increasing student engagement and improving learning outcomes. Ms. Lestari explained, "The new curriculum encourages us to adopt more interactive and student-centered teaching methods, which has made my class more dynamic and engaging" (NVivo Code: Interactive_Teaching). Mr. Budi highlighted the adoption of project-based learning, noting, "I've begun incorporating more project-based activities that promote collaborative learning and practical application of knowledge" (NVivo Code: Project_Based_Learning). Ms. Rina observed improved student engagement, stating, "Students are more active in class discussions and activities, showing greater motivation because the lessons are more relevant to their lives" (NVivo Code: Student_Engagement). The integration of technology into teaching methods was also noted as beneficial by Mr. Joko, who mentioned, "The curriculum encourages the use of educational technology, allowing me to integrate software and online resources that enhance interactivity in lessons" (NVivo Code: Technology_Integration). Ms. Ani highlighted improvements in student performance and understanding, noting, "Students have shown better performance in assessments and a deeper grasp of the material, indicating that the new methods support more effective retention of information" (NVivo Code: Improved_Outcomes).

The analysis underscores significant enhancements in teaching methods brought about by the new curriculum, resulting in more interactive and engaging classroom environments. The adoption of student-centered approaches like project-based learning and technology integration has notably boosted student engagement and

learning outcomes (Jamil & Belkacem, 2024; Hansen et al., 2020; Al-Khasawneh et al., 2023). These findings emphasize the critical role of innovative teaching strategies in creating effective and enjoyable learning environments. Continued professional support and development for instructors are essential to sustain these positive changes and continually enhance educational outcomes.

Increasing Student Motivation
According to instructors, the implementation of the new curriculum has positively impacted student motivation. Students have shown increased engagement and enthusiasm for learning due to the curriculum's relevance and interactive nature. Mrs. Sari notes, "The new curriculum has sparked greater eagerness among students to learn, leading to increased participation and active involvement in their education" (NVivo Code: Increased_Excitement). Pak Agus has observed a notable rise in students' willingness to engage in classroom activities since the introduction of the new curriculum, stating, "I've witnessed a significant increase in students' desire to participate in class activities. They display heightened curiosity and ask more questions" (NVivo Code: Enhanced_Engagement). The enhanced relevance of the curriculum has also been identified as a key factor in boosting student motivation. As articulated by Mrs. Nur, "Students appear more motivated because the curriculum addresses topics that are pertinent to their lives and future careers. They perceive the value in what they are learning" (NVivo Code: Relevance_Motivation). Pak Joko highlights how interactive activities and practices have captured students' interest: "Interactive activities and practices effectively hold their attention. They are more engaged and anticipate coming to class" (NVivo Code: Interactive_Interest). Mrs. Ani has observed improvements in academic performance attributable to increased motivation: "Students are performing better on assessments and have gained confidence in their abilities. The heightened motivation has translated into improved academic outcomes" (NVivo Code: Improved_Performance).

The analysis indicates that the new curriculum has significantly elevated student motivation, rendering learning more stimulating and pertinent. The curriculum's alignment with students' lives and future careers plays a crucial role in enhancing their enthusiasm and dedication to learning. Teachers report heightened student eagerness to learn and increased active participation in class. Interactive and practical activities have heightened the enjoyment of learning, thereby boosting student engagement. These improvements have led to better academic results, underscoring the importance of relevant and interactive curricula in enhancing student motivation. Continuous support for innovative curriculum design and teaching methods is essential for sustaining these positive changes and advancing students' educational outcomes.

The implementation of the new curriculum has positively impacted student motivation. Aligned with intrinsic motivation theory, the curriculum's relevance and interactive nature stimulate student engagement and enthusiasm for learning (Mitsea et al., 2022; Mekari et al., 2020; Brunyé et al., 2020; Bliss et al., 2021). Ibu Sari observes that the new curriculum has heightened students' eagerness to learn and their active participation in education (NVivo Code: Increased_Excitement). Pak Agus documents a significant increase in students' willingness to participate in classroom activities, indicating heightened curiosity and engagement (NVivo Code: Enhanced_Engagement). Mrs. Nur acknowledges the curriculum's relevance, covering topics crucial to students' lives and future careers, as pivotal in enhancing student motivation (NVivo Code: Relevance_Motivation). Pak Joko adds that interactive and practical activities effectively capture students' interest, increasing their involvement and enthusiasm for attending class (NVivo Code: Interactive_Interest). Mrs. Ani notes that increased motivation has resulted in improved academic performance, with students demonstrating greater confidence in their abilities and achieving better results in assessments (NVivo Code: Improved_Performance).

The data confirms that the new curriculum has significantly increased student motivation, making learning more engaging and relevant. The curriculum's alignment with students' lives and future careers is pivotal in boosting their enthusiasm and commitment to learning. Tutors observe increased student enthusiasm for learning and greater participation in class. Interactive and practical activities have enhanced the learning experience, increasing student engagement and academic performance (Conradty and Bogner, 2020; Xue et al., 2022). These improvements underscore the importance of a relevant and interactive curriculum in enhancing student motivation. Continuous support for innovative curriculum design and teaching methods is crucial for sustaining these positive changes and improving students' educational outcomes.

CONCLUSION
The discourse surrounding curriculum reform in Indonesia has been profound, particularly concerning leadership changes, comprehensive guidance, and mentoring programs. This study illuminates the multifaceted impact of curriculum changes on tutors in non-formal education, specifically within the PKBM Budi Utomo program in Surabaya. Our findings reveal that the adoption of new curricula demands substantial investments in time and resources, while simultaneously fostering uncertainty among tutors. These educators find themselves

allocating additional time for training and material development, grappling with resource constraints, and shouldering the financial burden of training without adequate institutional support. The absence of clear guidance and support during transitional periods exacerbates stress and uncertainty in teaching practices.

A significant challenge lies in aligning curriculum changes with student needs and national curriculum requirements, often creating considerable pressure on tutors. However, amidst these challenges, the new curriculum has catalyzed improvements in teaching methods and increased student motivation through more interactive, student-centered approaches and technology integration. These findings underscore the complex interplay between curriculum reform and its impact on non-formal education tutors, highlighting both the hidden costs and potential benefits of such changes.

Based on these findings, we recommend: (1) Phased implementation of curriculum changes; (2) Targeted professional development for tutors; (3) Establishment of feedback mechanisms; (4) Development of support systems for tutors; (5) Consideration of financial incentives and (6) Promotion of institutional collaboration. These recommendations aim to foster a more stable and supportive education system, particularly benefiting underserved populations in non-formal education contexts. Further research, including longitudinal studies, is needed to explore the long-term impacts of curriculum changes on education quality and tutor well-being, providing insights for future policy improvements.

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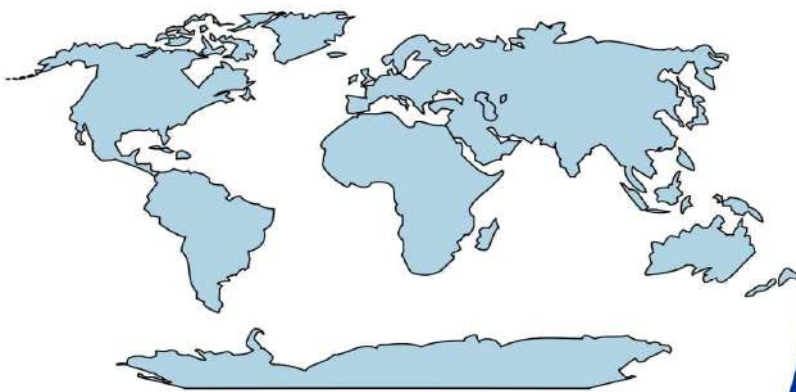
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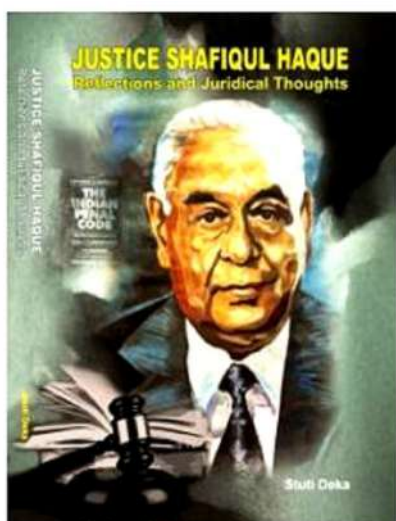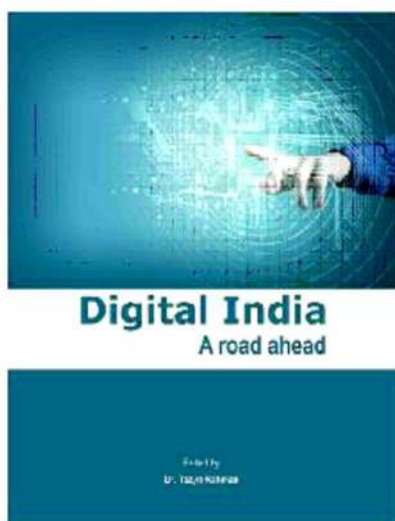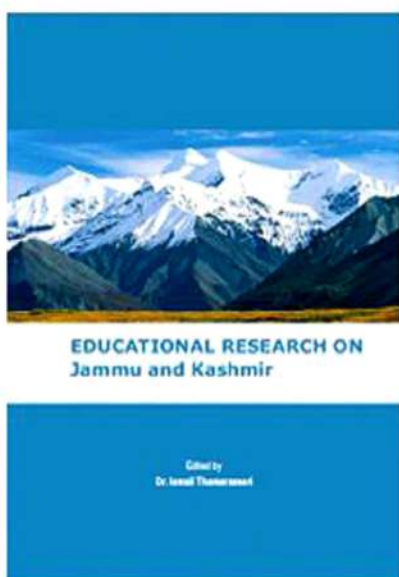
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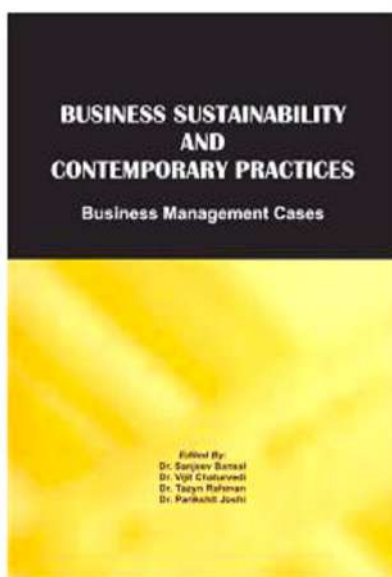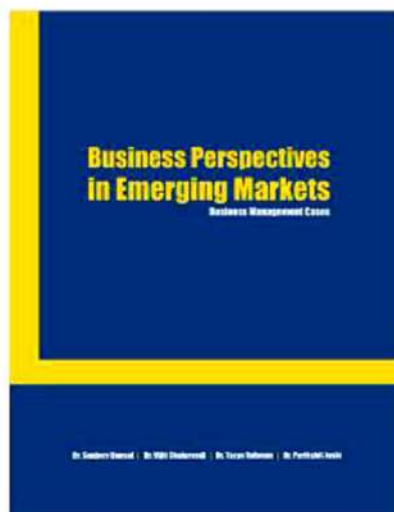
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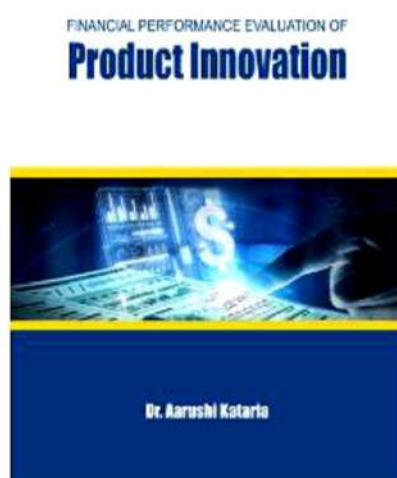
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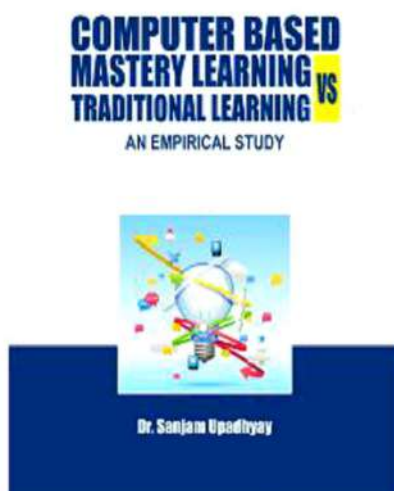
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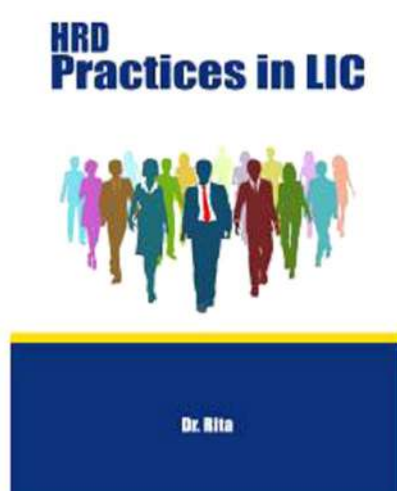
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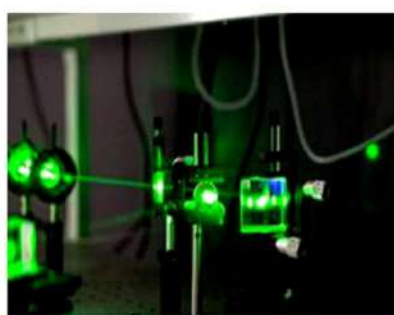
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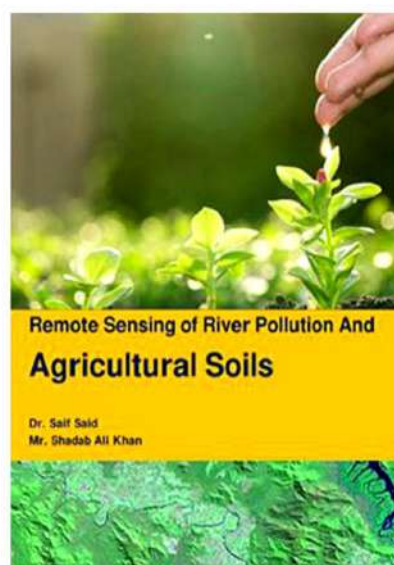
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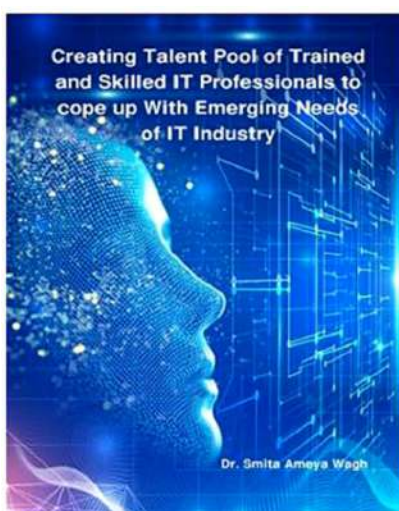
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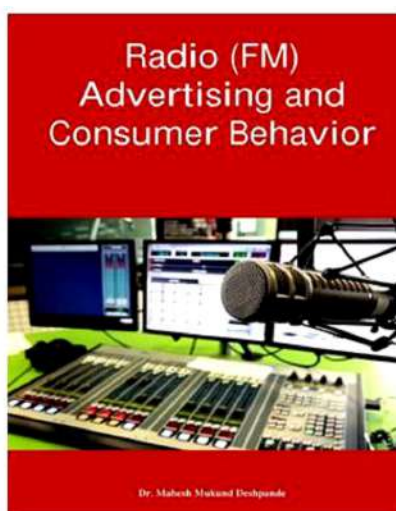
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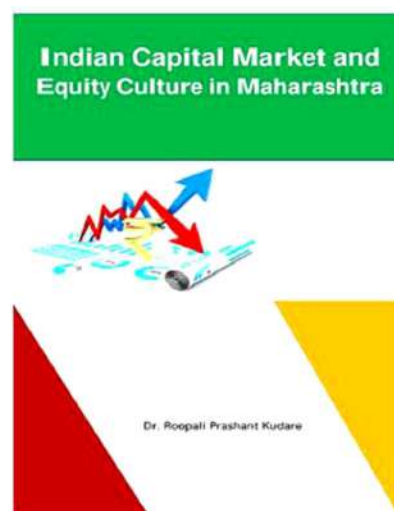
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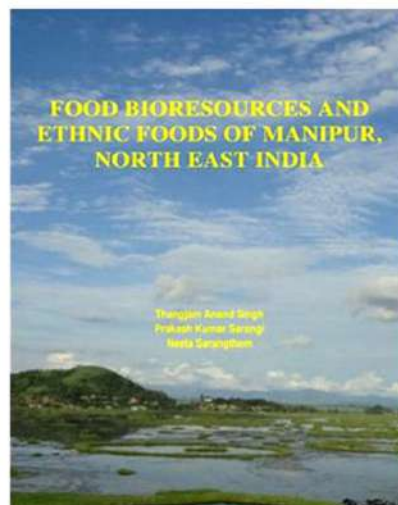
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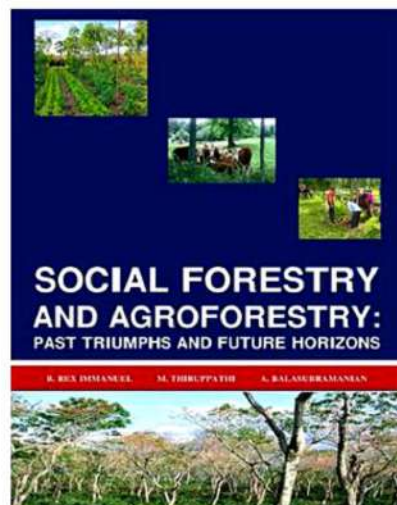
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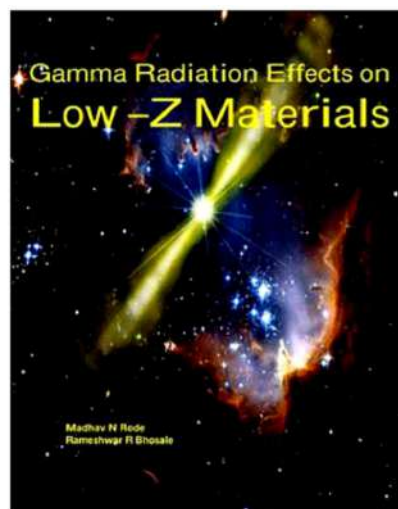
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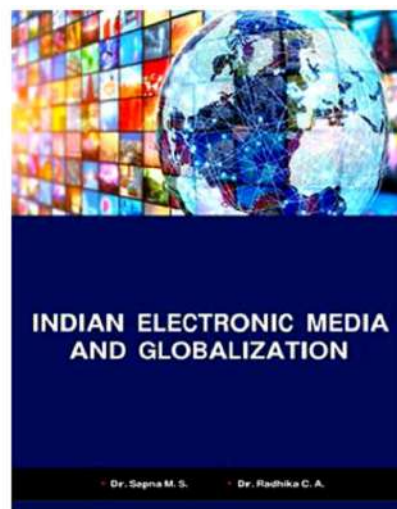
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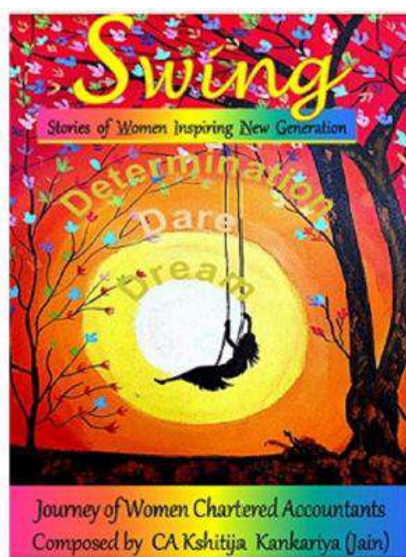
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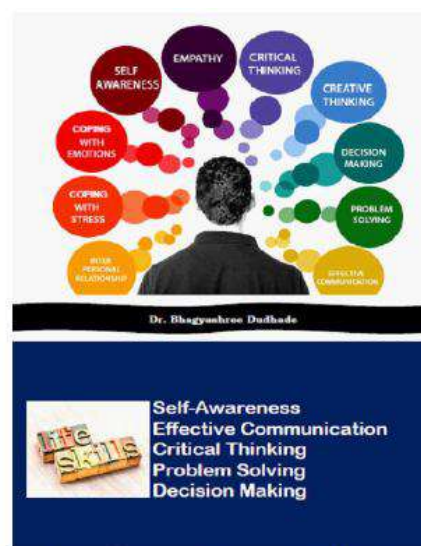
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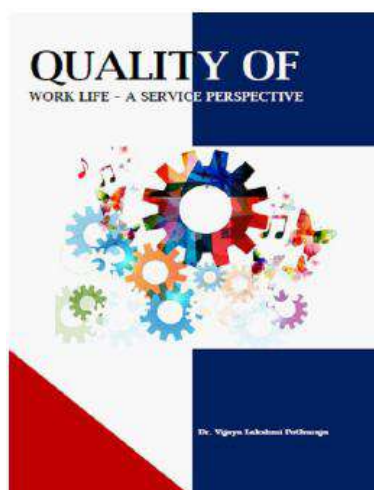
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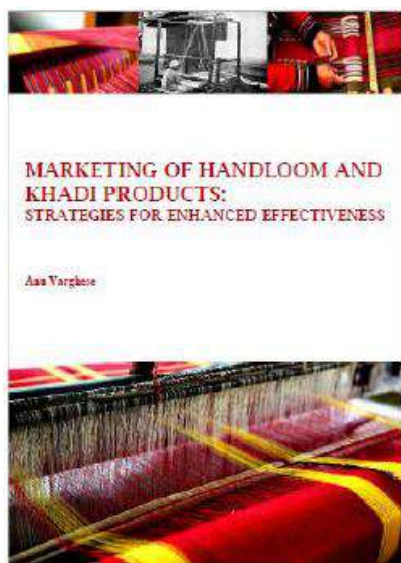
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