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AN OVERVIEW OF TEAMWORK IN A BUSINESS - AN ETHICAL PERSPECTION

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ABSTRACT

Teamwork is the collaborative efforts where a group people's work together to achieve a common goal or a task in the most effective and efficient manner.

Ethical teamwork requires virtues in communication, joint decision-making, collaboration, self-management, and accountability.

If the members in a team works together efficiently, with some ethical values then there will be no misunderstanding in a team.

Every business will be in search of an employee who will fit to a team and work efficiently and contribute their ideas, plans and to go easily with others members in a team.

Learning the value of teamwork and becoming an efficient member in a team is one of the most important qualities for a leadership skill. These qualities will lead a business towards better path.

The main purpose of this study is to understand the diversity issues and the leadership approaches on ethical perception to lead a team.

The objective of this research is to know whether the employees are treated equally in a team, and to know is there any award or reward given to the best team player in a team.

This study adopts descriptive research design.

For this research 179 employees from various organizations had given the information to complete the survey which was done through "Google Form".

In this study the sampling units are associated with respondents with the limit to Chennai city.

This study reveals that Discussion within a team will help the members to complete the work as per the plan, each member should be sincere to the work assigned to them in a team

Finally, I concluded that members in a team should be untidily worked together whatever the case may be.

Key Words: Team work, Leadership Approach, Ethical Values and Collaborative effort.

1. INTRODUCTION

Teamwork is a collaborative effort where every individual's inputs are to be taken into consideration and finalize one idea among them. Teamwork is absolutely fundamental for a team to work efficiently within a stipulated period. For example, doing things individually may take time to complete a particular work assigned to them while working as a team it will be easier to work as every individual ideas or inputs are put together, analyzed and complete the work within the stipulated time. Sometimes, members in a team have to put some ideas in the selection of projects, ideas to be implemented, planning of work allocation in order to complete the work in the most efficient and effective manner.

In the business world, there are two words which are similar: group work and team work. A Team Work have a members who work interdependently on a specific common goal to get the end result which benefits the team and Group Work means two or more members who are interdependent in their accomplishments and may or may not work in a same department but they help each other for the benefit of the organization.

“TEAMING WORKS BETTER WHEN MEMBERS HAVE SHARED VALUES AND A SIMILAR WORK ETHIC”

The success of every business depends on the positive team work than an efficient employee because it helps the employee to gain more empower and also help them to develop their skills or potentials of every employees through sharing their knowledge, review of their performance and also by collecting the feedback of the team as this helps every individual to know their teams strength and weakness among them. These processes create a constant development in their team and this will reflect the organizational performance.

OBJECTIVE OF STUDY:

- To understand the diversity issues and the leadership approaches on ethical perception to lead a team

- The Decision making process is made with the acceptance of every member in a team.
- To understand whether the employees are treated equally in a team.

METHODOLOGY:

Various quantitative and qualitative methods are followed in the process of doing research with the help of the tools which are useful in deriving the result. The research methodology included design, sampling procedure, data collection and analysis procedure.

RESEARCH DESIGN:

In this study adopts Descriptive Research design.

COLLECTION OF DATA:

For any research it become necessary to collect the data that are appropriate depending upon the sources of information available data can be classified as:

- Primary data
- Secondary data

PRIMARY DATA: It was collected through administering questionnaires and was taken from various respondents. An unstandardized questionnaire was prepared and distributed to respondents which were complete in all respects and were taken for analysis.

SECONDARY DATA: In this study, secondary sources are taken from websites, periodicals, journals, articles and project reports have been used to collect the information.

SAMPLING TECHNIQUES: The sampling techniques used for the purpose of data collection are simple random sampling. This is to refer to the method of selection, which gives each possible sample combination on equal probability picked up and each item in the entire population is chosen to have an equal chance of being included in the sample.

AREA OF THE STUDY: This study can be conducted in different geographical units like village, district, state and national wise. Under this study the sampling units are associated with respondents of Chennai district.

2. MAIN BODY OF PAPER

Ethics in a business is one of the most important key features in the organization. Business ethics refers to the standards of morally right and wrong conduct in business. Law partially defines the conduct, but “legal” and “ethical” are not necessary to be same. Business ethics enhances the law by outlining acceptable behaviors beyond government control. The purpose of this study is to understand the ethical diversities and leadership approach in team work, ethical decision making process in a team and also to analyze whether every member in a team are recognized their hard work by giving any award or reward to the employees.

DIVERSITY ISSUES ON ETHICAL PERCEPTION:

Diversity in team work includes the environment that provides equal rights and opportunities among every member in a team, regardless of gender, colour, age, physical ability, sexual orientation, religious beliefs, and so on. Diversity in a team is not directly an ethical issue. It refers to the different types of people from different backgrounds that make up the staff in the office. Diversity issues play a circuital role in a team work. Following are the benefits and challenges faced by a team on the bases of ethical diversity issues:

BENEFITS OF DIVERSITY IN TEAMWORK:

Diversity in teamwork helps the employees to become better communicators’ and collaborators.

- It brings with it a wide range of processes and perspectives of every employee in a team. When employees are part of a team where they feel accepted and their individuality is nurtured, morale increased and the work environment is productive.

CHALLENGES OF DIVERSITY IN TEAMWORK:

- Communication between team members and the organization is one of the important challenges faced by every member in a team. Organizations with diversity plans strive to tackle the gender and the age gap. For example, if a female employee may speak more politely and use more tag questions than male employees, which leads to misunderstanding. Therefore, communication in a team work is the major issue in the organization.
- Secondly, if there are too many opinions from team members then this is also another challenge. Employees who are extremely valuable to the organization, they will keep driving the innovation ideas and identify the issues quickly. By this, an excessive number of opinions can lead to failure to reach a consensus. Therefore, too many opinions can compromise the organization's ability to tighten the deadline

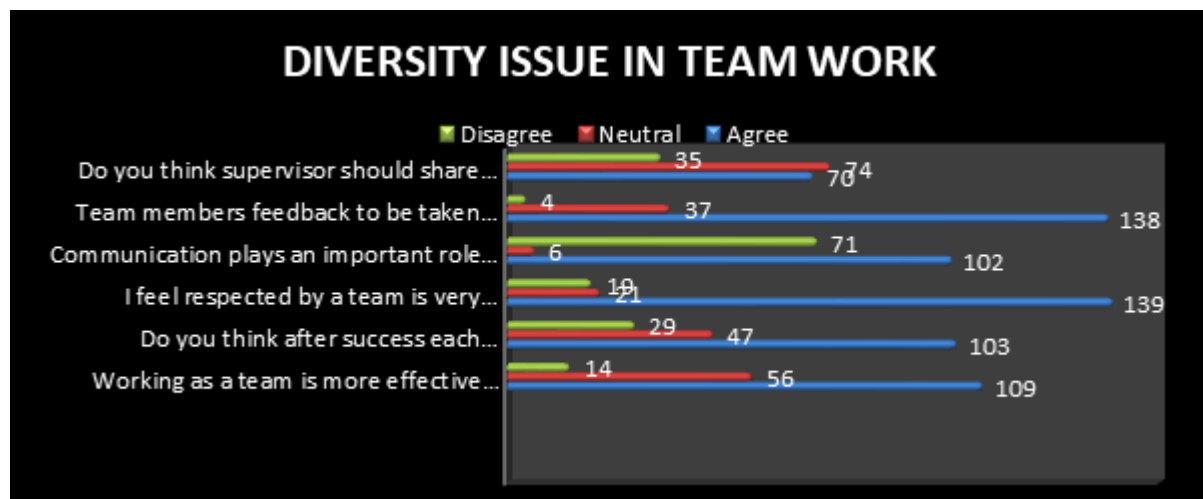
due to reduction of productivity. Thirdly, strong leadership is important as a team as they must understand the difficulties in working with a diverse team and team members are recognized and acknowledge the diversity within the team. So, the team leader should learn to support the team and always keep the team alive.

TABLE 1.1

DIVERSITY ISSUE IN TEAM WORK	AGREE	NEUTRAL	DISAGREE	TOTAL	RANK
Working as a team is more effective than working individually	327	112	14	453	3
After every success each individual is equally benefited in a team	309	94	29	432	4
I feel respected by a team is very important	417	42	19	478	2
Communication plays an important role in a team	306	12	71	389	5
Team members feedback to be taken frequently	414	74	4	492	1

INTERPRETATION:

From the table and chart it is clear that majority of the respondents considered team members feedback is an efficient to build a strong teamwork (Rank-1) followed by after every success each individual are equally benefited (Rank -2), working as team is effective than working individually (Rank-3) and respondents feel communication plays an important in a team. Thus, the majority of the respondents feel there should be a regular check of feedback about the team work, skill development, strategies to be adopted in a team success, etc. are to be considered and take a proper analysis to be done properly in a team. This helps a team to sort out the ethical diversity issues in a team work.

CHART: 1.1**ETHICAL LEADERSHIP APPROACHES TO LEAD A TEAM:**

Teamwork is the ability to work together with others to achieve a common goal with a team. Leadership is accomplishing worthy goals through the combined efforts of others, and teamwork capabilities are crucial. Ethical leadership can play an important role in predicting a valuable outcome in the workplace such as readiness to change, which until now has been practically unexplored. It is intimately linked to communicating and inspiring values in others opinions and get a clear point for the benefit of the team. By investigating these relationships, this study helps us to expand the set of positive outcomes of ethical leadership. The role of an ethical leader is shaping the employees efficiency even more than it comes to the team. This is about how such an important outcome can be formed in organizations.

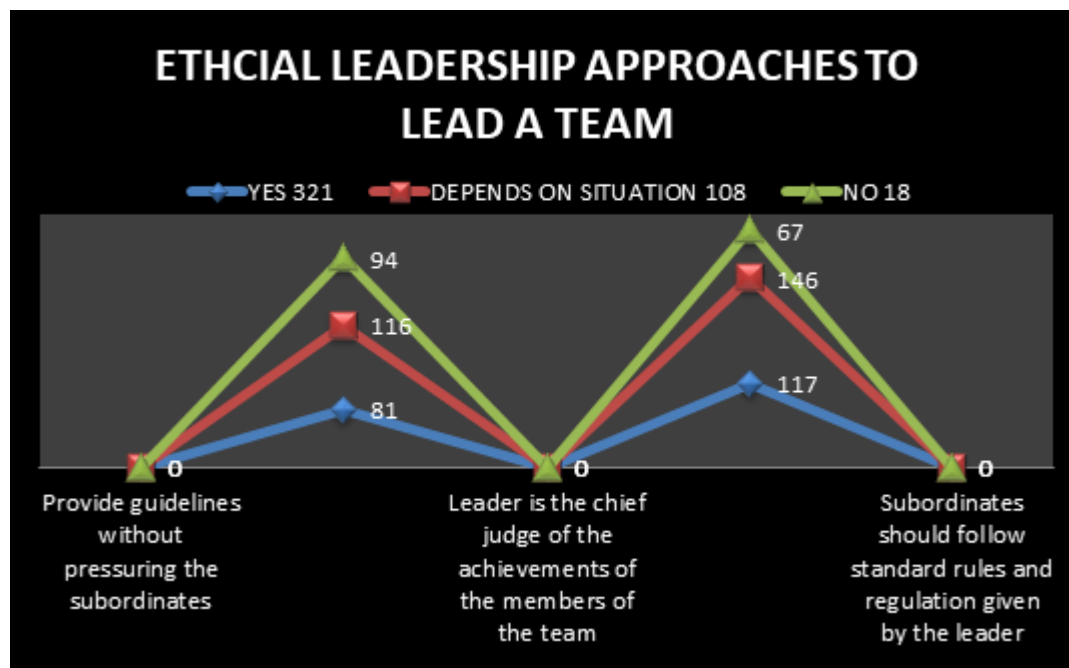
Ethical leadership may provide value to organization by inspiring the employees to motivate and lift up the company's values and goodwill. Experienced ethical leader leads to employee satisfaction and lower turnover rates. The concepts of honesty, integrity, trust and fairness are all critical to ethical leadership.

TABLE – 2.1:

ETHICAL LEADERSHIP APPROACHES TO LEAD A TEAM	YES	DEPENDS ON SITUATION	NO	TOTAL	RANK
Provide guidelines without pressuring the subordinates	321	108	18	447	1
Leader is the chief judge of the achievements of the members of the team	81	116	94	291	3
Subordinates should follow standard rules and regulation given by the leader	117	146	67	330	2

INTERPRETATION:

From the table and chart, it is clear that majority of the respondents are in a viewpoint that providing a guidelines without pressuring the subordination the leader should get their work done is a good ethical leadership approach (rank 1) followed by that respondents say that standard rules and regulations given by a leader to be followed by the subordinates (Rank 2). **Thus, it is clear that majority of the respondents are in a point with proper guidelines and standard rules leader can get their work done by their team corporation.**

CHART – 2.1:**FINDINGS:**

- Majority of the respondents (75%) considered for the present study belonged to the female category of the age group of (21-40) having an educational qualification of both Undergraduate and Postgraduate with the monthly income of Rs.30,000 to Rs.65,000.
- Majority of the respondents are of the opinion that communication plays a vital role in the team work as this is one of the important sources for mutual understanding between the team and this is considered as the one of the ethical diversity issues in a teamwork.
- Majority of the respondents say that equality among the team is an integral part of management and it helps the team to work in an efficient manner as every member in the team plays an equal role in teamwork. Lastly, an organization has to develop the capability of every member to make a decision as a team which benefits them and the team.

- Majority of the respondents are in a opinions that they are decision making is a team is based on the top management and by the leaders and I some cases even the members can also be involved in taking a decision and this may lead to an ethical and healthy relationship between the team leader and the members and this healthy relationship will reflect in teamwork.

3. CONCLUSION

I conclude, no matter the size of the team. If members in a team's hold one another mutually accountable for doing what they do as per to achieve a common goal. When it comes to Ethics, it plays a major role in every sector. When it comes to ethics in teamwork, the members of a team should be fair and they have to put their input during the discussion and always not stick to the leader's opinion and listen to them. If the leader chooses a wrong decision as a team member they can also put their point of view to the team and correct the leader. This is also one of the ethical issues in a team.

Diversity issues and leadership approach in teamwork could present some tremendous challenges as well as opportunities to the team members to perform their potential skill in an efficient way. From the view of this study diversity issue and leadership skill for teamwork plays a major role. The purpose of this study is to understand the conflicts and the awareness of ethics in a team to sort out their problems and make necessary prerequisites for the success. The majority of organizations developed the programs to get aware of those issues and suggestions to solve them in a simplest manner. Several researchers also suggest that the diversity issue has both positive and negative effects and depends on different aspects of the organization's strategies, ethical culture in a team, etc. Approach to leadership is one of the important ethical issues faced by a team. If there is no efficient leader for a team it may reflect in their work. So, choosing an Effective ethical leader for a team leads to a successful teamwork.

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FOLK CRAFTS OF ASSAM: TRADITION AND CHANGES

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ABSTRACT

Assam is a state rich in its arts and crafts. The people of Assam have craftsmen and this is what makes their products so unique and charming. In Assam a confluence of a number of tribes and cultures and it is reflected in the traditional handicrafts of the place as well. The objectives of the study are to highlight the various folk crafts of Assam and to examine the role of these crafts in the economy and also the changes of art and crafts. Methodology adopted for this paper is descriptive and analytical.

Keywords: Assam, Art, Crafts, Economy, Folk Crafts, Traditional Handicrafts.

1. INTRODUCTION

Assam is a state rich in its arts and crafts. The people of Assam have traditionally been craftsmen from time immemorial. History tells us that the artisans of Assam were known far and wide for their exquisite craftsmanship. In addition to the world famous silk products, bamboo and cane products have also occupied an important place in handicraft industry of the state. Then, there are the traditional masks, metal handicrafts, paintings and so on. There is a sense of simplicity and style in the skills of the Assamese craftsman and this is what makes their products so unique and charming.

Assam is a confluence of a number of tribes and cultures and this is reflected in the traditional handicrafts of the place as well. However, in the recent times, due to the effects of globalization, changes have been seen in the patterns and designs of the Assamese arts and crafts also. In order to improve the standards of the handicrafts industry of Assam, the government has established Assam art and craft society (1971) in Guwahati.

Objectives:

- i) To highlight the various folk crafts of Assam.
- ii) To examine the role of these crafts in the economy of Assam.
- iii) The changes of Art and crafts.

2. METHODOLOGY

Methodology adopted for this paper is descriptive and analytical. The present study is based on the secondary data collected from printed books, journals, library, thesis and any other references.

Analysis:

Presently, cane and bamboo craft, bell metal and brass craft, silk and cotton weaving, toy and mask making, pottery and terracotta work, wood craft, traditional jewellery making, musical instrument making are remained as major traditions. This major crafts of Assam are to be discussed in this paper.

Bamboo and cane craft:

Bamboo and cane are the two most commonly used materials in daily life of Assamese people. Products ranging from household implements to construction of dwelling houses from weaving accessories to musical instruments are made in bamboo. Bamboo and cane crafts provide a variety of products like bamboo mats, sital pati, baskets of various sizes and shapes, winnowing trays, sieves, japi or chatta, various types of fishing implements etc. that are manufactured in large numbers in the plain districts of the state. Items like chalani (sieve), kula (winnowing fan), kharahi (small basket), dukula (big basket), Dala (bamboo tray), Duli (Assamese) that are big basket, Dhal (big measure) are of immense importance to the people of Assam. Some of the fishing contraptions those are prepared out of bamboo and cane are polo, Jakai, khalai, dori, cheap, paran, jhuti, hogra, gui, Dingaru, Thupa, etc. Another remarkable item of bamboo and cane crafts are Dhari, Dhara, Jharia or Darma. A huge variation of Japis is created by the artisans that include halua japi, pitha japi, Sorodoiya japi, Bordoia japi, cap japi, Fulam japi, etc.

The musical instruments are flute, bamboo beater. Do-tara, Gogona etc. apart from these, some households produce for the market like making independent products for localized markets, making storage and carrying baskets, fishing traps, agricultural implements, seed trays, and mats and fencing materials.

No mechanical devices are used in this craft, which is mainly a household industry. The craft traditionally provides part time employment to cultivators in the lean season, although, increasingly, full-time artisans engaged in commercial activity can be found now.

Metal crafts:

Metal crafts in Assam consist of generally brass craft and bell metal. Both bell metal and brass crafts of Assam are popular for the durability and beauty of the materials. The brass metal industry has developed in Hajo of Assam over the centuries while Sarthebari in Barpeta district is famous for bell metal craft. Sarthebari is home to the bell metal industry, the second largest handcraft of Assam. Bell metal is an alloy of copper and tin and utensils made from it are used for domestic and religious purpose. A range of domestic items are made from bell metal like kahi (plate), Bati (bowl), Ban Bota, Lota, Charka, Safura, Maihang, Ashana, tray, tal (cymbals). Besides this, Xorai and Bota are used in almost every Assamese household, to offer Paan (stuffed betel leaves) to guests, to welcome them. The Xorai is in fact, the traditional symbol of the state. They were originally made from bell metal but now, brass and silver are also used in making them. A great benefit of keeping food in bell metal utensils is that the food does not get spoiled for a long period of time.

Handloom crafts:

Handloom comprises of one of the crafts in Assam and is known far and wide for its rich textures and designs. So much importance is attached with this craft is that it is customary for every young Assamese girl to acquire the skill to weave, in under to quality for marriage. Of course, at present change has come to this custom all are not interested to acquire this skill. The raw materials used in the handloom craft of Assam mainly include cotton, Muga or Golden silk pwt or Mulberry silk and Eri silk.

Handloom products created in Assam is unique and has no resemblance with other. Images of birds, animals and flowers are mostly embroidered on the traditional handloom products of Assam. Most popular handloom products of Assam are as follows:

Muga silk:

The kings of silk, Muga is golden yellow in appearance and is extracted from semi-domesticated silkworm *Antheraea assama*, common to this region only. Different traditional attires, like Mekhala chaddars and saries are made from the silk. The biggest muga silk producing centre in Assam is Sualkuchi. The silk garments produced in this area have earned international acclaim and from a major export item for the entire state.

Paat silk (Mulberry silk):

A variant of the Muga silk, Paat is extracted from silkworms that are raised exclusively on the leaves of Mulberry plants (hence the name), the texture of the silk is very refined and is in great demand among the fashion conscious and the trend setters all across the globe. The shiny and bright silver color of the silk gives a new shade and meaning to the traditional attire of Assam.

Eri silk:

The warm Eri silk is made by the silk worm *Philosamia ricini*, which harbors on the castor oil plant. Also known as the Endi silk or the non-violent silk, it is mainly used to make shawls and quilts. A unique feature of the products made from this silk is that they are slightly coarse in the beginning, but become soft and smooth after regular use. The silk comes in a variety of colors, like cream, gold, brown and beige. Its porous quality and thermal nature makes it ideal for use in both summers and winters.

Cotton textiles include bedspreads, furnishing material, Mekhala chaddars, shawls and saries. The lasingphee produced by weavers of cachar district is extraordinarily warm and soft with excellent craftsmanship as it is woven by using colorful staple yarn with cotton or bamboo inserted between the wefts for warmth. The weavers of Assam weave beautiful designs on the borders of their mekhalas, chaddars, rihās (traditional garments used by the women) and gamosas (towels).

The patterns generally involve animals, human figures, flowers, birds and diamonds.

The designs in Assam are symbolic of the different tribes and ethnic groups of the area. Women weaver work from a graph of small designs which are generally geometric patterns embellished with floral tracery in between coloured striped strips and is woven on a loom with traditional colours. As for custom, the young women in Assamese society has to present a self woven bihuan (gamosa or towel) to her beloved as a token of love, and to elders as a symbol of respect on Bohag Bihu (New year's Eve). These towels are white with patterns at both ends with stylized forms of birds, animals, humans, flowers, foliage, and geometric motifs. The beautiful tribal mirijim work is commonly done on blankets, mattresses and floor covering in honour of guests and visiting dignitaries. The work is known for its great beauty, excellence of traditional designs and durability. The tribal

designs of Assam are woven on Rajampa ssi fabric in striking colours. Kumbang whddich means chaddar in the Rabha language is a traditional Rabha dress and is used by the Rabha women like a shawl draped over the shoulder as an accessory to the sarong or kocha lufung. The patterns are generally geometrical lines embellished with floral tracery in between coloured strips and is woven on a lain-loom with traditional colours. The traditional Rabha muffler is woven on fly-shuttle looms with traditional colours and exceptionally fine patterns. The Bodo tribes of Assam are from the plains and their women wear the traditional dakhana, a fabric wrapped around the body with only the shoulders exposed. This is very much like sari and has a border running along its edges. The Miri tribals weave patterns on blankets, mattresses and floor covering in honour of guests and visiting dignitaries. The work done by the women of this community is known for its great beauty, excellence of traditional designs and durability.

The flourishing handicrafts of Assam are renowned not only in India but also in whole world. These crafts can be considered as one of the bases of the state economy.

3. FINDINGS:

- a) Falk crafts facilitate tapping of the natural or local resources like raw materials, labor, etc, for productive purposes. That is utilization of huge volume of natural resources has become possible through these crafts.
- b) Exercising these crafts, the empowerment of the people improves with economic growth.
- c) Falk crafts also help to protect and promote the art and creativity, the age old rich heritage of the state.

4. CONCLUSION:

The main raw materials for most of the crafts are abundantly available throughout the state and it requires little or zero investment in terms of money and can be pursued by anybody and everybody of a house hold as a subsidiary occupation. These crafts have considerable scope for development and various new products suited to modern tastes can be manufactured by supporting our traditional crafts.

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FORCIBLE DISPLACEMENT, FINANCIAL INCLUSION AND CONSEQUENCES

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ABSTRACT

The population who are displaced and on the move, do not always have easy access to formal financial services. 68.5 million people are forcibly displaced worldwide. Forcibly Displaced Persons (FDPs) represent an important segment of the world's 1.7 billion unbanked. Financial inclusion empowers FDPs to safely store money, build up savings, receive and make money transfers, conduct everyday financial transactions, secure jobs and insure themselves against risks. Access to formal finance services help them to be self-reliant and resilient and to exploit their skills to the optimum extent. In turn, they are able to contribute to the economic growth of their host country, voluntarily return home. This paper looks at the plight of forcibly displaced persons; key drivers of financial exclusion for refugees, a road map to financial inclusion for forcibly displaced persons. The other key focus of the paper is on the factors that may affect forcibly displaced persons' need for financial services to significantly improve the life of millions around the world. It has concluded that financial inclusion of FDP must include or address existing practices and behaviours, including informal ones. It must find ways to deal with shifting or elastic identities, outcomes which may affect banking policies. Governments must find ways to appease financial standard setting bodies, as well as other powerful governments with the capacity to blacklist.

Keywords: Financial Inclusion, Forcibly Displaced Persons, Financial Services, Financial Exclusion. JEL Classification: G20

1. INTRODUCTION

Forced displacement in its various forms is a critical and rapidly evolving global development issue. The number of individuals who were uprooted from their homes by conflict and persecution more than doubled from 2010 to 2015, and by the end of 2016 amounted to 65.5 million people worldwide¹ (UNHCR, 2017). Thus, more people than ever are affected by forced displacement.

1.1 Definition

Forced displacement is, in line with the UNHCR definition, the forced movement of people from their locality or environment and occupational activities due to conflict, persecution, violence, or human rights violations. It includes Refugees, Asylum seekers, Internally displaced people and Displacement for reasons of natural disasters.

2. FORCIBLY DISPLACED PERSONS: THE SCALE AND NATURE OF THE PROBLEM

According to UNHCR data, the world is witnessing one of the highest levels of displacement on record, with 65.5 million people around the world forced from their homes. These displaced communities include nearly 22.5 million refugees, over half of whom are children (under the age of 18)², 40.3 million IDPs and 2.8 million asylum seekers. At current levels, nearly 20 people are forcibly displaced every minute.³ In 2014, only 126800 refugees were able to return to their home countries – the lowest figure in 31 years.

Indeed, it has become increasingly clear that if we want to mitigate the social and economic strain caused by the global forced displacement crisis, this vulnerable and diverse population has to be enabled to contribute productively to, ideally, regulated economies and markets and, at a minimum, to develop socio-economic and sustainable livelihoods.

3. OBJECTIVES

- (i) To highlight the significance of financial inclusion of forcibly displaced persons
- (ii) To identify the drivers of financial exclusion for refugees

¹ UNHCR (2017): Global Trends: Forced Displacement in 2016.

² UNHCR figures at a glance. Available at: <http://www.unhcr.org/uk/figures-at-a-glance.html>

³ Ibid.

(iii) To suggest a road map to financial inclusion for forcibly displaced persons

4. METHODOLOGY

This study is theoretical based on the reports of United Nations High Commission for Refugees, Global Findex database, CGAP, HPG Commissioned Report and GPFI.

5. FINANCIAL INCLUSION OF FORCIBLY DISPLACED PERSONS – THE NEED

Financial inclusion may be a particularly powerful part of the answer¹. Options to safely store money, to build-up (small) savings or send and receive money transfers, and to carry out everyday life transactions are vital for FDPs. Access to a broad set of safe and affordable financial services – payments, savings, credit and insurance – can enable forcibly displaced populations to master difficult situations and to manage (economic) shocks associated with displacement, to effectively deploy their skills and competencies and to rebuild their livelihoods, all of which can help to mitigate stress and trauma of forced displacement.² As a result, financial access allows FDPs to contribute to the economic development of the host community or country. Robust and appropriate financial access can also boost stability and resilience, not just of FDP populations, but also of the markets and local communities in which they live, as well as other populations such as regular migrants.³ Hence, there are strong links between financial inclusion and economic, development and empowerment outcomes.

At the same time, the financial inclusion of FDPs provides a unique opportunity of linking relief, rehabilitation and development (LRRD) efforts. By enabling and encouraging financial access that is inclusive of FDPs, development actors can foster synergies between measures to achieve humanitarian (crisis relief and recovery) and development objectives (sustainable social and economic empowerment and growth) and facilitate the transition from crisis to post-crisis situations. Financial inclusion of FDPs implicates both humanitarian response and development priorities. Improving response while providing lasting financial inclusion can make aid more effective and enhance individual and market resilience. By embedding this approach in a longer-term vision and developing conducive (legal) framework conditions, national governments play a crucial role and can broker relevant partnership.

6. WHY WE NEED FINANCIAL INCLUSION OF FORCIBLY DISPLACED PERSON

Displacement phase		Key determinants	Key financial needs
Arrival	Focus on immediate basic needs for protection, shelter, food, medical services and communications technology to reconnect with family	Degree of trauma experienced during flight.	Survival cash for housing, food, medical services, and often to repay debt incurred during escape.
Initial displacement	Focus on access to housing, education, learning the language, work or business start-up.	Receptivity of host community, assessment of economic opportunities and human/social capital. End goal often return or resettlement.	Financial services: Savings, remittances to family in country of origin; micro-/consumer credit for furniture, appliances, school fees, business equipment and health insurance. This demand can remain latent due to real or perceived financial exclusion. Non-financial services: Market information and access, job placement/vocational training, business skills, life skills and social interaction with hosts.

¹Klapper, El-Zoghbi, and Hess (2016). Achieving the Sustainable Development Goals: The Role of Financial Inclusion. *Financial services have been proven to enable many social and development goals and are considered an important enabler to achievement of the Sustainable Development Goals (SDGs).*

²Khoury (2017). The Graduation Approach: They key to Sustainable Livelihoods for Refugees in Countries of First Asylum? *Financial services can boost FDP self-reliance through new and expanded livelihoods.*

³ This is true regardless of their level of financial capability prior to displacement, whether completely unbanked or fully-banked. The nature and context of displacement can vary widely, yet the need for financial services to enable self-reliance and long-term resilience is constant across populations and demographics.

Stable/protracted	Focus on making an increasingly better living.	Success of livelihood. End goal either integration or return/resettlement.	Financial services: Savings products, micro/consumer credit, mortgage/home improvement loans, business loans, transactional accounts for cross border payments and remittances, and health insurance. Non-financial services: Job placement, vocational or business training, linkages to the market/value chains, social/business interaction with hosts.
Permanence	Focus resembling host population, i.e. livelihood building to ensure the best life possible for self and family.	Success of livelihood. End goal either integration or return/resettlement.	Integration is the goal, financial service demands becomes more sophisticated and resemble those of hosts: savings, pension plans, credit, insurance and transnational services. Return/resettlement is the goal: Savings for journey, transferable credit history, transferable pension schemes and deferred annuities.

Source: UNHCR, 2016

7. KEY DRIVERS OF FINANCIAL EXCLUSION FOR REFUGEES

Emerging evidence suggests that a refugee community that is nationally and transnationally integrated contributes in positive ways to the national economy, is economically diverse, and is far from dependent on international aid.¹ Refugees form part of the wider systems of consumption, production, and exchange, and seek out entrepreneurial livelihoods in the formal and informal sectors², alongside-and in competition with-the core microfinance clientele of the urban and rural poor. Both nationals and refugees face difficulties in finding adequate shelter, limited job opportunities, increasing food prices, and precarious access to legal and social services and protection. Refugees could benefit from financial inclusion, just like nationals. So why do refugees remain largely unbanked?

Host government policies play a significant role in refugees' access to financial and other services. Several countries with long-standing refugee populations, including Kenya, Uganda, and Colombia, have taken important steps to enact or adapt legislation that emphasizes greater rights for displaced people and more integration of displaced populations into national development plans.³ However, most other host states have resisted such policy changes, inhibited by one or more of the following factors:

- Concerns about national security and social cohesion, including concerns about upsetting an ethnic or religious balance in the country.
- Scarcity thinking that portrays refugees as unfairly competing with and/or taking jobs from nationals, diverting important development funds, receiving disproportional amounts of public funds, overwhelming public services and/or exhausting scarce natural resources.
- Ignorance of the potential social and economic contributions that refugees could and do make.⁴

Enabling financial inclusion of forcibly displaced persons – Common challenges

7.1 Lack of conducive policy and regulatory framework conditions

Local policies, regulations and legal frameworks may in some instances impede access to financial services for FDPs. For example, FDPs often may lack the means to establish legal identity in order to satisfy customer due diligence (CDD) requirements for accessing regulated financial services. Local prohibitions on who may access financial services also can hinder financial inclusion of certain FDPs.⁵

¹HIP: Refugee Economics – Rethinking Popular Assumptions, op.cit.

² ODI: Protracted displacement: Uncertain paths to self-reliance in exile, HPG Commissioned report, September 2015.

³ ODI: Protracted displacement, op.cit.

⁴Lakhani, S. Forced Displacement, op.cit.

⁵BMGF (2017). Digital Financial Services in Humanitarian Response: Four Priorities for Improving Payments. And: AFI (2017): Financial inclusion of Forcibly Displaced Persons: Perspectives of Financial Regulators.

- ✓ National financial institutions and service providers need to comply with international Anti-Money Laundering/Countering the Financing of Terrorism (AML/CFT) standards. This requires appropriate CDD, including customer identification and verification, understanding, and as appropriate on a risk basis, obtaining information on the nature and purpose of the customer relationship, conducting due diligence on the business relationship, and monitoring financial transactions to identify and report suspicious ones.¹ Given that FDPs in some cases lack the means to prove their legal identity, the costs associated with compliance in such scenarios can be prohibitive and discouraging.
- ✓ Humanitarian agencies, such as the World Food Programme (WFP) and the UNHCR, have developed and use specific identification methods in crises contexts. FDPs are, for instance, often extensively interviewed and can be issued registration cards. Such humanitarian identification methods are, however, largely not accepted for CDD purpose.

7.2 Insufficient or inadequate (financial) infrastructure

A robust and resilient infrastructure is critical for the financial inclusion of FDPs and to enhance preparedness in general. In reality, however, infrastructure is often underdeveloped or sometimes even non-existent, especially in crises contexts or conflict situations. This encompasses physical infrastructure such as bank branches, ATMs, agent networks, or physical telecommunication components that significantly determine the geographical reach of financial services, but also the financial infrastructure such as payment system that are critical for money to reach target groups even in the most fragile and conflict-affected situations and that may operate physically or digitally:²

- ❖ As to the physical infrastructure, agent and merchant networks, ATMs and bank branches do not tend to extend to remote regions of the country as branches are not viable and/or agent and merchant management and conduct cannot be sufficiently supervised and overseen.³ Regions beyond the reach of financial infrastructure typically include rural areas and refugee camps, but also low-income urban areas, where many FDPs are located, which limits the extent to which FDPs can be financially included.⁴
- ❖ With regard to the overall financial infrastructure, fragmented, underdeveloped or even damaged payment systems, weak connectivity, and a lack of interoperability all impede financial inclusion, including the ability to sustainably and responsibly extend financial services to FDPs. In addition, the portability of FDP's accounts and the ability to remain financially included through the FSPs in their country of origin is almost non-existent.
- ❖ In general, humanitarian organizations depend on the existing local payment systems infrastructure in order to distribute funds on short-notice. For this reason, some humanitarian organizations have, often in cooperation with FSPs, developed localized closed-loop or customized (digital) solutions to provide a rapid response in crises contexts and conflict situations. While they may provide some utility in the short term, by not connecting to existing payment services in general use, these short-term fixes are unlikely to support the development of an inclusive and growing financial ecosystem and thus are unlikely to be sustainable in the long-term.

7.3 Limited consumer protection, awareness, and financial literacy

In addition to the regulatory environment and the available infrastructure, the knowledge, skills and attitudes of FDPs are also important determinants of the extent to which they can be financially included.

- ❖ FDPs need to be aware of their opportunity to access financial services, how those services work, as well as of their rights and responsibilities related to financial access in the communities into which they are displaced. This is a fundamental prerequisite for FDPs turning to regulated financial services and using

¹ FATF (2012-2017): International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation, Recommendation 10, pg. 12-13.

² IRC (2016a). The IRC has developed an e-payment preparedness framework to assess the current state of e-payment readiness in crisis prone countries. *Making Electronic Payments Work for Humanitarian Response*.

³ BMGF (2017): Digital Financial Services in Humanitarian Response: Four Priorities for improving Payments.

⁴ Data from the Global Findex Database consistently show that usage of unregulated services is significantly higher among populations living in fragile and conflict-affected state. <http://datatopics.worldbank.org/financialinclusion/>

them to their benefit. Particularly for refugees – and in contrast to local customers – additional hurdles arise that influence FDPs' ability to access financial services formally available to them, such as a lack of local knowledge about how to access services or the types of service available, language barriers, and an absence of usage by their social and support networks. Furthermore, concern over documentation, assumed and actual legal restrictions, and the perception of risk¹ tend to influence their financial choices and behaviours.² This holds especially true for specific sub-segments of this already vulnerable population, such as women, children and youth, the elderly, and people with disabilities.

- ❖ Trust, reliability, positive user experiences and a clear understanding of rules, rights and recourse are critically important to achieve uptake and usage of even the most basic financial services, and extends to more complex products and services.³ If regulated financial products, services and channels are of poor quality, inconvenient, expensive or otherwise poorly-designed, FDPs will continue to rely on unregulated financial services. At customer level, financial capability of FDPs will have to be improved to become familiar with the financial landscape and to understand the conditions of financial services in order to make informed and sound financial decision.⁴
- ❖ To ultimately inspire trust and encourage repeat usage, financial services must be provided in a responsible manner. This requires adequate consumer protection frameworks to guarantee the effective safeguarding of funds, appropriate and timely consumer recourse, effective product and pricing transparency, and appropriate privacy and data protection. These issues are particularly important for FDPs, since they are a highly vulnerable population with even deeper concerns about privacy and tracking than the average citizen.

7.4 Insufficient engagement of financial service providers

Donors and humanitarian organizations often operate at the frontlines of leveraging opportunities to promote the sustainable financial inclusion of FDPs. Yet financial inclusion of FDPs is not something these actors can or should attempt to accomplish on their own. Despite the long-term nature of displacement, humanitarian resources are rarely directed beyond immediate and short-term relief services. In order to provide FDPs with affordable, reliable and rapidly scalable financial services, the active involvement, investment and innovative dynamism of financial service providers is essential. Private sector actors are key innovators and enablers in advancing the financial inclusion agenda, including for FDPs, by striving to offer more sophisticated, yet practical financial products and services.⁵ Including in this trend are

- ✓ Mobile solutions for cost-effective and rapid payment services,
- ✓ New approaches to digital identity using biometrics and alternative data,
- ✓ DLT for lower costs of remittances, and
- ✓ Advanced algorithms and alternative data to support innovative lending platforms.

However, even where will and resources exist, financial service providers in many markets are wary of serving FDPs due to (perceived) high-risk and temporary nature of displacement, regulatory uncertainty, political sensitivities and other perceived risks attached to serving these groups:

- ❖ In many contexts of forced displacement, the political, economic and social environment is characterized by high complexity, political sensitivity and volatilities. When compounded by regulatory uncertainties, FSPs often lack the incentives to serve FDPs and may even fear to do so. As far as refugees as concerned, FSPs are even in some cases legally not permitted to serve them.

¹ CGAP (2016): Understanding How Consumer Risks in Digital Social Payment Can Erode Their Financial Inclusion Potential.

² Wilson, Krystalli (2017). Financial Inclusion in Refugee Economies: An Essay, pg. 5.

³CGAP (2016). Understanding How Consumer Risks in Digital Social Payments Can Erode Their Financial Inclusion Potential.

⁴OECD (2016).Responses to the Refugee Crisis Financial Education and the Long-Term Integration of Refugees and Migrants.

⁵ GPF (2017): Documentation – GPF/AFI High-Level Forum on Financial Inclusion of Forcibly Displaced Persons.

- ❖ Misinformation or a lack of information as well as a lack of direct contact with FDPs, and particularly with refugees, can entrench the perception of this target group being “high-risk” clients that do not warrant the investments required to develop an appropriate service model and business case.¹ FSPs tend to assume that FDPs are much more mobile than they are, and also under estimate the financial capacities of the FDPs, some of whom are in reality quite competent and already economically active, or were in their home countries. Given the lack of information, however, the vast majority of financial service providers currently do not consider FDPs a viable market opportunity and therefore do not recognize the incentives to explore business models that would facilitate financial inclusion of FDPs.
- ❖ Due to a variety of fears and prejudices that can be reflected and even amplified in public policy and media, FSPs may face resistance in serving FDPs from their own staff members and the general local populations, so that serving them could create reputational risk.
- ❖ In many cases, FSPs’ staff members and agents do not understand their company’s policies and lack training in implementing them, especially when it comes to a population like FDPs that they are not certain they ought to be serving.
- ❖ The varying financial inclusion demands, experiences, and needs of the heterogeneous group of FDPs in their different displacement environments and phases as well as the underlying behavioural economic and cultural factors is presently largely unexplored by financial service providers. On the one hand, developing a refugee-specific financial product will not be necessary in most cases, and could even be harmful, if nationals view preferential treatment being given to an FDP population. On the other hand, due to cultural and language barriers, as well as fears from both FDPs and the FSPs, and often physical barriers to access, FSPs will need better data on FDP’s needs and preferences, than they typically currently have. This data will allow FSPs to develop outreach, marketing and delivery channels adapted to FDP’s specific needs. Recent years have shown an increasing interest by new and traditional FSPs in the topic and number of relevant initiatives, cooperation and research activities.² Insufficient coordination and alignment between national governments, humanitarian and development cooperation agencies, and private sector actors

8. IGNORANCE

Many FSPs are unfamiliar with their country’s refugee populations, and are uninformed as a consequence. Refugees are typically not very visible in their host country market place, and they are rarely familiar with local FSPs. Refugees may be concerned with keeping their personal information safe from authorities, or they may distrust mainstream FSPs due to poor experiences from home. Refugee populations will rarely initiate contact with host country FSPs, often because they assume that they will not be eligible customers, they expect discrimination due to past experiences, or due to language barriers.³

This lack of contact, information, and familiarity with refugees has left most FSPs to make decisions based on very limited information and the common myths that refugees as a segment pose lot of risks.

9. A ROAD MAP TO FINANCIAL INCLUSION FOR FDPs

The global displacement crisis is unlikely to be resolved anytime soon, and current trends indicate that conditions will persist or even deteriorate. It is now an important moment to push the boundaries and tailor solutions to extend financial inclusion to FDPs. Some AFI members have already begun this process, but it is evident that much more needs to be done.

Undoubtedly, the financial inclusion challenges for FDPs in part mirrors those of other unbanked communities, and important elements of national financial inclusion strategies will be transferrable, particularly the adoption of new technologies, designing effective tools for borrowing and savings, improving financial literacy and supporting the development of payment infrastructure.

But in case of FDP lack of identity, uncertainty about how to apply simplified customer due diligence, perceptions of low income/higher risk, knowledge gaps in terms of what services are required and the heterogeneity of FDPs, require out of box thinking and actions. To help resolve these issues, the following road map is proposed:

¹SPTF (2017).Serving Refugee Populations: The Next Financial Inclusion Frontier – Guidelines for Financial Service Providers.

²<http://www.cgap.org/blog/humanitarian-crises-understanding-demand-financial-services>.

³ Information Centre about Asylum and Refugees, 2009, op.cit.

9.1 Cross-government coordination and leadership

At the heart of greater financial inclusion for FDPs should be an explicit recognition of the need for clear leadership from decision-makers across government. Financial inclusion efforts for FDP have primarily been driven by humanitarian actors, but there is now a need driven by humanitarian actors, but there is now a need for central banks and regulators to become more actively engaged, specifically by strengthening coordination and a shared sense of purpose across the humanitarian sector, government authorities, central banks and regulators. The central bank has to be an enabler in the process.

9.2 Addressing the ID and CDD problem

To conduct financial transactions, FDPs need to be identified, verified and integrated in a national, refugee or equivalent ID system. To date, there has been little guidance from either standard-setting bodies or regulators on how to conduct customer identification and verification for FDPs who cannot reasonably meet either normal or simplified identification requirements. Better understanding of appropriate risk management procedures is also needed, and these issues must be addressed as a matter of priority.

9.3 National Risk Assessments (NRAs)

The introduction of NRAs represents an important opportunity for countries to determine the money laundering and terrorist financing risks associated with FDPs. AFI, FATF, UNHCR and wider stakeholders should work together to advance a common understanding of how the NRA process can best support risk assessments for FDPs and related financial inclusion initiatives.

9.4 Linking FDPs to formal financial services

Extending formal financial services to FDP communities, whether through new payment technologies, bank accounts, micro lending, insurance or other programs, will likely involve innovative partnerships. Central to this will be engaging financial service providers. At the country level, central banks, regulators, financial service providers and humanitarian actors should examine how to best support FDPs in safely storing their finances and accessing wider financial services from banks and formal financial institutions

9.5 Ensuring products are ‘fit for purpose’ in terms of customer needs and security considerations

It is imperative that financial service products are tailored to the needs of FDPs in every host country. This can be achieved through better central bank/regulatory coordination with aid agencies, including UNHCR, development bodies and other stakeholders, such as commercial banks, mobile providers and the FinTech community. Engagement with FDP communities should be a core part of ensuring products are ‘fit for purpose’ and meet their needs. Specifically, understanding that FDPs may be more vulnerable to financial exploitation and personal security concerns associated with cash distribution, should inform how financial service products are designed and delivered.

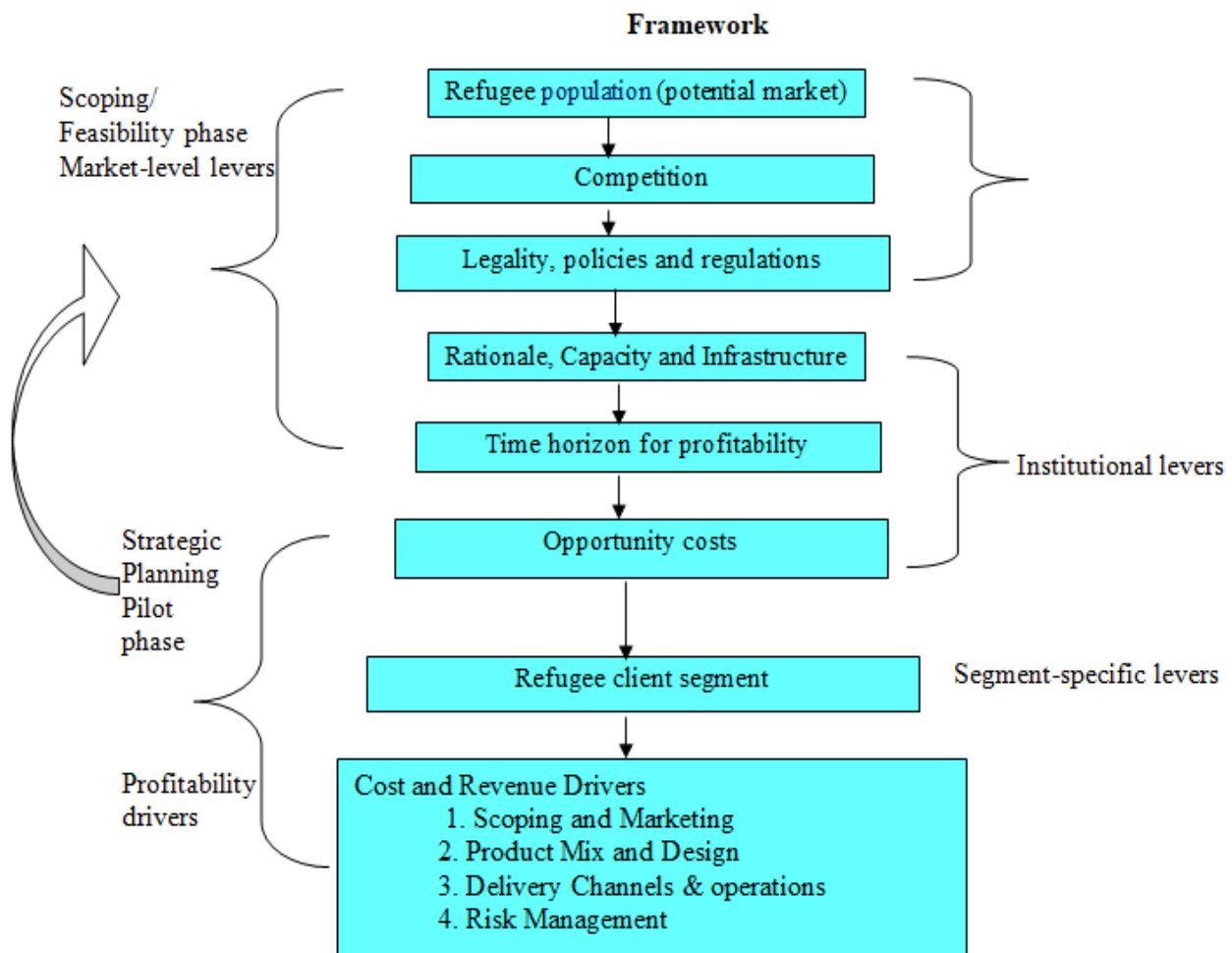
9.6 Enhanced use of technology to support broader compliance obligations

Compliance frameworks can be enhanced with a range of technological solutions. For instance, monitoring ‘big data’ collected via mobile phone-linked financial data offers a cost-effective window into consumer behavior and can assist with meeting CDD/AML/CFT requirements. In order to protect vulnerable FDPs, proper cyber security measures need to be developed.

10. FACTORS THAT MAY AFFECT FDP’S NEED FOR FINANCIAL SERVICES

Some of the key factors that affects FDP’s needs for financial services are listed below and elaborated in this section.

- ❖ Stage and length of displacement
- ❖ Right to work in host country
- ❖ Camp or non-camp based
- ❖ Demographic, social, economic situation
- ❖ Human capital (literacy, education, language)
- ❖ Social networks
- ❖ Past experience in using financial services.



Source: Researchers' computations

11. CONCLUSION

In summary, financial inclusion proffered through digital/formal financial services may be of high value to refugees: credit, savings, insurance, guarantees and down payments can all play a role in stabilizing circumstances, shaping businesses and yielding more successful livelihoods. Financial inclusion of Forcibly Displaced Person must include or address existing practices and behaviours, including informal ones. It must find ways to deal with shifting or elastic identities, outcomes which may affect banking policies. Governments must find ways to deal with shifting or elastic identities, outcomes which may affect banking policies. Governments must find ways to appease financial standard setting bodies, as well as other powerful governments with the capacity to blacklist. If all this can happen, refugee financial inclusion is a good idea.

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FOSTERING SIGNIFICANT ROLE OF EDUCATORS ON CLASSROOM MANAGEMENT STRATEGIES FOR STUDENTS WITH DISABILITIES IN AN INCLUSIVE CLASSROOM SETTINGS

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ABSTRACT

The present study planned to sort out briefly the significant role of educators on classroom management strategies for Students with Disabilities (SwDs) in an inclusive classroom setting. In the twenty-first century, students in general education and special education must work together in harmony in the classrooms. Additionally, students with mild to moderate academic or behavioural difficulties are welcome. They improve the efficiency of classroom management by necessitating good discipline, consistency, and encouragement from educators. Educators must follow the professor's behaviour strategies. There are many methods for managing classrooms, including modifying the acceptance-to-disapproval ratios, choosing ignored pupils, emphasizing regulation and regularity, and enhance learning approaches. This study discusses the significance of using proven methods to manage SwDs in an inclusive classroom setting. Educators needed the classroom management plans to assist restore order and promote learning capabilities. Educators will be able to try out different classroom management methods as they become more knowledgeable about them. It was discovered that not all classroom management systems were created equal. As a result, educators would have more flexibility in selecting the curriculum that best suits their students' requirements. Educators would have the option of using a classroom-specific strategy or a school-wide strategy to enhance student conduct. Designing and executing classroom regulations would also help instructors create efficient and reliable guidelines to foster a personalized educational environment for all SwDs, irrespective of their disabilities or capabilities. Educators must plan a classroom since there are many variables to take into account. When preparing and organizing for a new category, several factors must be considered. All learners must, in my view, have a thorough knowledge of how educators behave, concepts, rules, and techniques if they are to succeed in school. To be effective, educators are encouraged to identify SwDs who have difficulty understanding and require extra help to overcome these difficulties. To execute this system successfully, educators are critical. Educators must have the experience, abilities, and methods needed to lead inclusive classrooms settings for all students. The author has investigated various techniques to help educators enhance classroom management and behavioural modifications for SwDs in inclusive classroom settings.

Keywords: Role of Educators, Classroom Management, SwDs, Fostering, and Inclusive Classroom.

INTRODUCTION

Every child has the right to a safe and productive classroom environment. For ages, experts who put their best base forward have been able to deliver on their promises. The order had been restored to the classroom. All of the kids stayed in line as instructed by their educator. They were on time, responsible and respectful to their educator. Any issue involving discipline in schools could be dealt with by educators who were well-prepared for it. In the classroom, everything was relatively straightforward. There are no limits to what educators and students may do when it comes to education. Many things have changed throughout the world, and these shifts impact both students and educators. In contrast, in education, the curricula, management experience, educational methods, and student evaluation all have to be revised to fit all kids in the classroom. This is due to the current educational system, which is inclusive education. The academic study must increase our understanding of classroom management since both ideas and investigations show the critical role played by competent educators in establishing a successful education background. Classroom management strategies are still required in today's schools. Discipline in the classroom is a constant battle for educators, leaving them with hardly any time to show. There have been "commercialization" of several different academic programs. Each one of these initiatives makes the promise that it would restore order to the classrooms. Each one shows that education will be more accessible when there is less time spent being disciplined. The classroom management methods show that the average primary function of instructors is finding and incorporating students' previously acquired experience and knowledge into teaching. Students and educators often engage in verbal and written communication and physical reactions like resting and interacting with students (Martin, 2002). There are many things an educator undertakes to guarantee that teaching-learning proceed as smoothly to keep the classroom "running easily" (Groves, 2009). Classroom management encompasses everything, including controlling the

physical teaching atmosphere, developing and implementing lesson plans, communicating with students, and monitoring their behavior (Martin & Sass, 2010). Classroom management may increase students' cooperation and participation in classroom activities and debates (Roelofs & Veenman, 1994). The environmental and aesthetic arrangement of the classrooms has a significant effect on students' and instructors' behavior and relationships. Many elements of the educational setting, such as socialization, human interaction, and personalization, may benefit from educators being present in the classroom (Savran & Akrolu, 2004). Educators are essential for the successful management of classrooms (Martin, 2002). They can handle and organize classrooms seems to be a requirement for establishing a favorable learning environment for students (Brophy, 1983; Emmer, Evertson & Worsham, 2000; Evertson, Emmer Sanford & Clements, 1993). Students' intellectual and social-emotional development may be promoted via "classroom management," which refers to instructors' attempts to create an enabling environment (Evertson and Weinstein, 2006). Educators' classroom management is affected by several other factors, including their experiences (Imşeker & akrolu, 2006) and attitudes (Güven & Akda, 2002). In a nutshell, classroom management's primary aim is to provide an environment conducive to meaningful learning (Bakioğlu, 2009). Students with and without disabilities must be present in all classes in the twenty-first century. This category consists of students who have moderate to severe learning and behavioral issues. Educators' methods must be highly organized, persistent, and supportive while dealing with these students. Educators must abide by the rules that have been established for their conduct in an inclusive classroom setting.

Classroom Management Strategies

Educators have had to adapt their classroom management methods to the new situation as the curriculum has changed to a teaching style. Educators' classroom management methods haven't changed much since the early 2000s, according to recent studies on the efficacy of changing curricula (Kalender, 2006; Elebi, 2006; Ekinci, 2007). Even if McCaslin and Good's (1992) worry about a mismatch between teaching and classroom management is correct, there seems to be a problem to be addressed now. That's why one of the study's main goals is to learn how teachers run their classes. Finding out how educators manage their types may be helpful if the educational method can be successfully used in elementary classroom settings. Several educators place a high value on classroom management strategies because of this. Teachers and novices contemplating utilizing new teaching techniques for about the first time should consider this advice (Delong & Winter, 1998). Classroom management has a significant effect on pupils' capacity to learn, according to many studies. The investigators discovered that classroom management had the most significant impact on student learning (Wang, Heartel, and Walberg, 1993). Marzano (2003) found that classroom management had the most significant effect on student learning. According to Ben (2006), suitable classroom management methods are essential for teachers. According to this original study investigator, classroom management is necessary. Classroom management is a critical skill for educators to acquire if they want to support effective instruction. Educators' classroom management techniques may assist educational leaders in evaluating how well building courses are being implemented in elementary and secondary schools. Alternatively, please find out how educators manage their classrooms and use that information to know what goes on in the classrooms and how to maintain it that way when the progressive movement is gone. The classes are managed by establishing and carrying out procedures that encourage appropriate behavior while minimizing disruptive behavior. Using an effective classroom management strategy will make your SwDs more motivated to perform their best work. Classroom management includes both the way you arrange your classroom and how you discipline your students. The section assesses they will assist you in creating a learning atmosphere where learners may flourish. When it comes to setting up classroom management, educators are expected to be inventive and creative. Simple, customized teaching methods for disabled students make it simpler to manage inclusive classroom settings.

Role of Educators on Classroom Management

Classroom management is a complex topic in the teaching-learning process. It includes a wide variety of language, behavioral, and social variables. These variables also have the new curriculum, the classes covered, the strategies used, the teaching techniques, and the educational support. Classroom management is affected by the school's routines, learners' perspectives, teachers' orientation, the environment outside of the organization, and academic demands. Moreover, a series of comparable educational studies have more or less focused on utilizing technology in teaching-learning institutions. The capacity of educators to enhance their students' practical learning abilities was regarded as evidence of excellent classroom management skills. Instructors viewed adopting a suitable teaching approach as a necessity for coping with improper conduct in their classrooms. Students will do better in school if teachers have a system for teaching. An educator who exhibits desired behavior requires assistance, builds connections, and promotes interest in the issue. It discourages

students from interrupting the educational learning environments or limiting their classmates' classroom accomplishments while teaching. There are fewer behaviors in the classrooms that hinder learning when classroom management approaches are used successfully. Educators also take more measures to promote and enhance learning when classroom management strategies are used effectively (Allen & Blackston, 2003). Beginner teachers should know that every class is different and will have its own set of challenges in terms of discipline. Each day, educators had several tasks in the classes, including answering students' questions, performing extensive and demanding responsibilities, and dealing with unusual situations. Every day in the classrooms, educators are involved in teaching (Darling Hammond, Holtzman, Gatlin, & Heilig, 2005). Professors who have outstanding classroom management skills have attracted increasing attention from academic institutions and academics. The authors (Hulac & Briesch, 2017) believe that this is because suitable educational needs outstanding classroom management and leadership abilities, neither of which was initially assumed to be a pre-requisite. As a consequence, good classroom management has become more critical (Brophy, 2006). A strong case can be made that the student achievement and instructors improve when classroom management techniques such as effort-based learning, active experimentation, and cooperative activities are combined with academic support (Evertson & Weinstein, 2006). Classroom management is often seen as a crucial part of instructors' work, as shown by research that ranks it among the most vital instructional skills (Huntly 2008; Jones 2006; McKenzie et al. 2011). Educators' perspectives on teaching-learning and academic achievement are crucial in educational settings. In classroom debates, educators have a strong view of what is needed to manage education and conduct successfully. Our goal was to recognize and comprehend educators' opinions on teaching-learning and classroom management. We think that neglecting these educators' viewpoints would be harmful to teaching-learning in an inclusive classroom setting.

Behavioural Problems in Classrooms

Even though SwDs make up almost a quarter of the student body (DfE 2011), little study has been undertaken on behavioral problems in this demographic. Problems with conduct in early childhood have lengthy consequences in maturity and throughout a broad range of human endeavors. As a result of the phrase "challenging conduct" in the classroom, many criteria have arisen for teachers to identify pupils who exhibit improper behavior. When a child's schoolwork or developmental processes are harmed or placed in the highest category for interpersonal problems down the road because of troublesome conduct, it is referred to as poor behavior (MacFarlane, 2007). Concern about student behavior in the classrooms be stressful for both educators and pupils, interrupt the learning process, and interact with pupils' learning outcomes and educational experiences. By redirecting students' focus away from the academic task at hand towards the distractions offered by inappropriate conduct, they alter the classroom atmosphere. A few pupils are usually designated as "problems," and then they may compound management issues by encouraging their peers and maybe other kids to engage in misbehavior as well. Children come to school with a wide variety of worries, concerns, feelings, and behavioral tendencies that have been developed outside the classrooms accepted and reinforced. If we concentrate on one particular kid as "the issue," we risk detracting from the need to thoroughly examine the classroom climate, healthy school delicate balance, and the community and family contexts where these institutions are located. A startlingly large number of children and adolescents are being harmed by these issues (Green et al., 2005). Because children' needs and the classroom setting may change, classroom behavior management is a never-ending game of trial-and-error. Classroom management may be impacted by students' social and intellectual abilities as well. Specific management practices, especially for children with SwDs, may help the percentage of children, but they will not function for everybody. Consequently, Nja (2014) argued that instructors should utilize evidence-based practices before deciding on the best option for their population. Some of the potential causes of behavioral issues in SWDs in the classrooms include the following:

- The people may be attempting to stay away from a particular circumstance, location, or people.
- He and that she may be looking for various things, such as admiration, moments alone, or a sense of power.
- They may be conveying bodily demands such as thirst, hunger, or exhaustion.
- The person may be expressing medical issues, including sickness, discomfort, or medication side effects.
- The person could be exhibiting feelings including rage, worry, or terror.
- Sadness, confusion, happiness, or frustration.

Behavior Management Strategies

Many classroom management methods may be utilized to improve student behavior, as stated earlier. Some techniques are more accessible to implement than others, and not all are suitable for all students. According to

Nja and Obi (2019), it's a great idea to check into what teaching approaches work best for the students before introducing any new ones. Overall, the study recommended adopting approaches such as positive reinforcement, teaching children essential social skills, and checking in with them regularly in addition to tokens arithmetic. Thus, all teachers must utilize tried-and-true techniques for managing student behavior. Teachers must employ highly efficient behavior management methods while teaching disabled students since this population is more prone to suffer an educational setback, drop-out rates, and expulsion (Bradley et al., 2008; Vaughn & Dammann, 2001). Effective educators spend time getting to know their pupils and learning about their histories (Schlosser, 1992). Educators' perceptions of their reliability and comprehension should be uncovered and manipulated to change the way educators use behavioral control devices in class. Those factors can only be discovered by thoroughly examining instructional resources. Using effective behavior control techniques has been proven to help kids behave properly, engage more, and do better in school (Scott, 2017; Simonsen et al., 2008). Teachers say they have received insufficient training in proper behavior management methods, yet they still feel unable to deal with children who have issue behaviors (Freeman et al., 2014; Gable et al., 2012). Many people have heard of Skinner's theory of positive reinforcement, and it can be used to increase the frequency and duration of desired behaviors. Examples of well-reinforced students are getting a bonus for achieving a goal or doing the expected action. When a reward is given right away, the student is far more likely to exhibit the desired behavior. Disciplinary procedures and penalties are also essential to know about. According to Split, Leflot, and Onghena (2016), punitive punishments may be counterproductive if they exceed positive reinforcement. The educator relationships that develop and persist in a classroom may significantly affect the academic results and good classroom management. Compared to less qualified or effective educators, professional instructors may substantially affect the students' lives (K. H. Wong and T. R. Wong, 2009). Students' socioeconomic backgrounds are considered in instructional strategies, and teachers know that a particular set of rules or approaches will not work for all students (Monroe & Obidah, 2004). Students weren't mischievous, these instructors recognized; somewhat, they were adjusting their behavior to the new surroundings or expressing a need (Milner, 2011). Underprivileged and first-generation or Indian students were ignored because schools attempted to deal with the causes for poor behavior and instead used incarceration as a punishment. Whenever it comes to starting a classroom, educators face many difficulties. There are many factors to consider while getting ready and organizing for a new class of pupils. An effective classroom management plan based on understanding students' behavior, beliefs, rules, and techniques is critical for a school's seamless operation. Thus, all learners will study and succeed to the fullest extent possible for SwDs in an inclusive classroom setting. Some methods for controlling behavior have been developed by talking to educators, administrators, family members, and caretakers.

- Implement just a few basic rules.
- Make the classroom a safe and loving place for all students.
- Set up a response strategy for undesirable behavior that supports parents and the group's leadership.
- Keep an eye out for chances to provide particular compliments to people on good behavior.
- Refrain from retaliating with hostility, threats, punishment, or condemnation.
- Possess an eye out for and, if any possible, avoid stressful situations where such behavior may occur.
- Discover whether any impairments or other factors are influencing your behavior.
- Facilitate with the provision of assistance to offer assistance as required.
- Stay out in the method of any power conflicts.
- Help the person learn how to properly communicate their needs by teaching them how to do so.
- Whenever you encounter someone, continuously keep in mind that they are a cherished child of God.

Classroom Management Strategies for Inclusive Classrooms

Recognizing what successful learning looks like from a child's point of view is essential for educators and administrators to form stronger bonds. Classroom management benefits SwDs greatly since it offers them more control over their learning process. As a result of establishing rules and restrictions, instructors can help children acquire social skills and self-control (Korpershoek et al., 2016; Kabeera, 2019). Various experts have both questioned and lauded inclusive classrooms. Children can benefit from inclusive classrooms because they make social problems more apparent, according to Katz and Galbraith (2006)'s study. Inclusive classrooms may help both children with and without disabilities since they enable them to interact socially in a positive manner. SwDs may do better academically and socially in inclusive classes, according to the results found. Any

inclusive classroom will benefit from the classroom management techniques presented in this research. Even though books have been produced on classroom management, many of the methods advocated are dependent on the implementation and maintenance of rating systems, which may be time-consuming for instructors to handle. Including students with special needs and those in general education, subjects are the norm in today's classrooms. Children with special needs in inclusive settings are more likely to have modest to severe academic and behavior problems. More than half (55%) of students with disabilities also have personal communication and executive control (DuPaul, Gormley, & Laracy, 2013). Possessing a designed learning environment for the students, including those with additional needs, is critical to achieving academic success (Wong & Wong, 2014). An educator's skill of creating and implementing ways to create an environment in which students with and without impairments may learn peacefully is class management (Korpershoek, Harms, De Boer, Van-Kuijk, & Doolaard, 2016; Margareth, 2019). Using interventionist classroom management, teachers may foster academic, social, and emotional success for their students (Korpershoek, 2016). When educators care about their pupils, they will create an emotional connection and environment that will result in effective information transfer and great student engagement (Kabeera, 2019; Reis da Luz, 2015; Allen, Gregory, Mikami, Lun, Hamre, & Pianta, 2013). According to a recent study, even in a chaotic classroom, students can learn and teach (Jones & Jones, 2012). One of the primary goals of many nations' educational systems is to include disabled students in regular classrooms. Globally, there is a growing trend to advocate for the inclusion of SwDs (Marloes, Pijl, Nakken, & Houten, 2010; Nketsia, 2016). Around the world, instructors employ an array of classroom management methods. On the other hand, the relationship between interventionist classroom management and learning in SwDs, on the other hand, remains little understood (Park & Brannon, 2013). SwDs have been introduced into regular classrooms to help with classroom management issues (Chevon & Corcoran, 2014). A teacher may reframe the behavior of their students by changing the balance of power in the classroom. Reacting to their children's behavior is counterproductive; parents should take the initiative to change their children's behavior (Fawns & Salder, 1996). In the meantime, many students have discovered that in today's classrooms, moving or roaming about helps, they concentrate better. To put it differently, effective classroom management includes the physical appearance and predefined of classrooms, student responsibilities to the educator, their relationships with one another, and the educator's shown character. The idea that children should be expected to remain motionless for long periods is absurd. Educators must examine their management methods and approaches to create inclusive classrooms and offer a safe learning environment for students with and without disabilities.

CONCLUSION

Moreover, this study focuses on various classroom management strategies for teachers who are also parents of people who have disabilities. New research shows that classroom management is a successful tool for creating positive learning opportunities for all students, even those with disabilities, thanks to the strategies and techniques it employs. Teachers use a range of classroom management techniques to provide a positive environment for all students. Except that the behaviors and tasks teachers expect from their students vary, instructors must adjust their methods for disabled students. Educators use a wide variety of classroom management strategies to provide a positive learning setting for all pupils. Educators' techniques must be modified for disabled students because their expected behaviors and tasks differ from genuine students. An educator's biggest challenge was establishing effective classroom management techniques since no day ever went precisely according to plan. Educators should be flexible and willing to make changes instead of being inflexible and unyielding. Further disabled students training may be necessary for educators who handle classrooms with active living creatures. Being able to use effective teaching strategies benefits everyone involved: teachers as well as pupils. Educators could better address their students' needs using these techniques, prime a favorable learning atmosphere where children can thrive technically and personally. An educator's biggest challenge was implementing effective classroom management techniques since no day ever went precisely according to plan. Instead of being inflexible and uncompromising, teachers should be flexible and ready to make changes as required. Furthermore, educators who deal with kids with variable people's needs in inclusive classrooms may benefit from taking courses in severe educational needs. Effective instructional techniques help both instructors and executives. With the assistance of these methods, educators can better fulfil the needs of individual learners and create welcoming environments where SwDs are in an inclusive classroom setting.

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ETHICAL BEHAVIOUR IN THE WORKPLACE: A STUDY OF CONSTRUCTION SERVICE EMPLOYEES

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ABSTRACT

In a current modern world full of advanced technology, many computers software had been used to ease the life of humans and work. Many of the software had been used pirated versions rather than using original due to the high cost of subscription and licensing. This had been caused by to software developer that will slow down any of the update's improvement in the future due to lack of funds. The objective of the study is to examine the employee perceptions of ethical behavior in regards to four aspects, that is obligations, opportunities, intent, and professional responsibility. A survey questionnaire consisting of twenty-eight (28) questions that are related to the ethical behaviors of an employee are employed in this study. The results present ethical situations for the employee of a construction service company. The findings could be used as a discussion to understand the ethical issues and professional responsibility related to the software used by the company and also from a technological, economic, and environmental point of view.

Keywords: Ethical behaviour, Obligation, Opportunity, Intent, Professional responsibility

INTRODUCTION

Ethical issues in the workplace had been exist since the beginning. As technology and the economy grew, digitalization had been revolutionized the working system. This creates a new ethical issue regarding digitalization which mostly occurs in Information Technology. In the construction sector, many ethical issues had occurred no matter in the construction project site or office workplace. Ethics such as for safety awareness, training, and strict regulation during construction at workplace (Mohammad and Aziz, 2009). Since the company is providing services and solutions to the construction sector, it is often for the employee required to go to the construction project site to study and improve the situation to the requested client for improvement. There Code of Ethics for construction sites by CIDB (Construction Industry Development Board) and is released with a book thick of pages for the standard for construction players to follow (CIDB, 2019). Even with the Code of Ethics practices, however, there are construction site projects to follow their regulation by voluntary self-regulation to succeed in their business competition (Ahmad, Ghadas and Kuliyyah, 2012). There are a lot of reports regarding ethical issues globally. Ethical issues such as pressure in the workplace to compromise ethical standards, observations of misconduct, reporting misconduct, and retaliation perceived by an employee after reporting any misconduct globally (ECI, 2021).

With the increasing using technology in the workplace such as software for Human Resource Management (HRM) and social media for promoting the business, a more ethical issue occurs. Ethical issues are done by the employer such as monitoring employee communications, working from anywhere, and social networking websites which seems to breach employee privacy rights and restrict the communication abilities (Lister, 2011). Data accuracy, intellectual property, and privacy are more concern for computer ethical issues in Malaysia (Masrom et al., 2010). The survey of the ethics of the workplace provides present ethical situations from time to time and brings to improvement if needed (Zaman et al., 2013). The results of the employee attitudes may be used to estimate the current thinking of the workplace environment.

METHOD

Company employees are required to understand the company policies, rules, and regulations. Besides that, the employee is also required to understand the basic cultural, social, and ethical issues in the working environment. Unethical activity especially in computer activity such as illegal software license, copying, etc will not just bring a bad reputation to the employer but also the employee. Different surveys had been done previously and surveys show more towards computer ethics as more had using a computer in the workplace with the access of internet. Most employees had perceptions towards the computer ethics and agree on the circumspect of using either desktop or laptop at workplace (Kamil, 2014). The survey questions employed the new modified version which was written by Baylor University Hankamer School of Business which is called "Workplace Ethics Questionnaire" in 2015 (Baylor University, 2015).

The questionnaires are distributed to PP Tech Group of Companies employees of two different departments. PP Formwork System Industries focuses on on-site managing and PP TEC Engineering focuses on a software

system called BIM (Building Information Modelling). The questionnaire consists of twenty-eight (28) questions, which is related to workplace ethical issues. In the questionnaire, it will require to indicate strongly disagree or disagree, if neutral in the statement or agree or strongly agree with every question. For the statistical analysis, the employees are required to provide basic information such as gender and ages as well besides the department. Other than that, job title requires for determine the seniority or number of employees in a certain department.

RESULTS AND ANALYSIS

The data had been collected from PP Tech Group of Companies two of the department which is PP Formwork System Industries and PP Engineering. There is a total of 37 employee respondents from both departments had answered the prepared questionnaire.

Demographics of Respondents

In the questionnaire, the first part is regarding the general information of the employee who participates in the survey. All the data is anonymous which does not require deep details such as names. All the statistic percentages shown in the figures are rounded up to the nearest for easier to read. Of the 37 respondents, there are 68% of males, and 32% of females. The majority of the respondent is less than 31 years old which shows that it is a young construction engineering company. There are 81% of the respondents age are between 21 years old to 30 years old, 14% are between 31 years old to 40 years and only 5% are 41 years old to 50 years old.

As most of the respondents are young engineers and have another job title, most of the respondents had moderate years of service with the company. The majority had joined the company for 2 to 5 years which stands for 54% followed by younger engineers which are less than 2 years of 35% respondents and finally 11% of respondents are more than 5 years. In terms of the position in the company of the respondent, younger engineer means there are nearer to an entry-level position of the respondent which is executive. There are 85% of the respondent are executive position level and 15% are senior executive level. The majority of the respondent are younger ages which roughly does not have much working experience and young adults were gaining their experience.

Ethical Analysis

All the survey questions answered by 37 respondents are analyzed for each of the questions. Since the majority of the respondents are young engineers and have lesser working experience, there are some curious about the ethical action that happens in the working environment. In the Internet world, 41% responded that is neutral for the respondent selected answer. This is followed by on agree side which had 45% where 27% answered strongly agree. The youngest tend to spend more time in the social media platform and using the social media platform would connect and communicate with people in the Internet world.

Majority of the respondent still in the learning stage and just entering the working society. Many of the actions done by respondents would depend on the situation at certain timing. 54% of the respondent had answered neutrally where the respondent remains neutral on a case-by-case basis. While 27% answered on the agree side which they knew what they are doing all the way through. There are 68% respondent remains neutral about other people act in the workplace. There are around 18% who agree with the ethical survey that they do not concern. However, there are 14% of the respondent disagree which they care about what other people action.

If an action is immoral and unethical unless it hurts someone, the majority of the respondents agree with it. 19% strongly agree and 38% agree with it. As long as it does not hurt someone, there should be no problem with what they will do. Only 22% will consider it immoral no matter the action will hurt or not hurt someone. The majority of the respondents agree that immoral and unethical acts should be considered and taken action by the law. 11% strongly agree and 42% agree. However, there are 22% do not think it should be taking the action by the law while 27% remain neutral for the question. Stealing itself is a crime for many people and 51% of the respondent had answered strongly disagree followed by 16% disagree even though it is used for a good purpose. There is only 11% answer that it agrees with stealing as long as there is a good motive behind the action.

Since majority respondent is young engineer, the majority remain in neutral as it is more towards promoting someone in working which stands for 70%. While there are around 20% on the disagree, side means to disagree that it should promote a worthy person. Imagine that if we are the employer, 57% answer that it is unethical if promote a less-worth person ahead of a more worthy person for an irrelevant reason. Others remain neutral which is another 43% of the respondent. More hardworking people and bring fortune to the business should be promoted.

It is very unethical to hold a worthy person because of the reason that need promote a less worthy person. Respondent had the answer 51% on the disagree side shown on the unethical of the action. However, there are 14% agree the action is ethical. There is a mixed reaction when cooperating with co-workers in the same working environment. 46% of the respondent remain neutral. However, there is 32% show that it is agreeing to be unethical is do not cooperate with co-workers. It is very important to cooperate as it will make the working environment easier but there are 22% thought it is ethical. As an employee of a company, it is the employee responsible to perform to full potential. 62% had agreed that it is unethical if does not show full potential. There are 14% disagree with it which depends on the payment received.

Majority of the respondent stay neutral on the question if does not work in full potential, it does not deserve the salary given. However, 24% agree with the question that agrees they do not deserve the salary. 11% respond that it does not matter as long as the works are finished on time. 24% strongly agree that it is possible to teach ethics during the early time and 41% agree. It is important to be guided so that students will know to differentiate between ethical and unethical actions.

In this question, 81% are neutral with the action whether it is ethical or unethical shown in Figure 1 below. However, 8% agree that it should be transparent in anything but 11% respond it is ethical with the action by the executive.

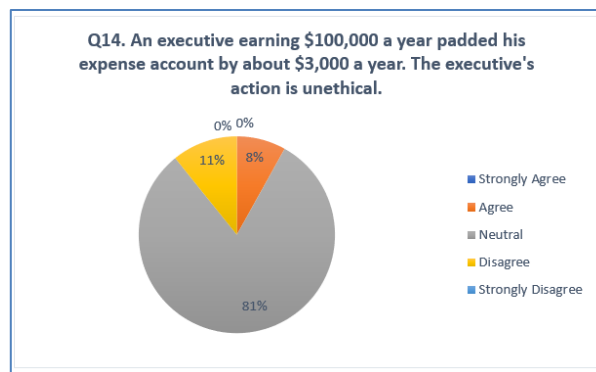


Figure 1: Ethical Survey Questionnaire Question 14 Respond

There are nearly half of the respondents showed that it is either ethical or unethical for the manager action in the question given regarding environmental pollution. The majority of the respondent, which is 52% responded that the manager's action is ethical to increase the profits while neglecting the environmental pollution and 43% of the respondent disagreed.

As a citizen of a country, it is citizen or business owner to pay the income tax on how much the profits gain to help the country develop. The majority of the respondent, which is 70% disagree that the owner's action is ethical as the owner is dishonest with the income. The owner should make a full declaration. However, there are around 11% agree that the owner's action is ethical.

There are many competitions between a company in the modern world. Each of the businesses would have to stay competitive to stay alive and top of the market. In the survey question of the action of the company's president, the majority of 68% of respondents respond that it is ethical for the company president to hire a competitor employee. However, there are 13% responded that to stay competitive, the company president should do the action.

Joining another company would easily obtain more payment compare to a previous company with the existing knowledge from the competitor. However, to share the information with the competitor company is unethical which it had 30% agree the employee action is unethical. 57% remain neutral while 13% respond it is ethical.

There is more hardworking employee slowly gaining positive in career. Promoting by using relationships had 49% respond that it is unethical as what the hard work shown to the company had wasted in this kind of promotion. There are 16% who responded that it is ethical for the manager to promote his or her friend. Whenever there is a fault, it is the responsibility of the company to repair the error. 76% of respondents responded that the software engineer should not be kept quiet if there is a problem with the company software and required to take action immediately. 11% responded that the software engineer should follow the company orders.

81% of the respondent are neutral in this question as this is more concerned through the strategy in marketing. 14% respondent does not think that it is ethical if it declares as a new product but nothing had been changed in the product itself. 5% agree that to get more revenue, the producer's action is ethical.

Copyright product, software, or items belongs to the specific owner to prevent other competition or use without permission. Many companies use pirated software to save more money. 91% of respondents had to respond neutrally as a young engineer does not have enough finances to purchase a license as well as company as young engineer still in learning mode shown in Figure 29 below. 6% of respondents respond that it is ethical for the owner of a small business firm to obtain a free copy and 3% of respondents respond that it is unethical.

In sales marketing, closing sales is important to get the customer to purchase the product from the salesperson. 11% of the respondent think that the salesperson should be honest in making the deals with customers to let the customer gain more trust in the salesperson. While there are 13% of respondents think it is salesperson should close the sales faster. Without disclosing the real information to the potential buyer, 48% of respondents think that the company action is ethical. This shows that buyers should have researched more information before negotiations before coming to a deal. While there are 3% respondent does not agree and think it is unethical for the company.

Purchasing an extra item without realizing it by the seller would return the extra item to the seller. This action had no agreement that the Muthu action is ethically shown in Figure 2 below. 59% of respondents agree that Muthu's action is unethical and should inform and return the extra item to the seller.

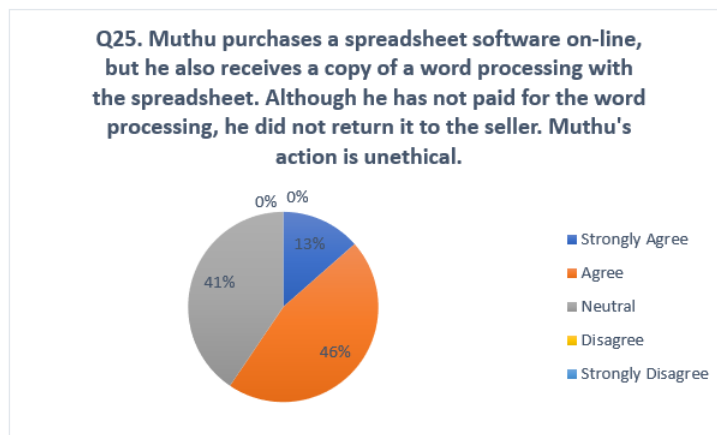


Figure 1: Ethical Survey Questionnaire Question 25 Respond

Requesting another person to conduct an illegal job is a very unethical action. 76% of respondents respond that the Chong action is unethical by requesting his friend for help to manipulate his account while he makes the mistake by doesn't check for this account amount beforehand shown in Figure 3 below. However, there are 8% respondent shows the Chong action is ethical.

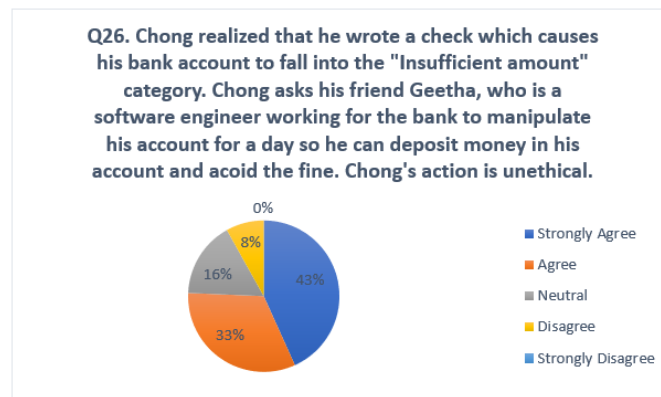


Figure 2: Ethical Survey Questionnaire Question 26 Respond

Changing the details of the company is a serious offend and even had the law that prevent any people from doing so. 73% of the respondent agree that Ani's action is unethical and there is no respondent respond that the Ani action is ethically shown in Figure 4 below.

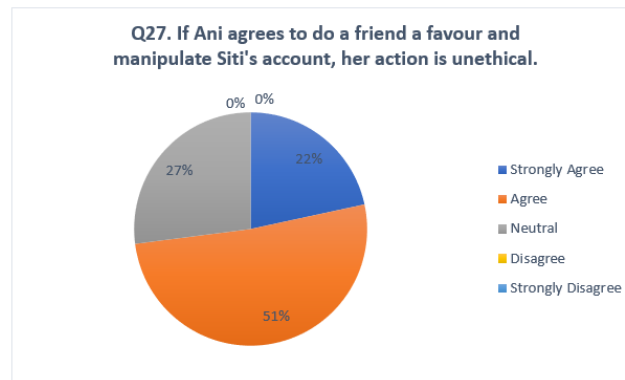


Figure 4: Ethical Survey Questionnaire Question 27 Respond

CONCLUSION

From the ethical survey in the workplace, most of the respondents had obligations through the ethical path in the working place. However, there are also many of the respondent stay neutral to the survey questions due to the employee is young and less working experience in the working place. Some of the survey questions do not only consist of the ethics of the working place but also in the lifestyle. To have an ethical environment, everyone had the responsibility and opportunities to follow the ethical path no matter in working place or in public. There are no right or wrong and each of the people had their ethical path. In most cases if in the workplace for the ethical action which consideration of the company future such as the survival, revenue, and reputation of the company which more considerate of professional responsibility where either choose to assist the company through unethical way or more ethical way through going difficult path in career. Without any obstacle or consideration, the respondent is shown intention to have chosen the ethical path. The majority of the respondent require to have more experience, especially in working place to make sure which action is ethical and which action is unethical. Ethical awareness would recommend taking place no matter in public or working place as there are a small number of respondents shows that had an unethical way of thinking.

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INCLUSION OF STUDENTS WITH SPECIAL REFERENCE TO MARGINALIZED AND DISADVANTAGED SECTIONS OF THE SOCIETY IN JAMMU AND KASHMIR

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ABSTRACT

India is a multi-lingual and multi-cultural country, with rich diversity, reflected in the multitude of culture, religions, languages and racial stocks. The population of the country comprises of different castes, communities, social and ethnic groups. India, a second most populous country in the world, has also the second largest concentration of tribal population, perhaps next only to Africa. The tribal population represents one of the most economically impoverished and marginalized groups in India. The Constitution of India had recognized tribal population as weaker section of society based on their socio-economic backwardness and the age-old social discrimination and physical isolation that they had been subjected to. Although the tribal are a minority and constitute about

8.2 per cent of the total population in India or 85 million people in absolute number but unlike scheduled caste population, the tribes are not discriminated against in the same way by the mainstream Hindu population. There are at present more than 700 tribal groups each with their distinct cultures, social practices, religions, dialects and occupations and are scattered in all States and Union Territories in India except for the states of Haryana, Punjab, Delhi, Chandigarh and Pondicherry. The tribes are heavily concentrated in the north-eastern states although they constitute a small percentage of the total tribal population in India.

TRIBAL POPULATION IN INDIA

The population of Scheduled Tribes is approximately 8.2 per cent of the total population of the country. The population of Scheduled Tribes has been on the increase since 1961. The decadal population growth between the Census Year 1971 to 1981 in respect of the tribal population has been higher (36.8%) than that of the entire population (24.6%). The decadal population growth between the Census Year 1981 to 1991 in respect of the tribal population has been higher (30.8%) than that of the entire population (23.9%). Similarly during Census year 1991 to 2001 it has been 23.5% against the growth rate of 21.5% for the entire population (Table 2). The sex ratio of ST population was always high compare to the sex ratio of overall population in all Census Years. The sex ratio of ST was in better position at 988 as against the overall sex ratio which was 946 in 1951. In 2001, the sex ratio of ST population was 978, which was higher than the sex ratio of overall population i.e. 933.

CONSTITUTIONAL SAFEGUARDS FOR SCHEDULED TRIBES

The Indian Constitution refers to tribal people as the Scheduled Tribes. The Constitution, adopted and enacted in 1950, is based on the principles of equality and guarantees equality before law and equal protection to all its citizens. It not only guarantees fundamental rights and freedoms, but also prohibits discrimination on the basis of religion, race, caste, sex, and place of birth. Recognizing the special needs of various weaker sections including STs, the Constitution also enjoins upon the State to make special provisions of affirmative discrimination for the advancement of any socially and educationally backward classes. These constitutional provisions have replaced the British policy of isolation and non-interference by a policy of inclusion and integration through development. The Framers of the Constitution of India incorporated several provisions which are meant for the welfare and development of the tribal. Some of the important constitutional provisions for STs are as follows:

Article 15 (4): The State to make special provisions for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes.

Article 16 (1): Equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State.

Article 16 (4): The State to make provisions for reservation in appointment, posts in favour of any backward class citizens, which in the opinion of the State is not adequately represented in the services under the State.

Article 16 (4A): The State to make provisions in matters of promotion to any class or classes of posts in the services in favour of the Scheduled Castes and the Scheduled Tribes.

Article 46: The State, to promote with special care the educational and economic interests of the weaker sections of the people, and in particular of the Scheduled Castes and the Scheduled Tribes, and protects them from social injustice and all forms of exploitation.

Article 164 (1): In the States of Bihar, Madhya Pradesh and Orissa, there shall be a Minister in charge of tribal welfare who may in addition be in charge of the welfare of the Scheduled Castes and Backward Classes or any other work. (Now applicable to Chhattisgarh, Jharkhand, Madhya Pradesh and Orissa).

Article 243 D: Reservation of seats for the Scheduled Castes and the Scheduled Tribes in every Panchayat.

Article 243 (T): Reservation of seats for the Scheduled Castes and the Scheduled Tribes in every Municipality.

Article 244 (1): Provisions as to the administration and control of Scheduled Areas and Scheduled Tribes in any state other than the states of Assam, Meghalaya, Tripura and Mizoram (Fifth Schedule).

Article 244 (2): Provisions as to the administration of Tribal Areas in the states of Assam, Meghalaya, Tripura and Mizoram (Sixth Schedule).

Article 275 (1): Provision for payment of grants-in-aid to enable the States to meet the cost of such schemes of development as may be undertaken by the States with the approval of the Government of India for the purpose of promoting the welfare of the Scheduled Tribes in that State or raising the level of administration of the Scheduled Areas therein to that of the administration of the rest of the areas of that State.

Article 330: Reservation of seats for the Scheduled Castes and the Scheduled Tribes in the House of the People (Lok Sabha).

Article 332: Reservation of seats for the Scheduled Castes and the Scheduled Tribes in the Legislative Assemblies of the States.

Article 335: The claims of the members of the Scheduled Castes and the Scheduled Tribes in the appointments to services and posts in connection with the affairs of the Union or of a State to be taken into consideration consistent with the maintenance of efficiency of administration.

Article 338 A: A National Commission for Scheduled Tribes to investigate, monitor and evaluate all matters relating to the Constitutional safeguards provided for the Scheduled Tribes.

Article 339: Control of the Union over the administration of Scheduled Areas and the welfare of the Scheduled Tribes.

Article 339 (1): Appointment of a Commission to report on the administration of the Scheduled Areas and the welfare of the Scheduled Tribes in the States.

Article 340: Appointment of a Commission to investigate the conditions of socially and educationally backward classes and the difficulties under which they labour and to make recommendations to remove such difficulties and to improve their conditions.

Article 342: To specify the tribes or tribal communities to be Scheduled Tribes. In addition to the above constitutional provisions, there are numbers of laws both Central and State, which provide protection and safeguards for the interest of the Scheduled Tribes.

TRIBALS OF JAMMU AND KASHMIR

Tribals are found in the arid zones of Jammu and Kashmir, Himachal Pradesh, Rajasthan, Gujarat etc. Jammu and Kashmir is one of the border states of India, has a total population of 1,25,41,302 including male population of 66,40,662 and female population of 59,00,640. The Scheduled Tribes account for 11.9 per cent of the total population of the State as per Census 2011. In Jammu and Kashmir, there are 12 Scheduled Tribes which were enumerated officially for the first time during the 2001 census recording a population of 1,10,5,979. The Census 2011 shows the entire ST population of the state at 14,93,299 in comparison to 11,05,979 of Census 2001. Out of twelve Scheduled Tribes, Gujjar is the most populous tribe having a population of 763,806, thus forming 69.1 percent of the total ST population. Bot is the second major tribe having a population of 96,698, followed by Bakkarwal (60,724) and Brokpa (51,957). Gujjar along with the three tribes constitute 88 per cent of the total tribal population (Census 2001)

Table 1: Population of Schedules Tribes in J&K

NAME	POPULATION OF ST Census 2011	POPULATION OF ST Census 2001	VARIATION
J&K	1493299	1105979	387320
Kupwara	70352	51753	18599

Budgam	23912	14547	9365
Leh	95857	96174	-317
Kargil	122336	105377	16959
Punch	176101	149018	27083
Rajouri	232815	160049	72766
Kathua	53307	33969	19338
Baramulla	37705	28886	8819
Bandipora	75374	54996	20378
Srinagar	8935	3485	5450
Ganderbal	61070	41959	19111
Pulwama	22607	10552	12055
Shopian	21820	10944	10876
Anantnag	116006	80856	35150
Kulgam	26525	20287	6238
Doda	39216	28400	10816
Ramban	39772	29353	10419
Kishtwar	38149	27917	10232
Udhampur	56309	42875	13434
Reasi	88365	60753	27612
Jammu	69193	42089	27104
Samba	17573	11740	5833

Source: Census 2011

The Gujjars and Bakarwal tribes are the two nomadic tribes which form the third largest community in Jammu and Kashmir and constitute 8.1 percent of the total population in the state, according to the census of India 2001. In Jammu and Kashmir in India, Gujjars and Bakarwals are found in all the three regions of the state including Jammu (comprising districts of Jammu, Kathua, Udhampur, Poonch, Rajouri etc), the Kashmir Valley (comprising the districts of Srinagar, Baramulla, Kupwara, Pulwama, Budgam and Anantnag) and Ladakh (comprising Kargil). Gujjars were primarily a nomadic community who have now settled down to a large extent and have become sedentarized or settled in permanent villages in the plains bordering the foot hills and have taken to cultivation of land as their primary occupation. Besides, there are semi-settled or sedentary transhumant Gujjars who combine the cultivation of land with pastoralism. They move to the lower and middle mountain areas and Pir Panjal pastures in the summer with their flock of buffalos where they engage in cultivation and come back to the plains in the winters. Bakarwals are primarily pastoralists rearing goat and sheep for livelihood. They leave their homes each summer for the high-altitudes of Himalayas and spend their winter in plains and foot hills of Shivaliks. During their journeys to the higher reaches of the mountains during summer when the snows melt and the passes open, the Bakarwals trek through the remotest areas of the mountains to reach the higher pastures of the Pir Panjal range where they rest in temporary hutments in the picturesque valley and graze their herd of sheep. In those high altitude pastures which are excellent grazing grounds for their cattle, they graze their cattle, fatten their flock and achieve higher prices for their sheep. In autumn, having sold their sheep, they descend to the plains leaving the extreme cold of the mountains behind them in October. The tribe is greatly dependent on its livestock and hence the need for higher pastures and colder climates makes the community embark on a journey, sometimes stretching for weeks and months on foot.

The Mobile Primary Schools (MPS) commonly known as mobile schools were set up by the J&K government in 1970s with the objective to provide educational facilities to the children of nomadic Gujjar and Bakarwal Scheduled Tribes (STs). The mobile schools which were single teacher primary schools providing education facilities to the children of the nomads at various places especially in upper reaches of Pir Panjal mountains, could not continue for long after the onset of armed conflict in the state. As such the tribes were already having low literacy rates in J&K. As per census 2001, the literacy rate of tribal population in J&K is 37.5 per cent which is far lower than the average literacy 47.1 per cent of tribal at national level. The literacy rate of male of tribals of J&K (48.2 percent) is much lower than the tribals at national level (59.2 per cent). Also the literacy rate of female tribals (25.5 per cent) of J&K is low in comparison to female tribals at national level (34.8 per cent). (Andrabi 2013). The literacy rate in Jammu and Kashmir is 68.74 per cent as per Census 2011 with male literacy at 78.26 per cent and female literacy at 58.01 per cent.

Though there is schooling facility available for all migratory populations during winter in the form of stationary and permanent government schools at different places all over the state but at the summer locations where the

good numbers of nomadic children move with their parents, the educational facilities are less. The challenges that the nomadic people face because of the violence in Jammu and Kashmir makes EFA appear illusionary. While rebuilding the education system proves challenging, security, stability, access to institutional resources and the absence of governmental support and finance remain the principal hurdles in developing and sustaining the delivery of education to the people of the region.

Tribal Development Policies and Programmes

Jammu and Kashmir has a large proportion of tribal population (20 per cent). This percentage includes only the two tribal communities i.e., Gujjar and Gaddi. Both central and state governments have launched several developmental programmes for the welfare and empowerment of the weaker section of society including STs. In J&K these comprise schemes for educational development, economic development and social development. The Department of Social Justice, Empowerment and Welfare is a nodal agency which looks after the affairs of tribal in Jammu and Kashmir. The Department performs following functions:

1. All matters connected with the welfare of STs, economic betterment schemes, educational development schemes, facilities for vocational training and voluntary organisations connected with the welfare of STs.
2. Pre-Matric scholarship scheme for ST/SC/OBC.
3. Post-Matric scholarship scheme for ST/SC.
4. Up-gradation of Merit Scholarship for ST/SC students.
5. Tribal sub-plan for STs.
6. ST, SC and OBC Welfare Boards.
7. Monitoring and evaluation of schemes for STs.
8. Implementation of ST Prevention of Atrocities Act, 1989. Integrated Tribal Development Area Programme (ITDAP)

This programme is launched by the central government and implemented in all the states where the tribal population exceeds 50 per cent of the local population. More than 55 per cent of the tribal populations are residing outside the ITDAP areas. With the view to cover more tribal population. The Welfare Officers of each district act as the drawing and disbursing office for the implementation of the programme.

Sex Ratio

The overall sex ratio of ST population is 910 females per 1000 males which is lower than the national average (978) for the total ST population. At individual level, all the seven major tribes have registered overall sex ratio which is lower than the national average with Bakarwal having the lowest (868). The sex ratio among the STs in the age group 0-6 years is (979) is higher than that of the national average. Among the numerically larger tribes, Purigpa, Balti, Gaddi and Gujjar have registered child sex ratio higher than that of all STs at the national level with Purigpa having a preponderance of girl children (1019), whereas Bot, Brokpa and Bakarwal have registered the child sex ratio lower than that recorded by all STs at the national level.

LITERACY & EDUCATIONAL LEVEL

In Jammu & Kashmir the overall literacy rate of the STs as per the census 2011 is 50.6% which is much lower than the national average of 58.96% aggregated for all STs. Male and female literacy rates 60.6% and 39.7% are much below if compared to those recorded by all STs at the national level (68.53% and 49.35 %). It can be further seen from the above table III that the State increased in the tribal literacy rate from 37.50% to 50.60% in the span of 10 years (2001 to 2011). The State tribal literacy is lower than the National average as per the recently concluded Census and also the literacy gap is (8.36). Among the larger tribes, Balti, Bot, Purigpa and Brokpa have registered higher literacy rate whereas Gujjar, Gaddi and Bakarwal have a lower literacy rate than that of the national average. Similar trends are discerned in these tribes in respect of female literacy also. The analysis has brought this fact to the fore that the efforts put in by the Government through various tribal education schemes to reach to the far-flung areas and bring down literacy gap has materialized at ground level yet there is tremendous scope for bringing further improvements with focused attention.

Comparative Literacy Rates of STs (2001-2011)

Literacy Rates of STs in percent (2001-2011)		
Category/Census Year	2001	2011
Total Population	55.5	67.2

Scheduled Tribes	37.5	50.6
Gap in Literacy Rate	18.1	16.6

Source: Census Reports of India, 2001-2011

LITERACY RATE

The literacy rate among the Gujjar and Bakarwals is too low as compared to other inhabitants of the state. These tribal communities are already lagging behind the rest of the tribes and population of the trouble region. Some of the challenges in the provision of educational services to transhumant's areas are similar to those faced by other rural and marginalized households in the region, although often more severe. These include nomadism, militancy, lack of teachers willing to work in the conflict situations found in these areas, poor infrastructure as well as poorly motivated teachers, a household economy dependant on livestock, with children spending long periods away from their homes and schools and transhumant mobility. Among the ST literates,

34.9 percent of tribal literates are either without any educational level or have attained education below primary level. The primary level literates constitute 26.2 per cent followed by literates up to middle level (22.1 per cent). The persons educated up to matric/secondary /higher secondary constitute 14.7 per cent whereas 2 per cent only are graduates & above. Non-technical & technical diploma holders form negligible percentage (0.1). At the level of individual tribe, Bot, Balti, Purigpa have more than 22 per cent literates are matriculates, implying that every 4th literate of these tribes are matriculates. Bakarwal have the lowest proportion of secondary level literates (7.8 per cent). The data show that the proportion of literates after middle school drops down to approximately half in the secondary level of education and declines sharply onwards.

In Jammu and Kashmir, Mobile Primary Schools have not been able to deliver on ground. Almost, all the schools are functioning in worst conditions and few steps have been taken to improve their functioning and providing teaching staff. There are hardly any facilities in these schools. No matting to sit on, no tents for protection from rain and sunshine, no blackboards and no uniforms. Children of these nomadic communities are unable to pursue education due to their lifestyle and low levels of income. Transhumance practice is the biggest impediment for those who want to ensure formal education for their children. Frequent seasonal migration is one of the biggest hurdles in the education of Gujjar and Bakkarwal community. During the migratory life most of them leave their education in primary level. Since they have mobile schools and they are up to 5th standard only, which keep moving with community members during the migration, after class 5th there is no education facility which force the community members to left the education. There is dearth of good teachers who can devote their time to educate these Gujjar and Bakkarwal children. Teachers hesitate to move with these nomadic Bakarwals due to which most of them largely remain illiterate. There is no doubt that the mix of the government apathy and the effects of insurgent violence have led to the fall in the education standards over the last decade, affecting the educational prospects of Gujjar and Bakkarwal children.

Problems and Critical Issues of Tribal Education in J&K

In Jammu and Kashmir, Mobile Primary Schools have not been able to deliver on ground. Almost, all the schools are functioning in worst conditions and few steps have been taken to improve their functioning and providing teaching staff. There are hardly any facilities in these schools. No matting to sit on, no tents for protection from rain and sunshine, no blackboards and no uniforms. Children of these nomadic communities are unable to pursue education due to their lifestyle and low levels of income. Transhumance practice is the biggest impediment for those who want to ensure formal education for their children. Frequent seasonal migration is one of the biggest hurdles in the education of Tribal (Gujjar and Bakkarwal) community. During the migratory life most of them leave their education in primary level. Since they have mobile schools and they are up to 5th standard only, which keep moving with community members during the migration, after class 5th there is no education facility which force the community members to left the education. There is dearth of good teachers who can devote their time to educate these Gujjar and Bakkarwal children. Teachers hesitate to move with these nomadic Bakarwals due to which most of them largely remain illiterate. There is no doubt that the mix of the government apathy and the effects of insurgent violence have led to the fall in the education standards over the last decade, affecting the educational prospects of Gujjar and Bakkarwal children. Some of the problems in the way of education of tribal communities are as under:

1. **Physical Barrier:** In J&K tribal habitations remain segregated from each other by some physical barriers like hills, nallas and forests. So these physical barriers create a hindrance for the children of a tribal village to attend the school in a neighbouring village (Gul, 2014).
2. **Economic Condition:** Majority of tribal's in J&K lived their life in forests with their cattle and goats. The children are found to be helping their parents in domestic work. In this situation, parents do not desire to spare

their children or their labour power and allow them to attend schools (Singh,1993).

3. **Attitude of the parents:** Tribal parents are basically illiterate. Their illiteracy does not permit them to understand the long term values of education. As education does not yield them any immediate economic return, they prefer to engage their children in remunerative employment which supplements the family income and strengthens the family economy (Suri, 2014).
4. **Inadequate infrastructure:** The condition of seasonal schools meant for the tribal nomadic children of Jammu and Kashmir is pathetic. There is no adequate infrastructure to run these schools. While the government claims that tents have been given to the seasonal centres besides blackboards, chairs and chalks etc., a visit to such seasonal centres in the higher pastures area depicted that there was no adequate infrastructure available to run these schools (Suri, 2014).
5. **Village Education Committee:** VECs have been constituted to preserve and monitor the functioning of the schools. Till now tribes are not aware of the role of the VECs. Neither the villagers nor the members of the VECs take any active interest to enhance enrolment and attendance of tribal children in primary school (Andrabi, 2013).
6. **Teacher Related Problems:** The tribal people have virtually no relationship with the teachers. Teachers do not get any accommodation facility in the tribal areas, which makes them irregular, which hampers the normal routine of a school (TRCF, 2015).
7. **Other Factors:** Extreme poverty, rough and tough living, early marriage system and Nomadic costumes were causing dark shadows over the future of tribes of tribal children residing in the most backward, hilly and border areas of Jammu and Kashmir (Gul, 2014).

SUGGESTIONS FOR IMPROVING TRIBAL EDUCATION IN J&K

The State and the Central Governments agencies should provide legal safeguards to tribal children of J&K and initiate some special schemes for their education and social transformation. Here under are some suggestions and policy measures necessary to be taken for the development of education and enhancement of tribal's in J&K:

1. Tribal education can be improved by the removal of school fees, free textbooks and school uniforms, construction of schools closer to communities to lower transport costs and travel time.
2. All researches and Govt. reports highlighted that tribal's education can be improved by raising additional resources and directing them to where the need is greatest. It requires adequate funding, well trained teachers, a school environment that promotes learning, and a social environment that values educated tribals.
3. Enhancement in Mobile schools in each district of state and accountability of the teacher at various levels. As so far one of the biggest drawbacks of the mobile schooling pointed out by various experts is the non accountability of teachers because on the upper reaches it is difficult to monitor the working of these schools for administration and therefore the teachers generally remain absent. Establishment of permanent schools near temporary residences of tribal areas.
4. Enhancement of admission quota in schools, colleges and professional institutions for tribal students.
5. 'Forced Schools' should be opened to educate the nomadic tribal children as most of the parents are not ready to send their kids to School owing to migratory way of life and low tribal economy.
6. Hostel facilities should be provided to educate the tribal communities.

CONCLUSION

The Scheduled Tribes (ST), like the Scheduled Castes, is the most socially and educationally disadvantaged and excluded groups in our country. The wide-spread discrimination against scheduled groups has long histories in India. Education is a key indicator of socioeconomic development. It also increases the knowledge and vision of a person. It is considered as an essential element in bringing change in social, political, economic fields in a society. Liberation and upliftment of people can be achieved only through education. Indeed, the country's progress and development largely depend upon the educational attainment of its people. The main aim of educating tribal's is to change their cultural norms and patterns of life to make them economically independent, to organise themselves to form strong groups so as to analyse their situations and conditions of living, understand their rights and responsibilities and to enable them to participate and contribute to the development of the entire tribal society. There is immense need to understand the context, and background of education system in J&K to address the question of providing equal access of education to tribal's. Tribal communities in the state have been historically denied of access to resources and opportunities. Considering the low literacy among tribal's and

high drop-out rates at elementary and higher levels, there is need of special focus on tribal's education, inclusive of context- specific traditional and innovative interventions. Keeping in view the educational backwardness, low rate of enrolment and high dropout rate among scheduled tribes the Government needs to encourage, NGOs and private sector to invest in education in order to contribute effectively to access to education in tribal communities. The government has to move fast to address their problems at the earliest.

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PREPARATION AND CHARACTERIZATION OF Fe_3O_4 NANOPARTICLE EMBEDDED POLYPYRROLE- FeCl_3 COMPOSITE

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ABSTRACT

The conducting polymer composites have generated lot of scientific interest and led to active multi-disciplinary research because of their excellent potential for technological applications. Among the conducting polymers, Polypyrrole (PPY) and its composites have attracted considerable attention because they are easily synthesized. There are many approaches in the enhancement of the mechanical strength, chemical stability and gas-sensing properties by combining PPY with organic and inorganic materials to form composites. The composite of the various combinations of ratios the Pyrrole to FeCl_3 with the Fe_3O_4 nano particles. The composite prepared in the form of powder. The powder of composite is prepared through Chemical polymerization method. The sample preparation starts from distillation of Pyrrole with various combination of Pyrrole to FeCl_3 are stirred for overnight. The distillation of Pyrrole for purification of Pyrrole, we have designed the Portable Distillation Set up which 100% save the wastage of water used for the cooling of vapor in Condenser. Also the Fe_3O_4 nano particles are added for the blending purpose. The solution is then processed in centrifugal machine and filtered to separate the composite particles from the solution. The powder is dried in the furnace at warm temperature. Also the composite is exposed to room temperature for sufficient time. The dried powder sample is analyzed through XRD.

INTRODUCTION:

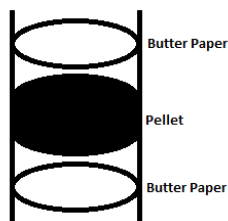
A key property of most polymers, which distinguishes them from metals, is their inability to carry electricity. Whereas, the insulating properties of polymers are a significant advantage for many applications of plastics. During the past 25 years, however, a new class of organic polymers has been devised with the remarkable ability to conduct electrical current. Part of a larger class of materials called “synthetic metals”. Some of these conductive plastics are already under development for practical applications. A major obstacle to the rapid development of conductive polymers has been the lack of understanding of how electrical conductivity works in these polymers. An understanding of the relationship between the chemical structure of the repeating unit of the polymer and its electrical properties would enable the electronic and mechanical properties of these materials to be tailored at the molecular level.

Distillation Set Up:

As I have need of distillation of Pyrrole for purification of Pyrrole, I have designed the Portable Distillation Set up which 100% save the wastage of water used for the cooling of vapor in Condenser. Generally in any distillation plant/set-up, the tap water which is used for the circulation through condenser for cooling purpose of distillation set up is drained. This entire water is wasted when entire mankind is fighting for the drop of water. And there is no control of the flow of draining water through tap. So, observe and decided to use minimum water for circulation through condenser and also rather than wasting this water I have decided to recycle the same water. Accordingly, I have designed the set for distillation purpose. The setup is constructed by myself with purchasing the following additional accessories in addition to Basic Distillation set up. 1. Fish tank water pump 2. Water reservoir (Bucket)

Pellet Making Method:

I have devised my own method to prepare the pellet. As when I started the pellet making in KBr press from the powder that I have synthesized, usually it got broken because of adhesion of PVA with metal surface of the die of pellet making machine. So to overcome this problem I have to prepare the pellet by the following method. I have used a butter paper. The radius of the butter paper is same as the radius of the bore of the die. The powder is placed between the two pieces of the butter paper in the die. The proper pressure is applied for 4 to 5 minute. The pellet are easily taken out from the die without get broken. The finishing of the pellet is also maintained.



Synthesis and Analysis of Composite:

The composite of the various combination of ratios the Pyrrole to FeCl_3 with the Fe_3O_4 nano particles are prepared. The composite thus prepared in the form of powder. The powder of composite is prepared through Chemical polymerization Method. The sample preparation starts from distillation of Pyrrole. With various combination of Pyrrole to FeCl_3 are stirred for overnight. Also the Fe_3O_4 nano particles are added as the blending purpose. The solution is then processed in centrifugal machine and filtered to separate the composite particles from the solution. The powder is dried in the furnace at warm temperature. Also the composite is exposed to room temperature for sufficient time. The dried powder sample are analyzed through XRD. FTIR of the same samples are done. The pellet are prepared from the powder using KBr press for further experimental process.

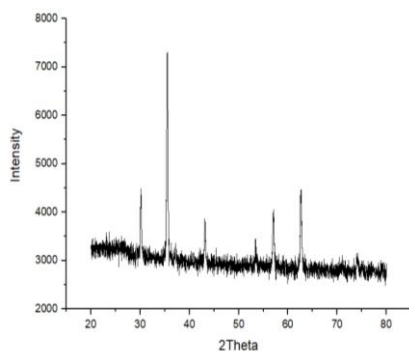


Figure 1:

XRD for sample : Pyrrole (1ml) + FeCl_3 (1gm)+ Fe_3O_4 (0.3gm)

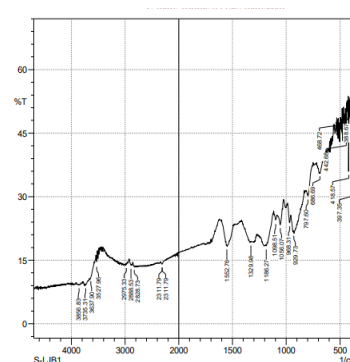


Figure 2:

FTIR for Sample : Pyrrole (1ml) + FeCl_3 (1gm)+ Fe_3O_4 (0.3gm)

CONCLUSION:

The XRD pattern shown in Figure 1 gives information that the Peak are obtained at the 30.034° , 35.410° , 43.038° , 53.379° and 56.911° are similar that with obtained for pure Fe_3O_4 which confirm the presence of Fe_3O_4 . The FTIR spectra of PPy and the Fe_3O_4 -PPy composite is shown in Figure 2. PPy- Fe_3O_4 composites were prepared with the chemical polymerization method. The properties of the PPy- Fe_3O_4 particles were influenced by the concentration of FeCl_3 solution, which was used to disperse Fe_3O_4 particles.

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UNDERSTANDING INCLUSIVE LEADERSHIP & ITS IMPLICATION ON ORGANIZATIONAL CULTURE, EMPLOYEE'S PSYCHOLOGICAL CONTRACT & ENGAGEMENT: A REVIEW PAPER

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ABSTRACT

Human Being variances in color, race, ethnicity, gender, identity, age, physical attributes, ethical principles, nationality, education, personality, experiences, and knowledge base are all examples of diversity. Inclusion is the process of ensuring that all of the many perspectives that should be included are not just present but also fully engaged. It is founded on the notion that when we value, respect, and involve a diverse variety of opinions in problem solving and decision-making leadership, we can improve performance to results, (Henderson, 2014). Taking charge is an important sort of proactive action that ensures the survival of an organization and provides individual growth. Making employees engaged in his work is one of the most crucial things a leader can do. There comes the concept of inclusive leadership. Inclusive leadership is thought to be essential in businesses with a varied workforce to encourage full respect and engagement of diverse people. Existing literatures show that inclusive leadership is crucial in fostering inclusive organizational culture and also inclusive leadership is positively associated with employee engagement & psychological wellbeing of employees. This paper aims to provide an integration of the existing literatures that focus on the implication of inclusive leadership on organizational culture, employee psychological contract or wellbeing & employee engagement.

Keywords: Inclusive Leadership, Organizational Culture, Sub-culture, psychological contract, Employee Engagement

1. INTRODUCTION

Globalization, shorter product life cycles, and quick technological development have all contributed to a competitive climate. This climate has been pushed further by marked by abbreviated product life cycles, and rapid technical change (McMillen, 2003). Innovation has long been seen as a critical enabler of growth, productivity, and competitiveness among organization & employees (Harter, 2002). Academicians & researchers have been trying to establish literatures on impact of different styles of leadership on various HR related factors like employees' psychological contract & engagement and also other organizational factors viz culture & sub-culture (Louise Manning, 2017). Transformational leadership, ethical leadership, paternalistic leadership have been researched and it is established that have all these are shown to have a significant impact on employee innovative behavior in several studies (David J, 2018). But a new kind of leadership known as inclusive leadership, that is inclusive in nature is different from other types of leadership (Northhouse, 2004). Inclusive leadership is more inclined towards workplace determinants such as creativity, inclusivity, openness, distinctiveness, and support for innovation (Jane Oorschot, 2021). An organization with a strong learning culture is capable of generating, gaining, and transferring knowledge, as well as adjusting its behavior to reflect new knowledge and insights (Macey, 2008). Organizational learning culture may be influenced by inclusive leader actions. It is to believe that a leader's intention to include employees in getting feedback creates the impression that the leader and the business encourage new information sharing and discussion. Employees have more opportunity to speed up knowledge acquisition and distribution when a leader allows for the expression of alternative views and ideas, challenges old assumptions and beliefs, and inspires fresh perspectives (Kwasi, 2015). A leader has the capability to influence Employees' psychological contracts & the style of leadership speaks volume about how empowered employees may feel in the organization (Povah, 2012). The concept of psychological contract was first put up by Argyris, a famous American behavioural scientist, in his book 'Understanding of Organizational Behaviour', he talked about the concealed and informal tacit agreement between the foreman and workers (Argyris, 1960). The psychological contract approach (Blau, 1964) investigates the processes and contents of work relationships, based on the assumptions of social exchange theory.

2. LITERATURE REVIEW

Inclusive leadership: the concept

In three ways, inclusive leadership practices by leaders can help employees improve their Organisational Citizenship Behaviour (OCB). First, according to social exchange theory (Blau, 1964), inclusive leaders' supporting behaviours cause employees to believe they have been treated favourably, motivating them to act reciprocally toward the leader and the organisation (Wang, 2008). Because of the shifting demographics of today's workforce, firms must effectively manage diversity of manpower & their psychological wellbeing. The

leadership—specifically, inclusive styles of leadership—is essential for effectively harnessing diverse human capital (Luksyt,2017). Aside from the moral case for creating an inclusive workplace, the findings of this study demonstrate that inclusive leaders can also boost the bottom line(Liu B,2017).Inclusive leadership is a novel leadership style, and only a few empirical research on the topic have been published so far. Various findings suggest that in the future, comparative studies on the role of other mediating variables should be conducted in order to gain a more comprehensive understanding of the tolerance mechanism of leadership on employee behaviour and team performance (Thi Bich Hanh Tran,2017). The mediating impact of caring ethical climate in the effects of inclusive leadership on employee voice behaviour and team performance (Jane Oorschot,2019). It can be suggested that inclusive leaders will be successful in attenuating a negative association between a team's ethnic-cultural variety and its inclusive climate by skilfully balancing the needs for belonging and individuality. Furthermore, because all team members are respected for who they are in an inclusive environment, the different perspectives of all team members are actively sought and considered, those group procedures that are required to exploit the potential benefits of a diverse team would be able to do so. As a result, inclusive leadership may be thought to mitigate the relationship between team ethnic cultural diversity and inclusive climate (Jiang, H. Y,2019). The purpose of a study by Crouch,2015 was to see if inclusive leadership may regulate the relationship between team ethnic-cultural diversity and inclusive climate in public sector teams. Among this study, we looked at how effective inclusive leadership is fostering an inclusive culture in ethnically and culturally diverse teams. As predicted, inclusive leadership helps to moderate the association between team diversity and a welcoming environment. That is, when inclusive leadership is high, highly ethnic-culturally diverse teams enjoy a more inclusive climate than when it is low (Lisa H. Nishii,2019). To control affective responses resulting from social categorization processes, inclusive leadership is required. However, this is primarily a problem in teams with a lot of variety; inclusive leadership has no effect on the inclusivity of teams with a lot of ethnic-cultural diversity. The findings also imply that teams with a lot of ethnic and cultural diversity are less inclusive than teams with less diversity. This contrasts earlier research findings that found a link between ethnic-cultural representation and public perceptions of inclusion (Md. Hassan Jafri,2017).

Inclusive leadership & organisational culture

A fundamental component of 21st-century leadership is the ability to be inclusive and to build and sustain an inclusive culture in groups, companies, and communities. In today's businesses and communities, as well as those of the future, successful and effective leadership demands a deep grasp of and talents in generating and catalysing chances to benefit from all sorts of diversity and to improve these capacities in oneself and others(Dhar R L,2016).Thus, inclusive leadership entails more than cultural competence or managing diversity; it also entails creating and fostering the conditions that allow everyone to be and do their best, to see the value in doing so, and to belong and participate in ways that are safe, engaging, appreciated, and fair—across and with their differences and without having to subsume or hide valued identities(Nishii L.H,2018). In a nutshell, inclusive leadership entails bringing inclusion to life in any situation, including interpersonal relationships, work groups, organisational systems, and communities. Inclusive leadership entails fostering equity and fairness across many identities in addition to facilitating participation, voice, and belonging without necessitating assimilation (Tanachia Ashikali,2018).

Organisational Culture: Nearly two decades ago, Edgar Schein (1985) wrote extensively on corporate leadership and culture, and his insights are probably even more relevant today than they were then. A deeper grasp of organisational cultural issues is required not only to discern what is going on in them, but also to determine what may be the most essential issues for leaders and leadership. Leaders shape organisational cultures, and one of the most important functions of leadership may well be the formation, control, and, if and when necessary, eradication of culture. When you look at culture and leadership attentively, you'll notice that they're two sides of the same coin, and neither can be fully comprehended on its own. Indeed, there is a possibility—underemphasized in leadership research—that the only thing that matters to leaders is to develop and manage culture, and that their capacity to deal with culture is their distinctive talent (Hao Zeng,2020). The role of culture in managing and leading an effective organisation is well acknowledged. However, recognising the value of culture is not always easy to transfer into the necessary practise of leadership development. Organisational culture is a set of shared basic assumptions that the group developed as it solved challenges of external adaptation and internal integration, and that has proven to be valid enough to be taught to new members as the correct way to perceive, think about, and solve those difficulties. This study serves as a springboard for future research on the significance of organisational culture as a component of the setting in which leadership development must occur (Lei Qi,2020). Leadership is the process of one person influencing a group of people to reach a common goal (Sandhya Mehta,2017). An organisation with a strong learning culture is capable of "generating, gaining, and transferring knowledge, as well as adjusting its behaviour to reflect new knowledge

and insights" (Garvin, 1993, p. 80). The cultural framework for leadership development is shaped by a combination of factors such as the environment, organisational culture, the pool of available talent, the influence of technological progress, and the commitment of existing leadership. The analysis by McMillen, creates a link between leadership, leadership development, and organisational culture that is based on a review of existing literatures and research, and it reveals a gap in the study of organisational culture as a significant contextual factor in the design of leadership development activities. These connections provide a solid foundation for future study on contextual leadership development and the validity of a systems approach to the operational environment's impact on leadership development practise.

INCLUSIVE LEADERSHIP & PSYCHOLOGICAL CONTRACT

Concept of Psychological contract:

Contracts are commonly used to create membership in an organisation. In an employment relationship, there is a tendency to focus more on legal contracts of employment; however, these vary. Rousseau (1990) and Organ (1990), for example, expanded on the notions of psychological contracts and organisational citizenship behaviour (OCB) and were associated with them through time. Rousseau (1990) defined psychological contracts as "beliefs, based on promises expressed or implied, regarding an exchange agreement between an individual and, in organisations, the employing firm and its agents" in addition to pointing out the rise in the number of unwritten or implied contracts in the employment relationship Khan, (A. W. Khan,1992). With the widespread belief that people resources are critical to an organization's success, psychological contracts have become increasingly vital for many employers to understand and manage. Employee psychological contracts could be channelled towards the growth and success of many organisations once they are understood and controlled (Mimoza Manxharia,2017). Psychological Contract is referred as an individuals' beliefs about reciprocal duties in a dual relationship, such as work (Sebastian,2015). It describes the expectations that an employee and an employer have of one another, as well as what they owe to one another (Agarwal,2015). It is a mutual pledge between stakeholders to fulfil mutual perception-based obligations (Rousseau,1998). The findings of the study conducted by Maral Muratbekova-Touron & Geraldine Galindo (2018) demonstrate the critical importance of HR and direct managers in forming and maintaining a balanced professional psychological contract with developers as a specialised HR strategy in response to their job specificities and values. Specific HR practises and the working environment contribute to the creation of trust and fairness, which are part of the balanced psychological contract's content.

A study conducted by Shalini Srivastava, Sonali Singh (2020) has added to the body of knowledge about the psychological and social needs of employees along with work engagement, by including a mediating role i.e psychological empowerment (PE). PE is concerned with enabling people to control and accomplish what they believe is beneficial for their personal and organisational success.

According to Osman M. Karatepe et al, (2020), the failure of a firm to meet one or more promises and duties under the psychological contract is an indication of distrust in the organisation. And consequently employees are unable to feel optimistic about their jobs, devote their energy to them, or focus on their responsibilities as they feel the promises are broken (Akkermans et al., 2019) .

How leadership impacts Psychological Contract:

Any organization's work environment reflects the personality and ideology of its leadership. It follows that the leadership of the organisation had a direct impact on employee loyalty, performance, and satisfaction (Muhammad Waseem Bari,2016). According to Schalk and Roe (2007), the concept of psychological contracts can be ruptured or abandoned based on the conditions in which they were formed. In businesses with a diverse workforce, inclusive leadership is thought to be necessary to ensure that all people are fully appreciated and participate. The findings revealed that inclusive leadership helps to mitigate the unfavourable relationship between ethnic-cultural diversity and inclusive climate in the workplace. To support an inclusive climate in which different team members are respected for what they bring to work practises, inclusive leadership is required. Forging inclusiveness in diverse teams requires inclusive leadership (Tanachia Ashikali,2020).

INCLUSIVE LEADERSHIP & EMPLOYEE ENGAGEMENT:

According to the Gallup Institute, only 15% of workers worldwide are totally involved in their jobs, while the remaining 85% are either not engaged or actively disengaged [Gallup, 2017]. The lack of assistance for employees in attaining what they consider to be meaningful accomplishments is one of the causes of the developing "disengagement crisis" [Forbes, 2014].

Khan pioneered the employee engagement movement with his multi-dimensional engagement architecture. Employee engagement is defined as an individual's entire involvement of himself or herself in a job role (Khan, 1992).

Job burnout is the polar opposite of employee engagement (Harter, 2002). Employee engagement is a psychological condition that arises through social interaction in the workplace and leads to increased organisational productivity. When an employee performs better, it is a good sign. When he or she finds significance in their work, company culture flourishes (Kahn, 1999).

Employee engagement is given significant consideration since engaged employees have an emotional link to the firm, which leads to increased productivity, return on investment, retention, loyalty, and absenteeism (Shukla, Adhikari, & Singh, 2015)

Physical, emotional, cognitive, and behavioural factors all play a role in employee engagement. The majority of the organisations assessed followed a well-defined hierarchy, with CEOs involved in formulating action plans for the firms' survival. Managers are focused on meeting deadlines, no matter how difficult the duties are. Managerial pressure leads to employee dissatisfaction and stifles their creative potential. Frustration and disengagement are caused by high job pressure and the monotonous nature of duties (Rastogi, 2018)

The concept of Inclusive leadership & its impact on employee engagement was initially investigated by Nembhard, 2018, who stressed that inclusive leadership and employee engagement are favourably connected. Later on, Edmondson, also emphasised inclusive leadership as a key instrument for moulding team members' favourable ideas about their voice in organisational concerns. They claimed that by remaining approachable, accessible, and open in organisational concerns, an inclusive leader encourages followers to provide input. Leadership inclusiveness is at the heart of relational leadership, and it focuses on how followers view their leader. Edmondson's theory also includes discussions of openness, accessibility, and openness. His findings are also in line with many previous research that show that certain leadership behaviours, such as signalling compassion and perceived support, can boost employee trust in leaders (Burke, 2009).

A study by Jaussi & Carmeli states that leaders have an impact on how employees think. Leaders have a significant impact on employee motivation, morale, and engagement. Leaders have a variety of effects on their following. Leaders, according to Jaussi and Dionne, serve as role models for their subordinates. Similarly, Atwater and Carmeli pointed out that leaders energise subordinates to become more involved in their duties (Jaussi 2009).

Employees' jobs are influenced by inclusive leaders, who energise people to do their tasks. Employees' behaviours are influenced by the consideration of inclusive leaders (Datta, 2010). Inclusive leaders recognise that their employees' contributions are critical to the organization's success (Gorgievski, 2014). Employees become motivated and engaged as a result of this realisation. In other words, inclusive leadership increased employee engagement, which is critical for improving employee and organisational performance (Gutermann, 2017).

Employee engagement is defined as employees' emotional and intellectual attachment to their jobs and organisation (Anand, 2012). An engaged employee devotes his or her physical, emotional, cognitive, and behavioural resources to achieving the firm's goals (Byrne, Z. S., 2014). When an employee is physically engaged, he or she is willing to go above and beyond to help the company achieve its objectives (Macey, 2010). An employee's psychological participation and dedication in fulfilling given responsibilities is referred to as cognitive engagement. Pride and emotional engagement are two words that come to mind when thinking about emotional engagement (Gibbons, 2006).

Employees' additional role behaviour while doing tasks is referred to as behavioural engagement. Folk theory claims that people with a good attitude and conscientiousness are more engaged in their work and adapt to corporate needs (Macey and Schneider, 2008). As a result, people with a good attitude adjust easily to changes in the workplace, demonstrating behavioural involvement.

This means that businesses can start to see Inclusive Leadership as a promising leadership approach that can improve employee behaviour and interpersonal processes of being engaged at work, all of which are beneficial to the workplace. The research of IL and EE is vital, but the impact of IL and diversity climate on participation may be just as important. The main impacts of IL on EE are found to be significant in the work done by Jose Luise, 2018. In terms of IL, this indicates that people who work for a leader who is inclusive are more likely to show high levels of engagement at their workplace.

3. METHOD

This study summarises the findings of a comprehensive literature search that included journals, web pages, and training manuals and documents. The review was conducted in two phases: (a) identifying, compiling, categorising, and deciding the relevance of items for inclusion in the review, and (b) synthesising and reporting the analysis' conclusions. The literatures were differentiated on the basis of their relevance to the article.

4. CONCLUSION

New generation employees have steadily become the key drivers of workplace and firm development in today's society. After going through various literatures from Blau's time from the year 1964 to 21st century's young dynamic researcher's new developments, we can conclude that various characteristics of inclusive leadership have varying effects on various parameters (s) such as organisation culture, employee's psychological contract & employee engagement. Companies are increasingly relying on diverse, multidisciplinary teams that bring together the skills of men and women, people of various cultural backgrounds, and younger and older employees. However, merely putting a diverse group of individuals together does not guarantee excellent performance; inclusive leadership ensures that all team members are treated with respect and fairness, are valued and feel a sense of belonging, and are confident and inspired. Diversity, equality, and inclusion (DEI) is about more than just the issues that are easier to manage or taste better. It's about paying attention to the wide range of differences that make up employee and customer bases in the broadest sense. Leadership that is inclusive has a larger impact on cultural diversity. Leaders who exhibit inclusive leadership characteristics have a positive rapport with their followers. Inclusive leaders are more concerned with their followers' relationships than with their own power. A global leader's role in a varied workplace is to engage all employees by utilising workforce diversity at all levels, fostering collaboration and dedication, and promoting a healthy work-life balance.

Literatures show that conversations about psychological safety refocus attention on the potential and power of utilising every employee as a source of innovation and progress. Employees are more likely to present new ideas that push the firm ahead when conscientious leaders build workplaces that support a "speak up" attitude.

Employee engagement is boosted by diverse and inclusive workplaces. Employee engagement is a critical component of a successful business strategy. Employee engagement and a sense of belonging are enhanced through inclusion. Organizations must embrace and encourage participation in order to have successful talent. Organizations must ensure that they are diverse and have an inclusive atmosphere in addition to employee engagement. Employees should feel as if they are a part of the team. The terms "engagement," "diversity," "inclusion," and "belonging" are all interchangeable.

Because of the shifting demographics of today's workforce, firms must effectively manage diversity. The current study has identified that for the success of the organisation, inclusive forms of leadership are essential.

MANAGERIAL IMPLICATION & FUTURE SCOPE

By analysing Inclusive leadership & its implication on Organizational Culture, Employee's Psychological Contract & Engagement which had not been expressly explored, this research article provided additional insight into the relationship between leadership styles and psychological contracts, culture etc.

Pre-entry experiences should provide clear communication regarding reciprocal commitments at the start of the work relationship, so that there is little doubt about the role and the organisation.

Understanding the psychological contract for leaders can lead to better work satisfaction, improved performance, and a lower likelihood of quitting, all of which have significant financial ramifications for companies. Importantly, a match between expectations and reality can promote trust and a sense of worth to the organisation.

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INCLUSION OF SUBJECT ON CORPORATE SOCIAL RESPONSIBILITY IN SWEIS IN GUJARAT

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ABSTRACT

In India, in 1936, a full-time professional course of social work was introduced by Sir Dorabaji Tata at Sir Dorabji Tata Graduate School of Social Work, Mumbai. Currently in India, Social work education curriculum is broadly divided into three categories: Foundation/ background courses, Method courses and Fieldwork Courses. Foundation Courses are important to prepare a basic understanding of human behavior and society viz. Human growth and behavior, Psychology, Philosophy, Sociology, Social Problem etc. Method courses prepare student to do social work in a specific way which are: Social case work, Social group work, Community organization, Social action, Social work Research, Social work Administration. Field work courses are helpful to understand the practical realities of various groups in society and help skill building of students to work with different groups, these subjects are: Medical and Psychiatric social work; Community health and development; Human Resource Management; CSR (Corporate Social Responsibility); Criminology and correctional social work; Juvenile Justice; Rehabilitation in correctional setting; Working with children, youth, elderly, women and other marginalized groups.

CSR has its origin from ancient Roman law and can be evident from asylum, home for poor and old, Hospitals etc. In eighteen and nineteen century, Victorian philanthropist efforts are remarkable in the field. CSR has its formal roots from USA. Concept of CSR evolved from personal decision of business in 1950's to decision making process in 1980's to SCSR in 2000's to shared value in 2005's to sustainable value in 2015's. (Agudelo, Jóhannsdóttir and Davídsdóttir, 2019)

CSR is one of the emerging fields in Social work education although Social Work Methods are linked with CSR in one or the other ways. Skills required for CSR domains are being taught as part of social work methods in every SWEIs. But field specific knowledge would help students to build better understanding.

This article will help one to understand the inclusion of CSR as subject in MSW curriculum and the gap required to be filled by including specific Subjects/Units in the Social Work curriculum to prepare students to work more efficiently in CSR Domain.

Key Words: CSR, Social Work Education Institutions (SWEIs)

INTRODUCTION

Social work is a helping profession, and its main aim is to enhance human wellbeing. To enhance human wellbeing, one needs to study the individual and his/her behaviour, environment, structure of society he/she lives in, the responsibility of the state towards the wellbeing of every citizen and so on. Thus, a trained social worker is expected to study the basics of every social and behavioural sciences such as sociology, anthropology, criminology, legislation and psychology. Hence Social work is called a multidisciplinary and applied discipline of profession. (Bhattacharya, S. 2008)

The social work education started by efforts of Victorian reformers in the last decades of the nineteenth century, remodel its concept from charity work to scientific philanthropy. The very first school of social work with a two-year full-time program was established in Amsterdam in 1899, but the real beginning of social work education is found in Octavia Hill's training of volunteers in housing management in 1870. Expansion of this training in the 1880s, in cooperation with the women's university settlement, led in 1890 to an organized one-year program of courses and field practice which involved, under the direction of COS(Charity Organization Society), into London school of sociology launched in 1903. (Kendall k. 2000)

In India, in 1936, a full-time professional course of social work was introduced by Sir Dorabaji Tata at Sir Dorabji Tata Graduate School of Social Work, Mumbai with the help of western consultant: Clifford Manshardat. It is now known as TISS (Tata Institute of social science). From 1936 to 1947, for 11 years, TISS was the only social work school in India then, Delhi school of social work was introduced in 1947-48 which was the first institution affiliated with university-based system. Till 1957, nine different colleges were started giving social work training. Up to 2005, there were 220 schools of social work (SWEPC 2005), and it reaches to

more than 300 by 2012 (SWEPC 2012). Earlier TISS began with the generic social work course and presently it offers MA in social work degree along with specialization in a particular field.

In Gujarat, only two institutions are pioneers in the field of social work education (Faculty of Social Work, The Maharaja Sayajirao University of Baroda, and Gujarat Vidhyapith) for many decades but because of the increasing popularity and demand of social work courses, now almost every district has its own school of social work.

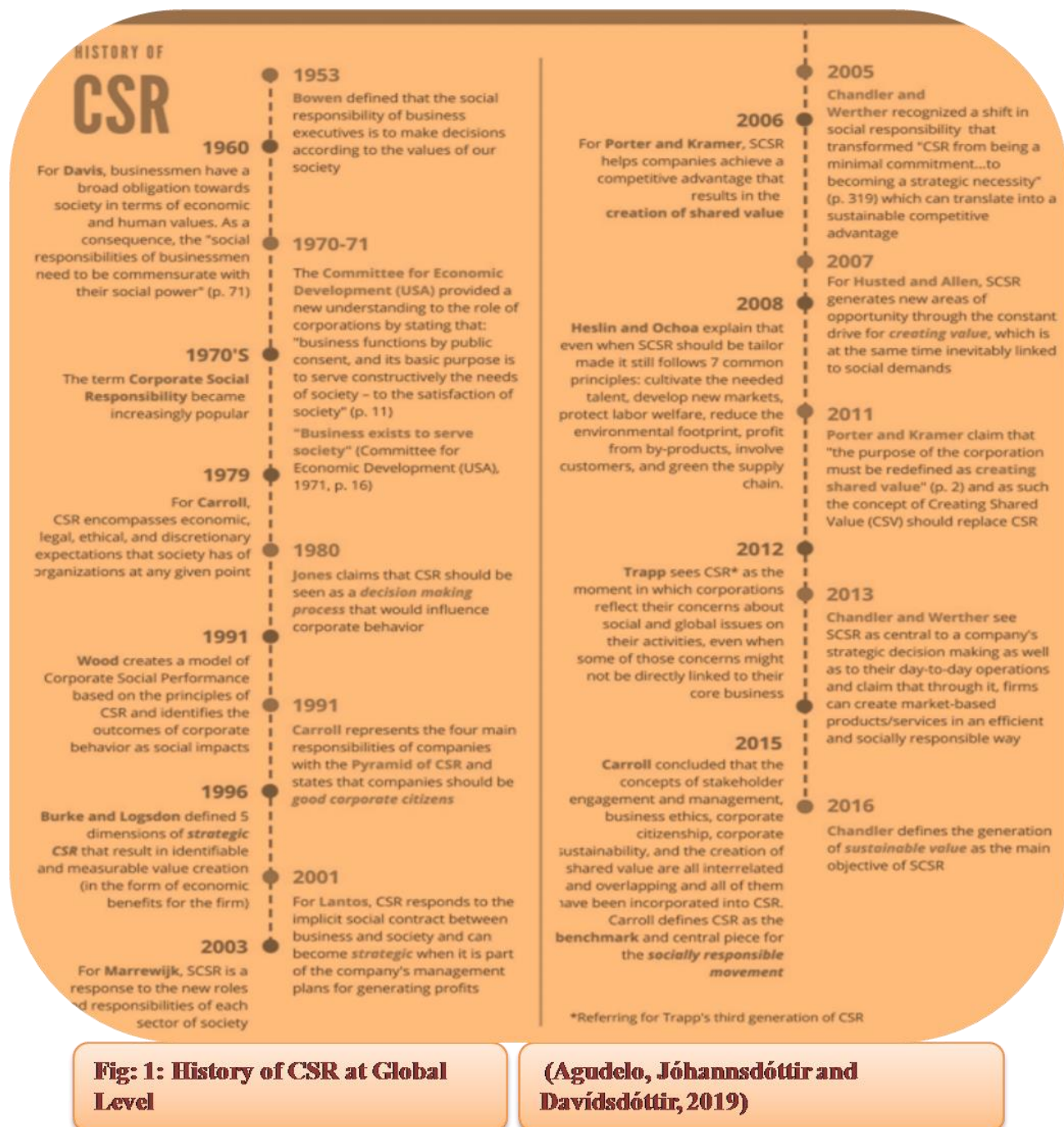
The social work education curriculum basically includes Theoretical knowledge, Field work Practice and Social work research. Social work education is broadly divided into three categories: Foundation courses, Method courses and Field work Courses. Foundation Courses are important to prepare basic understanding about human behavior and society viz. Human growth and behavior, Psychology, Philosophy, Sociology, Social Problem etc. Method courses prepare student to do social work with a specific way which are: Social case work, Social group work, Community organization, Social action, Social work Research, Social work Administration. Field work courses are helpful to understand the practical realities of various groups in society and skill building of students to work with different groups, these subjects are: Medical and Psychiatric social work; Community health and development; Human Resource Management; CSR; Criminology and correctional social work; Juvenile Justice; Rehabilitation in correctional setting; Working with children, youth, elderly, women and other marginalized group.

History of CSR at global level:

CSR has its origin from USA. In 1953, Bowen defined CSR as it is the social responsibility of business executives to make decisions according to values of our Society. In 1961 Devis gave another definition but still the focus is limited to management, social welfare of community for generation of economic profit. In 1971, the committee for Economic Development (USA) stated that: "Business functions by public consent, and its basic purpose is to serve constructively needs of society-to the satisfaction of society" (Agudelo, Jóhannsdóttir and Davídsdóttir, 2019)

In 1979, Carroll gave unified definition emphasized on expectations (economical, legal, ethical and discretionary) of society are integral part of business. In 1980s, Jones told CSR as decision making process which would influence corporate behaviour. The concept of Pyramid of CSR and Good Corporate Citizen was given by Carroll in 1991. Concept of 'Strategic CSR (SCSR)' came in picture from 1996. (Agudelo, Jóhannsdóttir and Davídsdóttir, 2019)

In year 2000, MDGs (Millennium development Goals) and creation of UNGC (United Nation Global Compact) gave new broader direction to CSR by covering Human and labour rights, environment, anti-corruption and sustainable development. Porter and Kramer talked on Creation of shared value by SCSR in 2006. By introduction of SDG (Sustainable Development Goal) in 2015 at global level, emphasis was given on creating sustainable values through SCSR (Chandler, 2016).



From fig:1, it is understood that concept of CSR evolved from personal decision of business in 1950's to decision making process in 1980's to SCSR in 2000's to shared value in 2005's to sustainable value in 2015's.

History of CSR at National Level (India):

Corporate Social Responsibility (CSR) has its root in India for a long in form of charity and philanthropy. Mahatma Gandhi has also described it in the form of Trusteeship Concept. It depicts that rich people would be the trustees of trusts who is responsible for welfare of general people of the society. CSR is also depicting the same.

GDP of the India is increasing gradually from 2000 to 2015. But it leads to an increase in economic inequality. For Sustainable Development, It is required to balance between social and economic growth. With this context, Corporate Social responsibility was conceptualized as an instrument for integrating social, environmental, and human development concerns in the entire value chain of corporate business. (High level Committee Report)

Ministry of Corporate Affairs (MCA) introduced Voluntary Guidelines on Corporate Social Responsibility by the Ministry of Corporate Affairs to encourage the concept of Business Responsibilities in 2009. It is the first formal step to include social responsibility as a part of Business responsibility. In 2014, by the introduction of

section 135 in Companies Act, CSR is mandatory by every eligible company in India. CSR funds are steadily increasing since inception of CSR Act.

As per Section 135 (1) of Companies Act, 2013, Companies who fall into below-mentioned criteria will have to spend every year at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy.

- Net Worth more than 500 Cr or
- Turn Over more than 1000 Cr or
- Net Profit more than 5Cr

Ministry of Corporate Affairs has notified amendments on 22nd January 2021 with an aim to strengthen the CSR ecosystem. (National CSR Portal, 2021)

No of Companies spending year wise total amount in CSR in India is mentioned below

Year	No of Companies	Total amount spent on CSR (INR Cr)
2014-15	16458	10066
2015-16	18292	14517
2016-17	19552	14344
2017-18	21515	17079
2018-19	25093	20099
2019-20	22155	24063

(National CSR Portal, 2021)

It is deduced from the above table that from FY 2014-15 to 2019-20, average No of Companies in India are 20,510 contributing average Rs. 16,694 Cr for CSR.

Gujarat being an industrial state, its CSR contribution is gradually increasing from financial year (FY) 2014-15 (amount spent 313 Cr) to 2018-19 (amount spent: 1091 Cr). In FY 2018-19, Gujarat's CSR contribution is 5% of total CSR contribution of the country. (National CSR Portal, 2021)

This indicates the scope of employment for Social workers in CSR domain and especially in Gujarat.

Social Work Methods and CSR:

In social work education, there are three primary methods of working with individual, groups and communities. Apart from these, there are three secondary methods such as Social work research, Social welfare administration and Social action.

Social case work is method of affecting the understanding of the needs, resources, and reactions of the individual (Porter Lee)

Social group work is method through which individuals in the group in social agency settings are helped by a worker who guides their interaction in program activities so that they related to themselves to others and experience growth opportunities in accordance with their need and capacities (Tracker)

Community Organization is process by which community identifies its need or objectives, gives priority to them, develop confidence and will to work at them, finds resources (internal and external) to deal with them, and in doing so extends and develops cooperatives attitudes and practices in the community. (M. G. Ross)

It is a systematic, critical investigation of questions in the social welfare field with the purpose of yielding answers to problems of social work and extending and generalizing social work knowledge and concepts (W. Cater)

It is observed that above mentioned four methods are linked with CSR in one or the other ways. Skills required for CSR domains are need assessment, planning, proposal writing, mobilization of resources, implementation of the project, monitoring, Documentation, evaluation of project results, impact assessment. These skills are being taught as part of social work methods in every SWEIs.

The social work core curriculum is comprehensive enough to prepare students in CSR domain. But certain addition subjects/ topic/ unit needs to be included to brief students about the concept, its history and its legality. Thus, CSR history, CSR act/rule/amendments need to be included in the Social work curriculum to prepare

students for the CSR domain. CSR agency visit, field work, seminar, expert talk will give holistic experience to students of CSR domain.

CSR in Curriculum of SWEIs in Gujarat:

In this paper, SWEIs means all social work education institutions geographically located in Gujarat imparting post graduate level of regular full time degree in social work course. It also includes all Grant in aid and self-financed social work education institutions.

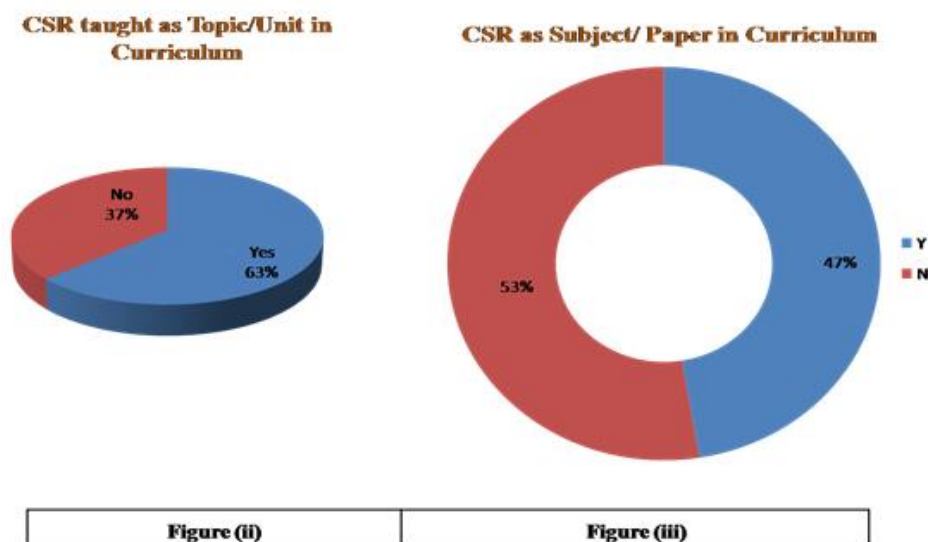
There are around 70 plus SWEIs in Gujarat which offers PG in Social Work Degree affiliated to 19 Universities (e.g: M.S University, Gujarat University etc). It is important to understand following aspects to prepare students to be placed in CSR domain.

- Whether these SWEIs includes CSR as Subject/Unit/ topic in their curriculum
- If Curriculum includes CSR as Subject/Unit/ topic then whether it comprises CSR Act/Rule, proposal writing, research etc

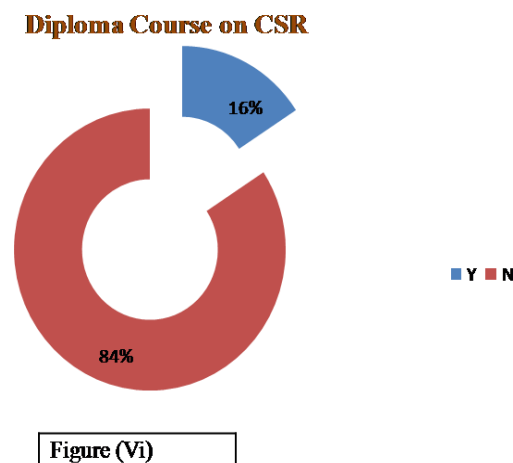
The researcher had studied MSW curriculum of all SWEIs of Gujarat. The researcher has adopted the content analysis method of research to study the subject. The researcher has covered all the SWEIs for this study.

FINDINGS:

A quick review of secondary data available on the websites of SWEIs of Gujarat shows the following results.

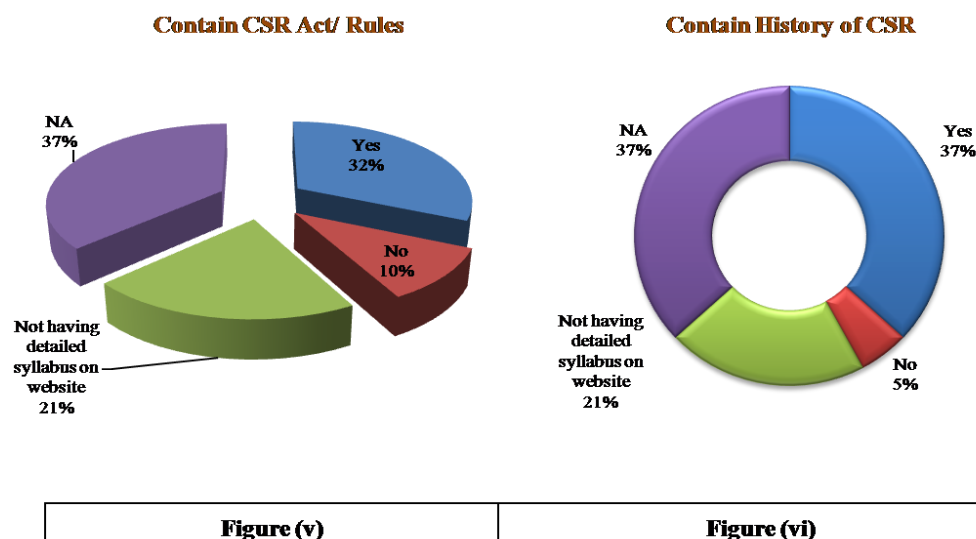


As per figure (ii) & (iii), it is observed that around one-third of SWEIs doesn't include CSR as topic/ unit in curriculum. More than half of SWEIs hasn't CSR as full-fledge subject/ paper in curriculum.



As per figure (iv), it is evident that only 16 % of universities provide diploma course on CSR.

It is evident from the study that every SWEIs has the subject of research in their curriculum but dissertation is not compulsory in all the institutions.



From figure (v) & (vi), it is observed that around 37% SWEIs contains CSR as history in CSR and around 32% SWEIs contains CSR Act/ Rules in the subject of MSW curriculum. Around 21% of SWEIs in Gujarat have not mentioned a detailed unit wise syllabus on the website.

CONCLUSION:

Paper discusses about SWEIs, its history, curriculum, history of CSR at global and national level, CSR as subject in curriculum, subject of CSR in SWEIs in Gujarat.

Education system should be assessed and revised as per the current requirement of market to engage the students to fulfill the requirement. As discussed in the paper, CSR is one of the emerging fields in Social work Education. Social Work Method Courses are comprehensive enough to inculcate foundation skills into social worker required for CSR domain but for specific field related knowledge need to be imparted to prepare students for CSR Domain.

Researcher has observed that more than half of SWEIs in Gujarat do not have CSR as subject/full paper in its curriculum. Hence, it is required to review and revise curriculum of SWEIs time to time as per current trends of market. We hope, each SWEIs of Gujarat adopt standardized CSR module as subject to impart basic knowledge of CSR domain among students. This will help in creating job opportunities and creating trained manpower as per market requirement which will be helpful to society at large.

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GANDHI AS A PHILOSOPHER OF HUMAN NATURE

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ABSTRACT

The study of human nature has been an evergreen discourse for all the thinkers and philosophers of the world. Gandhian philosophy of human nature comes from Vedanta particularly the Advaita philosophy of Shankara so that he holds it in high esteem. His philosophy of human nature is how human nature has been assessed in different spheres of intellectual pursuits and its importance to the study. His theory of human nature explains how man bypasses the traditional Western debate on whether human beings were naturally good or evil. Since human beings had souls and were spiritual in nature, they had a deep tendency towards good. He thought that some corresponding fundamental facts characterized human beings. He stated that human nature is the product of the society that the acceptance of the essential goodness of human being prompts to accept the non-violent method in every sphere of life. According to him man is basically good and source of evil was man's will to power. If we know the human nature, we will easily solve the human problem. His views of philosophy include various thinkers like Tolstoy, Ruskin, Thoreau and many others. He emerges as a great optimist so that his assessment of such philosophy is very much relevant in the present day world.

Keywords: Advaita Philosophy, non-violent, optimist, Shankara, Vedanta

INTRODUCTION

Origin of the Gandhian philosophy is mainly integrated with religion and society which developed by MK Gandhi during his period in South Africa from 1893 to 1914 and later of course in India. Gandhian philosophy is a body of ideas that describes the emotional feelings, mission, vision, goal for Indian Independence and the life works of MK Gandhi inspired him by all philosophers what he contact or read those books particularly written by Leo Tolstoy, Thoreau, John Ruskin, etc. Gandhian philosophy is not only very much systematic in manner as Marxism which is mainly focussed on nature and society but also connected/related with Indian philosophy, Eastern philosophy, Western philosophy etc, with the four-pillar/principle such as, truth(satya), non-violence(ahimsa), sarvodaya (welfare of all), satyagraha (peace protest) means for holding the truth or firmness respectively. He studied law in UK and practiced law in South Africa which is the great laboratory of MK Gandhi for searching the truth as well as uprooting to anti- social laws on the ground of Phoenix and Tolstoy Farms. But he left his profession and returned to India to join the Indian freedom struggle. Throughout his life he opposed any form of violence. From the time he took charge of the freedom struggle movement with heart and soul so that he was lovely called as Mahatma by millions of Indians. Mahatma Gandhi is perhaps the most widely recognized figure of the India nationalist movement for his role in leading non-violent civil uprisings, he first employed the non-violent approach in South Africa where he was serving as an expatriate lawyer. He organized non-violence protest in the country which gained him fame and supported from the people of India without any question. Unforgettable is his valuable services which gave us freedom. Many people in the world get inspired and want to be like him. He is seen as a hero who gained India's liberation from Britain and unfair laws. He was a man who was able to fast for his people's freedom and was not afraid to go to jail. He was always ready to sacrifice for the masses. He is so important today because he influenced by many great personalities who have equal right. Besides he was an extraordinary and outstanding personality because of his manner, man of principles as well as man of action. Again within Hindu philosophy, where the idea of soul is there, there are wide diversities and disagreements regarding the nature of the soul. Ironically though Hindu philosophy preaches the idea of an imperishable soul, the Hindu social system shows gross inequality of a hierarchical caste system. Out of the conviction that man is innately good, Gandhi believes that there is no wrong-doer who cannot be reformed. He is of firm belief that even the hardened criminal can undergo moral transformation by proper appeal and education. No person is a born criminal. Social system, psychological strain or adverse situation may make a person anti-social. By awakening the real spirit either by education, training or moral appeal any one's anti-social attitude or animal instinct can be subdued or rational

spirit can be aroused. That is why Gandhi holds Satyagraha in high esteem as the only means of social control to remove injustice from society. His assessment of human nature not only expresses metaphysical overtone but also reveals his oversimplification of his conviction. His belief in the innate goodness of man, imperishable soul, and inner voice cannot be substantiated by rational justification. Further his view that every man is basically non-violent or can undergo a moral transformation reveals his conviction that the rational faculty always dominates human personality. This view is contrary to the view of modern psychology so human behaviour is often guided by some powerful instincts and biological urges. It stated that the progress of human society is due to the binding condition of love, fellow-feeling and sense of sacrifice does not stand historical testimony. Rather violence, selfishness and exploitation seem to be very much there in every society in varying degrees. It further does not seem to hold good from the stand point of evolutionary progress or historical development. His emphasis on human freedom and individualism has far reaching political consequences. In this respect he can be regarded as a great champion of human dignity and freedom. After all his overall views of human nature are simplistic, idealistic but not permanent at all so that human nature is a mixture of good and evil.

IMPORTANCE OF THE STUDY

Gandhi views are more relevant even today because both nationalization and privatization have failed to solve many social issues and challenges such as poverty, unemployment, inequality, environment degradation and so on. Growth programmes based on science and technology which are material basis but not human centric. Hence there is a need of rethink and recheck about Gandhian philosophy of human nature in order to solve all our human problems.

STATEMENT OF THE PROBLEM

The genres of literatures produced so far discuss on "Gandhi as a Philosopher of

Human Nature" which found different viewpoints written by different writers. Generally, the common people thought that human philosophy is above all the subjects so that such simple thought is very much challenging and also inspiring me to take up the present research

paper. So this study is still lagging behind and quite distinct from the others' write ups.

REVIEW OF LITERATURE

Literature includes books, articles research papers, dissertation which is most related to the topic. Very few books concerning the research topic have been reviewed here such as, MK Gandhi (1955), "My Religion", MK Gandhi (1968), "Ethical Religion", Dr G. Ranjit Sharma (1991), "An Introduction to Gandhian Thought", Ravindra Kumar (2002), "Theory and Practice of Gandhian Non-violence", Mahatma Gandhi (1994), "What is Hinduism?" MK Gandhi (1968), "An Autobiography or the Story of My Experiment with Truth", Dr Elangbam Girani Singh (2020), "Mahatma Gandhi and His Thought - A Religious Humanist", Saroj Malik (1985), "Gandhian Satyagraha and Contemporary World", Sushil Kumar Saxena (1988), "Ever Unto God; Essays on Gandhi and Religion", S.V. Prabhath (2010), "Gandhi Today", Shiw Balak Prasad (2017), "Relevance of Gandhian Democracy for Peace and Betterment of Human Being", Archana Sharma (2019), "Perspective of Mahatma Gandhi and Modern State", Ananta Kumar (2004), "Rethinking the Politics and Ethics of Consumption: Dialogue with the Swadeshi Movement and Gandhi", Ormit Shani (2011), "Gandhian Citizenship and the Resilience of Indian Nationhood", Michael Reisch (2014), "The Gandhian Concept of Social Justice". From these above books I got through in most of the write ups on Gandhian Philosophy such as, books, journals, research papers, pamphlets etc. however this view points are different from the others. Regarding this theme on 'Gandhi as a Philosopher of Human Nature' is very much different and specialty from the others write ups which is a quite unique.

MAJOR FINDINGS OF THE STUDY

1. Gandhi as an 'Architect of Modern India'.
2. He was one of the Charismatic leaders of India.
3. He was a man of action.
4. He was a secular minded political philosopher.
5. He was the most important and central figure in extending support towards the human nature.
6. He encouraged natural outlook in order to solve the problem of poverty, ignorance, religious orthodox, etc.

7. He emphasized on the need of utilizing humanism.
8. He introduced the concept and importance of truth and non-violence.
9. He deeply impressed the concept and importance of the theory of Anarchism.
10. He was a practical idealist.

OBJECTIVES

The present paper is an attempt to:

- find out the meaning of the concept of human nature.
- find out the importance of the study of human nature.
- suggest how to solve the human problems

METHODOLOGY

The study is based on secondary data. The secondary data are collected from the printed books, journals, magazines, news papers and documents. General information has been collected with the help of e-journal and internet. The collected data are analyzed by using experimental, historical and analytical method.

HIS VIEWS ON HUMAN NATURE

His philosophy of human nature started emerging from the days he started his legal practice in London. At the foundation of his thinking in his upbringing, early influence of his home and surrounding, schooling and the various books and journals he read all through his life. Even though he read all the ancient texts and scripture, he had the courage not to accept many ideas which were contrary to his conviction. He started his metaphysical journey to reach his cherished goal of a society where all individuals would contribute to the good of the society and take the world towards perfectibility. He held that the source of all goodness is the human being and if he is transformed and morally regenerated he would be a force to reckon with. When such individuals from the society the society will have high moral fibre which can take up any challenge and political goal would be a small part of the achievement. In a society which had a racial memory of thousands of year he was a radical reformer challenging the age old practices and tenets but confronting them in his own way with Gandhi's philosophy of human nature. Gandhi's assessment of humanism which is at the base of understanding human nature was essentially spiritual. Since he understood the pulse of the nation he could not base his philosophy in anything but spiritualism which is deeply rooted in the minds of the people. Great reformers like Ramakrishna Paramahansa, Swami Vivekananda, Dayananda Saraswati and many others social reformers also had to adopt the same idiom and language for achieving their social objectives. He held that each individual is an autonomous moral agent subject to a universal moral law. He also believed that the best human action always conformed to universal values. His concept of human nature has been dynamic and it would have been a defeatist attitude for him if he were to believe in passivity of society. He wanted only disobedience to be civil and resistance to be passive and for that purpose he would require a fit morally upright and active society. Only when the individual who has to be a part of such movement aims at perfectibility he would find a warrior to fight his battles against the British Empire. Hence in spite of metaphysical mooring of Gandhi's concept of human nature the end product required was in flesh and blood. He needed a society which would achieve morality, truth and non-violence and political freedom come as a by-product of the efforts to achieve perfectibility. Human nature is the product of the society so Gandhi has his own views on the nature and status of man. In this regard the different religious tradition nature of man is considered differently.

All human being started as brutes but became human and divine through social evolution so that Gandhi affirmed that non-violence is the law of the human beings and violence is the law of brute. It further stated that human nature is the product of the society whatever it came to across in our day today life. In accordance with the different philosophers observed that human mindset can be classified into four such as, idealist, materialist, pessimist and optimist respectively. However Gandhi goes to the path of idealism as well as optimism. Social surrounding for the survival of human being takes a different peculiar stand on the prevailing conditions to overcome by any means. It further stated that human is basically good and source of evil was man's will to power in order to achieve their own goals directly or indirectly. Frankly speaking Gandhi was ahead of his time in championing a different paradigm of human nature. MK Gandhi was a voracious reader so he came to know all the philosophers' views from the different perspective disciplines such as, biology, physics, psychology, social sciences, philosophy etc. These studies reveal that the intricacies of human nature and complexity of human existence. Further human nature and complexity of social conditions have not remained intact right from man's evolution to the present age. There have been a lot of changes, such changes have not stopped at all

but continued in course of time which is the process of historical and social development. In reality he emphasized on human freedom and individualism so he could be regarded as a great champion of human dignity and freedom. The overall views of his philosophy of human nature are simplistic, idealistic but not permanent so that human nature is a mixture of good and evil. As regard he also strongly reacted against the nature of the state as Marxist and also against its application of exploitation of man by man so that he was called as an anarchist. He further stated that all men became good if we minus evil. The early part of his life up to the age of 13/14 years was not good but later part up to the end of his life was extremely good and outstanding in character as the third son of the Indian soil after Lord Buddha, Ashoka respectively. According to him, men lived on the two sides of the world such as, natural world, social world so that men need to survive in balance. Therefore his philosophy of human nature emphasized toward the universal self rather than individual self which based on truth and non-violence. Naturally Gandhian philosophy is mainly stressed on equality, social justice full employment, harmonious labour capital relations etc. in order to maintain a good standard of human nature without social ills so that it can make a good society.

CONCLUSION

Most of the contemporary problems are due to capitalist, urban and large industry - oriented economic programmes so the study of human nature is very much important because it is the main parameter of the social transformation. The present world has been enmeshed with the so many ideology and beliefs and people are showing their royalties in many a varied forms. His philosophy of human nature is not an utopian but has proved a practical preposition in human life and the world. It has an attempt to awaken and developed love force in man and to organize the spiritual energy in the direction of the trial of world peace, security and happiness which mankind has been seeking for so long. His philosophy of human nature is how human nature has been assessed in different spheres of intellectual pursuits. Therefore his philosophy of human nature is very much important and relevant to the present day world. His philosophy of human nature is to bring justice in the society in order to avoid the gap between the rich and the poor after thoroughly knowing behaviors of the human beings. His philosophy believes that society has to be based on love and mutual thrust, but not struggle.

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GERMINATION SPEED OF NATURAL POPULATIONS OF SEVEN SPECIES OF THE *PINUS* GENUS

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ABSTRACT

Germination speed (GS) is important for forest management, because it shows the ecological advantage that a species has a potential to establish in different places. In order to evaluate the percentage of seed germinated, the peak value (PV), and the GS to achieve a germination percentage ≥ 50 ($T_{\geq 50}$) of seven species of the *Pinus* genus, pregerminative treatment was applied to germplasm from different provenances, and sowed and placed in a germination chamber for 30 days. Germination varied between populations of 23% in *P. ayacahuite* var. *veitchii* (AV01) at 100% in *P. montezumae* (MO02) and *P. ayacahuite* var. *veitchii* (AV02). The PV ranged between 0.83 for *P. michoacana* (MC01) and 14.72 for *P. hartwegii* var. *rudis* (HR01). The $T_{\geq 50}$ varied between six days for HR01 and 18 days for AV01. The populations HR01 and *P. teocote* showed rapid germination, AV01 and *P. arizonica* presented slow germination, the rest of the populations had intermediate germination. AV02, MO02 and HR01 populations had the highest proportion of viable seeds with high quality of germplasm due to their PVs, consequently these three populations are able to be more successful during the establishment of the species than the rest of the populations analyzed.

Keywords: Germplasm quality, seedling development, percentage of seed germinated, viable seed, peak value.

1. INTRODUCTION

Around the world, genus *Pinus* plays an important role for conservation of biodiversity. There are over 100 species distributed in the Northern Hemisphere (Farjon and Filer, 2013) with a few incursions into the tropics, and with center of diversity in Mexico and East Asia (Sundaram *et al.*, 2019). This genus provide several services and products to the humanity, e.g., food, wood, biomass, timber, fuelwood, wildlife management, recreation. For Mexico, pine seeds are used for seedling production for reforestation and restoration areas (Flores *et al.*, 2021), and nuts as a comestible food (Rodríguez-Trejo, 2021); nevertheless, seed production annually is limited due to climate, soil, pests and diseases.

For pines, germination is an important stage for the development of new individuals; however, the quality of seed can be affected by factors such as: temperatures, humidity, birds, mammals, insects, fungi and bacteria (Cibrián, 2001). On the other hand, the highest rate of mortality occurs in recently germinated seedlings due to environmental and biological agents (Kozłowski, 1971). This situation limits the regeneration and recruitment of forest species under natural conditions.

Research work on the germination of coniferous species has determined that the most important environmental factors are water, temperature, light and biocides (Kozłowski, 1971). These elements has been studied under four points of view (González-Zertuche and Orozco-Segovia, 1996): final germination, effect of specific treatments, different combinations of factors or, speed of germination.

Speed of germination is an important indicator for forest management (e.g. evaluation of direct sowing of seed for land restoration), because it shows the ecological advantage for plants during their establishment under hard conditions (Bueno González, 2020). Speed of germination is defined as the average time of germination (Côme, 1970) or the time at which it reaches 25, 50 or 100% of the seeds germinated (i.e. $T_{25} = 25\%$, $T_{50} = 50\%$ or $T_{100} = 100\%$) (Rodríguez, Adam and Durán, 2008).

For Mexico, there are few works about this phenotypic attribute as a trait to evaluate the development of seedlings in natural stands. An appropriate evaluation of germplasm is necessary in order to develop management and conservation programs, preserve natural genetic resources, and select areas for seed production. In this regard, the present work aimed to evaluate the speed of germination of populations of *Pinus arizonica* (Engelm.) Shaw, *P. ayacahuite* Ehrenb. ex Schltdl. var. *veitchii*, *P. hartwegii* Lindl., *P. hartwegii* Lindl. var. *rudis*, *P. michoacana* Lindl., *P. montezumae* Lamb., *P. teocote* Schiede ex Schltdl. et Cham. under

controlled conditions in laboratory. On this subject, the following hypothesis was raised: Are some populations of species better than other based on their germination parameters?

2. MATERIALS AND METHODS

In order to be able to evaluate the performance of natural stands of *Pinus* species during germination, we calculated the Germination Speed of *Pinus arizonica*, *P. ayacahuite* var. *veitchii*, *P. hartwegii*, *P. hartwegii* var. *rudis*, *P. michoacana*, *P. montezumae* and *P. teocote*, under controlled conditions in laboratory.

2.1. Plant material

The seeds used were from populations of natural forests of Mexico. This material was supplied for National Institute for Forestry, Agriculture and Livestock Research (C.E. Uruapan–INIFAP), and the Forestry Group AFE, A.C. (Table 1).

Table 1. Populations of seven *Pinus* species from natural forests of Mexico.

Code	Species	Population	Supplier ¹
AR01	<i>P. arizonica</i>	San Juanito, Chih.	CE Uruapan–INIFAP
AV01	<i>P. ayacahuite</i> var. <i>veitchii</i>	Zacán, Mich.	CE Uruapan–INIFAP
AV02	<i>P. ayacahuite</i> var. <i>veitchii</i>	San Juan Parangaricutiro, Mich.	CE Uruapan–INIFAP
HA01	<i>P. hartwegii</i>	Perote, Ver.	AFE
HR01	<i>P. hartwegii</i> var. <i>rudis</i>	Tenango del Valle, Edo. Méx	CE Uruapan–INIFAP
MC01	<i>P. michoacana</i>	Tacambaro, Mich.	CE Uruapan–INIFAP
MO02	<i>P. montezumae</i>	Nuevo San Juan Parangaricutiro	CE Uruapan–INIFAP
MO04	<i>P. montezumae</i>	Tlahuapan, Pue.	AFE
MO05	<i>P. montezumae</i>	Cuyuaco, Pue.	AFE
TE01	<i>P. teocote</i>	Ixtacamaxtitlán, Pue.	AFE

¹CE Uruapan–INIFAP: National Institute for Forestry, Agriculture and Livestock Research; AFE: Forestry Group.

2.2. Germination conditions

The seed were carried out at Department of Ecology and Forest Genetics of INIA-CIFOR (Spain). For pregerminative treatment of seeds, we immersed and stirred in hydrogen peroxide (H₂O₂) (3% v/v) 60 seeds per population for 15 minutes, then rinsed twice, and immersed in distilled water with stirring for 24 hours. The germplasm was sown in rows inside 40 x 60 cm aluminum trays (one population per tray, 2.5 cm distance between seeds, 0.5 cm sowing depth) that contained a 7.5 cm layer of moistened rock wool, which has good results to evaluate germination (Flores *et al.*, 2018), and covered with plastic film. The trays were placed inside an IBERCEX V-900-D germination chamber at 25±1 °C, 60 ± 5% relative humidity and 8-hour photoperiod.

2.3. Data analysis

2.1.1. Germination

Germination was recorded every third day from day three to day 30, since it was assumed that it had concluded. We considered as germinated seed when the radicle of each seed had a minimum length of 3 mm. For each population, the data recorded (germinated seed and day) were used to calculate the percentage of seed germinated, peak value, and speed of germination to reach a germination percentage ≥ 50, i.e. T_{≥50}. The peak value is the maximum value of the sum of the germination percentage divided by the number of days and represents the germination speed (Kolotelo *et al.*, 2001). On the other hand, the germination speed of the populations was classified based on the number of viable seeds per day.

3. RESULTS AND DISCUSSION

It was evaluated the germination of seven *Pinus* species from populations of natural forests. We found differences among the percentage of seed germinated, peak value, and germination speed by species and population.

The percentage of seed germinated among populations varied from 10% for MC01 to 100% for AV02 and MO02 (Figure 1). The peak value ranged between 0.83 for MC01 and 14.72 for HR01; while the T_{≥50} fluctuated between six days for HR01 and 18 days for AV01 (Table 2).

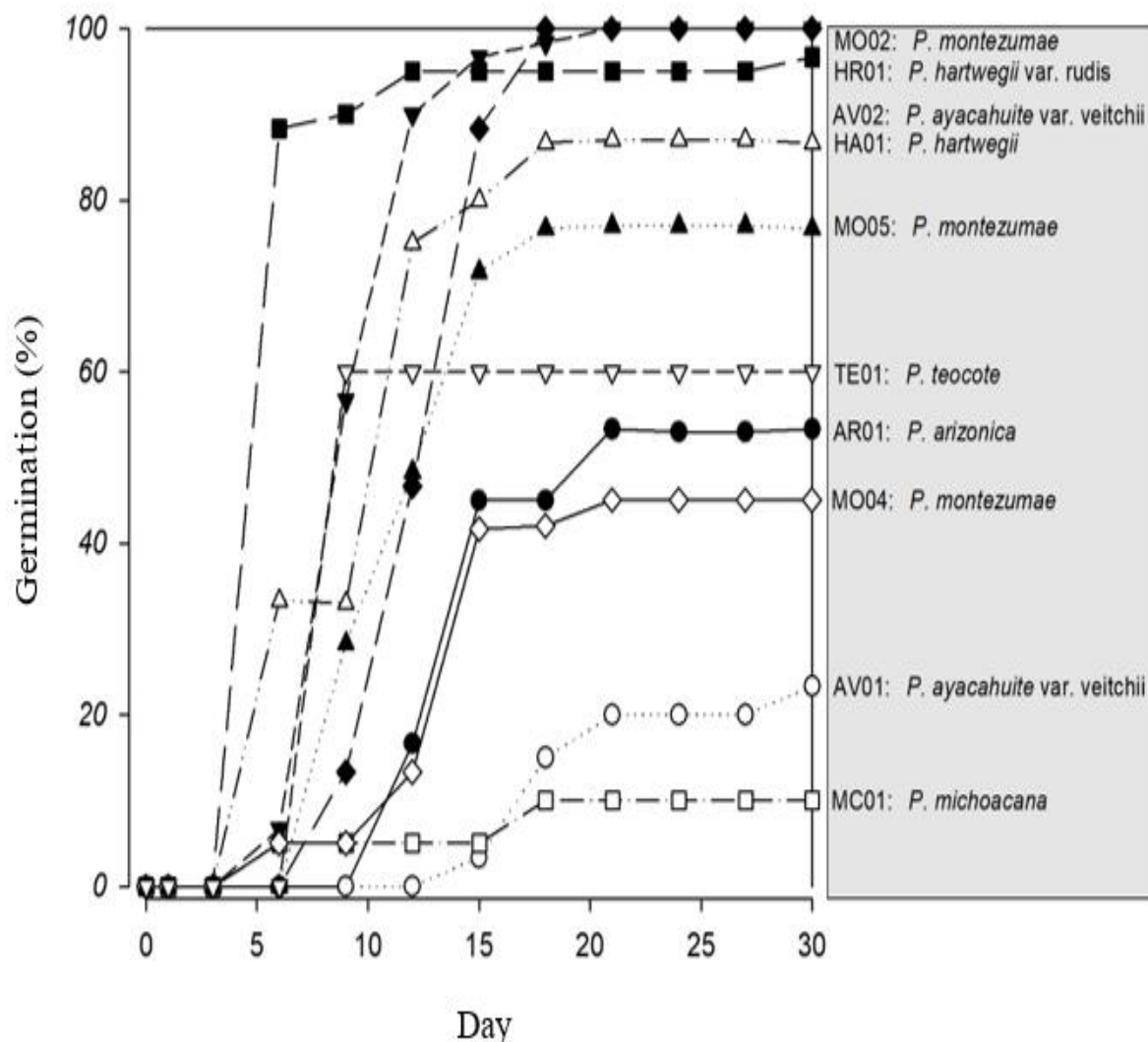


Figure 1. Cumulative germination curves of populations of seven pine species.

Table 2. Percentage of seeds germinated per day, peak value (PV), and germination time to reach a percentage ≥ 50 ($T_{\geq 50}$). The dashes indicate that no evaluation was done.

Species	Day											PV	$T_{\geq 50}^1$
	1	3	6	9	12	15	18	21	24	27	30		
AR01	-	-	-	-	17	45	-	53	-	-	53	3.00	15
AV01	-	-	-	-	-	3	15	20	-	-	23	0.95	18
AV02	-	0	7	57	90	97	98	100	-	-	100	7.50	9
HA01	-	0	33	-	75	80	87	-	-	-	87	6.25	12
HR01	-	0	88	90	95	-	-	-	-	-	97	14.72	6
MC01	-	0	5	-	-	-	10	-	-	-	10	0.83	6
MO02	-	0	-	13	47	88	100	-	-	-	100	5.89	15
MO04	-	0	5	-	13	42	-	45	-	-	45	2.78	15
MO05	-	0	-	28	48	72	77	-	-	-	77	4.78	12
TE01	-	0	-	60	-	-	-	-	-	-	60	6.67	9

¹ Time is only for viable seeds germinated.

Germination analysis based on viable seeds per day showed that pine populations could be classified into three groups: fast, intermediate and slow germination (Figure 2). The populations HR01 and TE01 showed rapid germination with a peak value of 14.72 and 6.67, respectively, and a $T_{\geq 50}$ between six and nine days (Table 2). AV01 and AR01 presented slow germination with a low peak value and a $T_{\geq 50}$ greater than 14 days (Table 2). The rest of the populations had intermediate germination with low and intermediate peak values (e.g. MC01 and AV02) and $T_{\geq 50}$ from one to two weeks (Table 2).

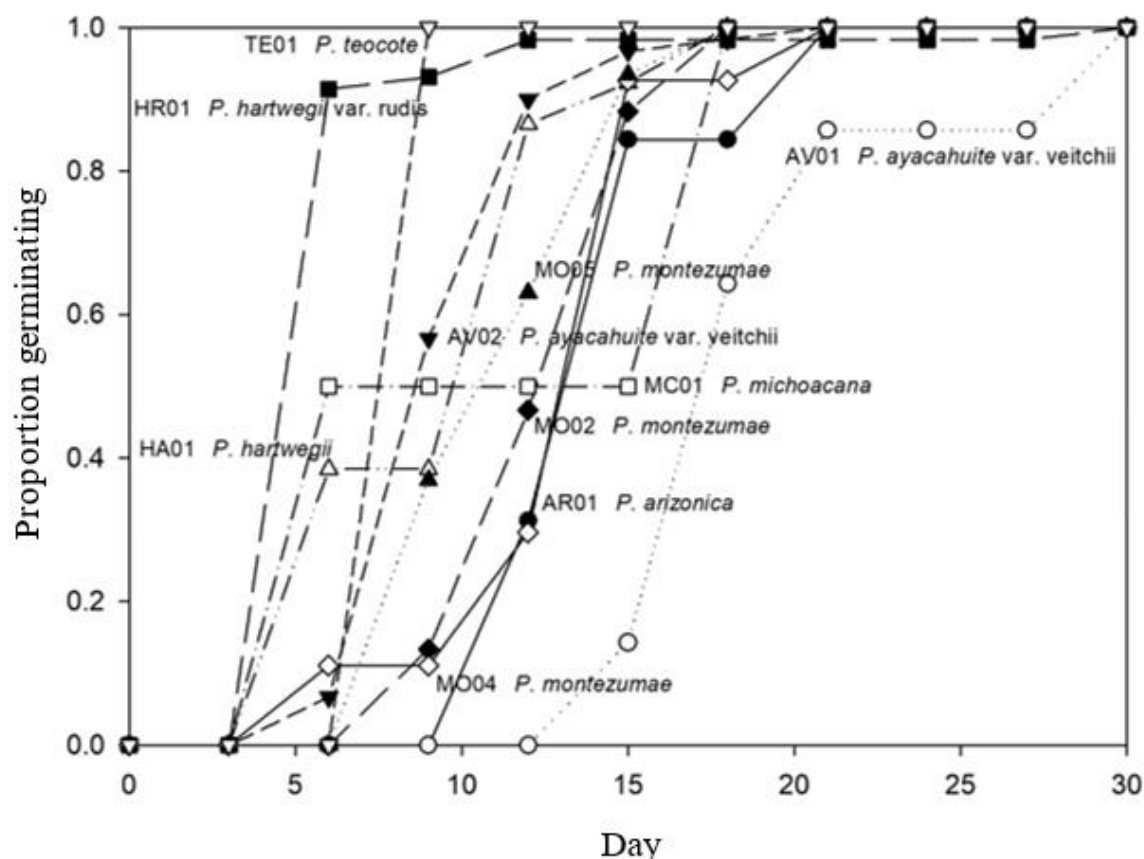


Figure 2. Germination curves of populations of seven pine species, based only on viable seeds. Populations HR01 and TE01 had rapid germination while AR01 and AV01 had slow germination; the rest of the populations had an intermediate germination.

For germination percentage, most of the analyzed species presented more than 50%; however, populations MO04, AV01, MC01 had a lower value. In this case, establishing a speed germination to achieve a germination percentage ≥ 50 ($T_{\geq 50}$) may be inappropriate (Figure 1), so this phenotypic attribute has been complemented with the peak value.

We initially established that some populations of species would be better than others based on their germination parameters. The results support that hypothesis. *P. ayacahuite* var. *veitchii* (AV02) and *P. montezumae* (MO02) set higher percentages of seed germinated and peak values but low speed of germination (except MO02) than the rest of the population species. These results are consistent with previous research, which showed for *P. ayacahuite* var. *veitchii* 84.73% and 71.5% of seed germinated at the end of trials (30 days) (Castilleja Sánchez *et al.*, 2016; López López *et al.*, 2018) but 94.7 to 92.0% for *P. montezumae* of seed germinated (Aparicio Rentería, Cruz Jiménez and Alba Landa, 1999). For both species, one possible explanation for our results is that they have a high production of developed seeds and filled seeds (Castilleja Sánchez *et al.*, 2016), and in their populations present low inbreeding (Delgado *et al.*, 2013; Castilleja Sánchez *et al.*, 2016).

5. CONCLUSIONS

AV02 and MO02 had 100% of percentage of seed germination but MC01 10%, the rest of the populations ranged from 23% to 97%. Peak value was 0.83 for MC01 and 14.72 for HR01. Respect $T_{\geq 50}$ fluctuated between six days for HR01 and 18 days for AV01. For germination speed, there were three groups: fast, intermediate and slow germination.

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THE HUMAN CURTAIN IN VIJAY TENDULKAR'S *GHASHIRAM KOTWAL*

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ABSTRACT

India, the country of cultural diversity, has a long tradition of dramatic performance with regional specificities. It is the folk theatre that gives the essence of the Indianess. During the 1970s, most of the prominent playwrights of India broke the barriers of regional language and produced many good plays at the national level. Most of their experimental works were centered on bringing the performance tradition or elements of folk theatre of India into popular theatre. Thus we find Girish Karnad's "Hayavadana" (1971) using theatrical devices of Yakshanga, a traditional form of theatre, Utpal Dutt using Jatra in "Surya Sikar" (1972). Similarly Vijay Tendulkar, like his contemporaries, experimented with folk theater in "Ghashiram Kotwal" (1972). It is also a different and more important play in balancing tradition and modern in the history of Indian theatre.

Vijay Tendulkar's "Ghashiram Kotwal", set in the late eighteenth century society of Maharashtra when Nana Phadnavis was the chief administrator, uses a unique theatrical device, the human curtain. The Sutradhar, who is sometimes a part of the human curtain, is the chief narrator of the story of the play. Girish Karnad very succinctly points out the relevance and importance of the human curtain: "The central theatrical device in the play is the use of about a dozen singers who start conventionally enough as a chorus. But as the play progresses, they become the human curtain, alternately hiding the action and revealing bits of it as a peep show, from the neutral commentators, they slide into the role of voyeurs who enjoy the degeneration they condemn, of courtiers who perpetrate atrocities and of the populace that suffers the harassment."

The creation of the human curtain consisting of twelve Brahmans is a fascinating dramatic device by Tendulkar. As needed by the dramatist, they may temporarily act as individuals but mostly function as a unit. At all important junctures in the play – the exposition, the installation of Ghashiram as Kotwal at Poona, at the time of this being stoned to death, and at the final carnival of three days – these twelve Brahmans are important witnesses to important events and also provide neutral comments. Their utterances are an integral part of the play and help the reader to clearly understand the intellectual and moral issues raised by the dramatist. The intermittent chanting of "Shri Gajaraj Nartan Karen, Hum to Poona ke Brahman Hain" throughout the play establishes the play's link with folk drama.

As the play opens, twelve Brahmans are seen on stage invoking Lord Ganesha to bless the play. Ganesha is the remover of all obstacles and traditionally all religious ceremonies, all serious compositions in writing and all worldly affairs of importance are begun by pious Hindus with an invocation to Ganesha. During the invocation, Goddess Laxmi and Saraswati too appear on the stage, and immediately after their departure, the Sutradhar takes over the control of the play. He is responsible for the management and control of the events in the play. He individually introduces the twelve learned Brahmans of Poona. The Sutradhar is the one who holds the strings, a term drawn from puppet theatre widespread in India. According to the Sanskrit tradition, he is supposed to be a perfect master of many arts and sciences, especially music, dance and mine. The Sutradhar starts the singing and his direct intervention helps to fill up the gaps in the story. Here, the Sutradhar often distances himself from the action to have a perfect rapport with the audience.

Right at the beginning, the Sutradhar stops a Brahman going furtively to Bavannakhani, the red – light area of Poona. There is much humour and the discomfiture of the Brahman is evident. The Sutradhar again stops three Brahmans – part of the human curtain – going to the "temple to hear religious discourses" but in fact going to Bavannakhani. The Sutradhar by asking incisive questions cleverly pins them down into admitting their descent into Bavannakhani. "The juxtaposition of the holy city of Mathura with the notorious red-light area of Poona which the Brahmans frequent points to the decadence in a society where the caste hierarchy, the top-rung caste has strayed from the righteous path."

The human curtain breaks now and the Brahmans turn into revelers taking part in a Lavani – an erotic dance in the Bavannakhani prostitute's house. Some whistle, some dance and some throw their turbans up in the air. The Sutradhar addresses the audience informing them that while the Brahmans enjoy themselves in the red – light area, some wives at home carry on with other men. The rot is apparently all-pervasive visits Bavannakhani; his foot is sprained. Ghashiram offers first his back and then his hand for Nana to put his hurt foot on and the Brahmans from the human curtain ask many questions showing concern. Nana leaves, having given Ghashiram

a necklace as a reward. Gulabi, the nautch – girl, snatches the necklace from Ghashiram with the help of her goons. Ghashiram is extremely hurt and angry.

In the next incident, three Brahmins from the human curtain try to ingratiate themselves with an Englishman, promising to take him to the place where the peshwa is to honour the Brahmins, holding a great feast. Ghashiram is again unlucky to be wrongly termed a thief when a Brahmin's pocket is picked. He is beaten by the soldiers and put in a prison.

The Sutradhar appears in the jail as a prisoner now. He is sympathetic to Ghashiram but tells him matter-of-factly that he and Ghashiram are simple thieves and the police are official thieves. A thief usually prospers with the connivance of the police, according to the Sutradhar. He asks him to pray to God. The Sutradhar now becomes a qawwali singer and the human curtain – the twelve Brahmins – taking off their turbans join the Sutradhar in the qawwali- singing and as it finishes, stand with their backs towards the audience. A soldier appears and Ghashiram is thrown out of the prison and warned never to come back to Poona. Ghashiram vows to take revenge on the people of Poona. The human curtain again sways to the tune of “Shri Gajaraj Nartan Karen.” Ganesha enters and two Brahmins from the human curtain form a temple around him. The Sutradhar now becomes a Kirtankar – a teller of religious stories. Some Brahmins become listeners. Some women too join them.

The Sutradhar's song changing from Abhanga (a religious song) – to Lavani (an erotic song)- then Abhanga – then Lavani – tells us how the dramatist wants to emphasize the complicity between religion and sex. Then as Nana the chief administrator, appears, mainly toogle at he women in the temple, the complicity of religion, sex and politics is clearly emphasized. Nana's pursuit of Lalitha Gauri, the fourteen – year old daughter of Ghashiram Kotwal, is done in the temple in front of the Ganesha idol. Lalitha is used by Ghashiram to lure Nana so that he could become the Kotwal of Poona. All these actions take place with the rhythmically swaying human curtain – the twelve Brahmins in the background. They are the Mangal-Murti-Morya- singing Ganapati immersion procession percipients. They form a garden by acting as trees and bushes and then become the chorus again and inform the viewer how Nana is totally besotted with Gauri, forgetting his age, status and shame: “Lust knows no age , no shame.” Nana pleads with Ghashiram, and Ghashiram demands to be made Kotwal of Poona to silence people who would carry about him and his daughter. As Ghashiram is decreed Kotwal, others walk backwards and Ghashiram appears with an elegant turban on his head, regal but arrogant.

Act II begins like Act I, with twelve Brahmins standing in a line playing cymbals and singing “Shri Gajaraj Nartan Karen.” Sutradhar tells us that as Nana's illicit liaison with Gauri continues, Ghashiram becomes a strict and cruel Kotwal, establishment a permit- Raj in Poona. The twelve Brahmins repeat whatever the Sutradhar says for emphasis. Ghashiram becomes the sole determinant of what is moral and righteous. The prisons become full of supposed law offenders. Even the Sutradhar is caught as he goes out a night to get the midwife. His wife's labor pains have forced him to come out of his house and he is found roaming outside without a permit. He is thrashed and a soldier is sent to his house to check the veracity of his statement. Earlier Ghashiram has ordered: “Ghashiram says to kill a pig, to have an abortion, to be a pimp, to commit a misdemeanor, to steal, to live with one's divorced wife, to remarry if one's husband is alive, to hide one's caste, to use counterfeit coins, to commit suicide without a permit is a sin. A good woman may not prostitute herself; a Brahmin may not sin without a permit. ”Ironically, what Ghashiram has done himself is not a sin – which is offering his daughter to Nana to curry favour with him. Apparently he himself and Nana are above the law. They can do as they please.

The use of the human curtain is again instrumental in showing how the people are being harassed. The Sutradhar's comments are repeated by the twelve Brahmins: “Ghashiram Kotwal started making the rounds of Poona at night after the eleven o'clock cannon. Started riding in person. Accosted anyone he met in the streets. Whipped people. Arrested people. Demanded people's permits. Imprisoned People. Sued people.”

The Human curtain now a stand with the twelve Brahmins backs turned. Ghashiram knocks at the back of the seventh man as if was a door. The Seventh man turns, and rubs his eyes as if he was asleep. He is questioned by the Kotwal as to what was happening inside. The seventh man says he was with his wife. The wife is called out, her mangalsutra is checked, the eighth man's back is knocked at. Then it is the turn of the ninth, tenth and eleventh men to be woken up. They are forced to say that the woman is not the man's wife. The couple is shoved around, arrested and taken to prison on charges of immortality.

Meanwhile Nana and his wives, Gauri and Gulabi, celebrate Rangpanchami, the festival of colours. The human curtain comes to the front and covers the dance scene. Ghashiram and his soldiers walk in front of the human curtain and Ghashiram tells his soldiers to be alert and catch anyone doing anything wrong. “Mortality must be

protected,” he says. The curtain moves back and the Lavani – erotic dance – continue with Nana, Gauri and Gulabiin front. A woman appears complaining to Nana that permission is not being granted to cremate her father – in – law’s dead body. The soldiers claim that the permit is false. Even the dead have no peace as dogs have started gathering near the dead body. Nana shoos her away. The human curtain comes in front as the Sutradhar says that days and months passed without any change. People, it seems, have accepted their fate. People do not want to be ruled. Nana and his protégé continue to do whatever they want because there seems to be no protest. Power is able to disseminate itself through the incident collaboration of its subjects. Foucault says: “Power is employed and exercised through a net – like organization. And not only do individuals circulate between its going or exercising this power. They are not only its insert or consenting target; they are also the elements of its articulation. In other words, individuals are like vehicles of power, not its point of application. ”If people had not collaborated by being passive victims, neither Ghashiram nor Nana would have been able to exercise absolute power.

The Play’s main thematic concern is precisely this. The main emphasis is on a comfort – loving, self-centered hedonistic society, which gives birth to monsters like Ghashiram. If its own way of life is disturbed, it would destroy such monsters. It would not mind living under another dictator if its allowed to continue in its own decadent ways.

The human curtain is again present at the fire-ordeal of a Brahman who is falsely accused of theft. Nobody so much as protests. Instead the twelve Brahmans keep chanting “ Pundalik Varda Hari Vitthal.” The Sutradhar gives details of the torture administered to the Brahmans who is made to hold a red – hot iron- ball, till the flesh is seared. While the Brahman screams, the twelve Brahmans chant “ Radha Krishnan Hari, Mukand Murari” as if to drown his screams. Ghashiram’s Raj continues uninterrupted. The Sutradhar is again able to ferret out information from one Bhatji Buwa about Nana’s getting married for the seventh time to a fourteen –year old girl. The Sutradhar present at the wedding, sings pre-nuptial songs and other Brahmans join his singing that the girl was bought for three hundred gold coins. The Brahmans chant: “Rama Siva Hari, Mukand Murari.” Again the human curtain representing common humanity is present at the wedding of the old Nana and the fourteen – year – old girl. Silence is also a kind approval. This is again seen when Ghashiram’s daughter was buried by Nana’s orders and Nana is able to weave a web of words around Ghashiram to pacify him, talking of the Hindu Philosophy of maya but in the rear is heard the chanting of the twelve Brahmans. It seems nothing could ever change the mood of the chorus.

Ghashiram now acquires a craving for human blood. He enjoys beating and killing people on the slightest pretext. Except for Bavannakhani, Nana’s favorite haunts, everywhere people are afraid and do not know where to complain. But Ghashiram’s nemesis is now in the offing.

Out of the twelve Brahmans, half the line disperses and comes forward acting like a group of foreign Brahmans visiting Poona. They are caught stealing fruit from the Kotwal’s Garden and put in prison by Ghashiram. The Sutradhar, now acting as a guard, packs the Brahmans in a cell and after taking opium goes to sleep. He comes back as the Sutradhar and tells us that twenty – two Brahmans died that night, having been suffocated. The Maratha landowner who discovers the crime, Sardar Phakade, makes a complaint to the Peshwa who summons Nana to explain. The Sutradhar, now as a palace guard, takes the message to Nana that the Poona Brahmans are furious and have surrounded the mansion. Nana is frightened out of his but is delighted to know that the people want Ghashiram to be executed for his misdemeanors. Nana, the shrewd politician, never liked Ghashiram and now has no use for him as Gauri is dead. Nana readily signs the order and asks that the mob should humiliate Ghashiram as much they want. The Sutradhar announces the execution order to the mob, which cheers boisterously.

The Brahmans line is now seen in a totally different light. They are no longer submissive people. They remark that the tide has turned and Ghashiram’s good luck run out though he is not aware of it. As soon as Ghashiram appears on the stage, the human curtain, now turned into a violent mob, shouts aggressively and surrounds Ghashiram one step at a time, as if cornering a dangerous criminal. The mob encircles him and pounces upon him. They beat him, shave his head, put him on a camel, tie him to the leg of an elephant, and throw him down with one hand tied behind his back. The Brahmans crouch like hunters and start stoning him. The mob yells and shouts with glee when a stone hits Ghashiram very hard. Ghashiram is continuously provoking them, calling them cowards and abusing them. He dies and a carnival is announced for three days by Nana. The human line representing the crowd takes part in the celebrations and again goes back to its usual formation chanting, “Shri Gajraj Nartan Karen.” Life has come full circle. Ghashiram is dead but Nana’s rule continues, as sinfully decadent as ever.

Though the play is a musical based on a historical incident the theme has a universal and timeless quality. Tendulkar himself admitted that the theme of the play and its form are inevitably linked: “The urgency was of finding a form in which a class or multitude could become the central character. The present title came only to suggest the incident and not the character Ghashiram Kotwal.”

This multitude or class which according to Tendulkar is the central character serves to show the feudal servility of the masses and become a vehicle of protest only towards the end of the play.

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DOMESTIC VIOLENCE AND HUMAN RIGHTS

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ABSTRACT

Domestic violence is a global problem. It undermines the value of women as an individual and denies her the dignity of a human being. It, therefore, is a serious human rights violation. Domestic violence is a series of repeated abusive behaviour which affects women's participation in public and private spheres. It also harms a woman's physical, mental, psychological and sexual well being. Taking serious note of it, countries worldwide, irrespective of their social, economic and political status are formulating legislative solutions to curb the menace. Though domestic violence and human rights are independent topics, they are closely related and impact one another in a very serious manner. Domestic violence, until few years back, was a limited area of study and was seen purely in the light of marital discord between husband and wife in a household. However, with international agencies like UN and State agencies coming into picture, the perception of domestic violence has undergone a change and now it is being widely considered as a serious gender and human rights issue. Sincere effort is needed to build sensitivity and create awareness among individuals and agencies about it. Along with formulating legislations and policies in this regard, nations should pay equal attention towards effective implementation. The paper is based on theoretical research and begins by introducing the concepts of human rights, domestic violence and important players involved in it.

The paper mainly focuses on various facets of domestic violence, human rights instruments made available by United Nations and on legislative measures developed by select countries to counter domestic violence. The paper concludes by discussing briefly the contribution and role played by civil society groups in India towards the issue.

Keywords: Domestic violence, Human rights, Women, Legislation, Human Right Instruments, and civil Society Groups.

FULL PAPER: Domestic Violence and Human Rights

INTRODUCTION

Violence of any nature or form is inhuman. As domestic violence undermanages the value of women as an individual, it is a serious human right violation. Domestic violence most of the times is equated to physical abuse like beating, hurling of objects or abusing. Though it is most common and most visible variety of domestic violence, domestic violence is much more than just that. Other forms of it like psychological and sexual violence which are generally hidden from the social purview have equal or more implications. These violence need to be given high priority as they deeply impact a women's psyche and linger on for a longer period of time than most physical scars and pain. If the inflictor of violence is unaware about the serious implication associated with his action, there is a higher chance that he may resort to physical violence. It has also been observed that among educated couples incidence of physical violence is comparatively low but, they tend to resort to psychological and sexual violence to overcome their frustrations and limitations.

Domestic violence has gradually emerged as a global problem. It is present in all countries irrespective of the nation's social, economic and political status. Policy makers and socialScientists worldwide have started taking serious note of it and therefore, various legislations and acts are being formulated to counter domestic violence. Surveys have frequently conveyed that many women who undergo this trauma don't bring it to the notice of the state agencies like police or women commissions mainly because of fear, ignorance of law and lack of confidence in these agencies. Therefore, most of the cases related to domestic violence go unreported.

The discussion on domestic violence begins with understanding few important terminologies associated to the topic. American Heritage dictionary defines violence as "Physical force exerted for the purpose of violating, damaging, or abusing". Violence is therefore, an act undertaken by an individual when he/she is unable to control aggression. The intention of violence is to cause physical and psychological trauma to the victim. Domestic violence too has been explained in various ways. The United Nations Declaration on the Elimination of Violence against Women (1993) defines violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." SVN (Supervised Visitation Network), an American NGO, specializing in providing a violence free atmosphere

for children defines domestic violence as “any form of physical, sexual, verbal, emotional, or economic abuse inflicted on any person in a household by a family or household member”. Human right which is a basic right enjoyed by every living human being is the basis of all the other rights available in the world. Human right is natural as it is provided to an individual soon after his Birth. It is universal, as it is available to all human beings irrespective of gender or nationality around the globe. It is fundamental as it helps in individual's holistic development and it is necessary as it helps an individual to lead a respectful and dignified life.

METHODOLOGY

Theoretical research methodology has been adopted in the preparation of the paper. With the help of primary sources and published records like books, journals, magazines, newspaper articles, reports along with internet resources, important terms and concepts related to domestic violence has been examined. As domestic violence is an important socio-legal issue concerning women, study has been done to understand the terms and related issues from human rights perspective. The role of State and civil society too has been highlighted in the study.

Forms of Domestic Violence: Domestic violence gets manifested in following four ways: Physical violence, Psychological- emotional violence, Sexual violence and Economic violence.

Physical violence: As mentioned earlier it is the most visible form of domestic violence. It is an act wherein physical force is deliberately used by the inflictor with an intention of causing grave harm to the victim. Physical violence includes actions like pushing, throwing, hair-pulling, slapping, punching, hitting and use of a weapon. It also includes encouraging other people to do the same.

Psychological and Emotional violence: It has a huge and deep impact on a women's psyche. As the impact of this violence cannot be quantified, it is difficult to recognize its presence and the extent of damage it causes. The Service de police de la Ville de Montréal (SPVM) explains that psychological violence has three aspects to it: Intimidation, Harassment and Threat. Psychological violence leads to social and emotional problems like depression, suicide and suicide attempts.

Sexual violence: It is one of the most invisible forms of domestic violence and can be equated to sexual harassment. Equal Employment Opportunity Commission (EEOC) defines

Sexual harassment as “Unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct of a sexual nature...” Sexual violence happens more frequently in marital relationship through marital rape and other forced sexual activities. Many a time, sexual violence goes unnoticed as victims tend to hide it due to fear and belief that marital Relationship gives unlimited sexual access to a husband over his wife. However, various agencies have now realized the serious implications associated with the problem and countries like Australia, Canada, Finland, Poland, Spain, UK, and USA have been successful in introducing legislations to counter marital rape and other forms of sexual violence. EEOC also provides a list of acts which can be considered as sexual violence/harassment. These acts include actual or attempted rape or sexual assault, unwanted deliberate touching, leaning over, cornering, or pinching, unwanted sexual looks or gestures, unwanted sexual teasing, jokes, remarks, or questions, personal questions about social or sexual life and making sexual gestures with hands or through body movements.

Economic violence: It broadly means denying the available economic opportunities and facilities to women. Olufunmilayo I.Fawole in her paper titled '*Economic Violence To Women and Girls : Is It Receiving the Necessary Attention?*' mentions that economic violence has gross impact on women's health and it leads to gross poverty and other forms of violence. She also explains that economic violence includes exclusion from financial decision making, unequal pay pattern, prohibition on working and denial of property rights. Domestic violence is generally inflicted by close relatives of the victim. Domestic Violence Act 2005 considers husband, father-in-law, mother-in-law and siblings of the husband as 'respondents' and questions them directly in case of domestic violence complaint. Parents of female child are held responsible in case of sex determination test or female infanticide. Domestic violence impacts women's self confidence; an important component of her personality. A woman undergoes physical injury, unwanted pregnancies, miscarriage, disability, depression, fear, self injurious behaviours and sexually transmitted diseases. Due to it, women's role in both public and private spheres gets hampered and effects her effective contribution towards the state and society.

Human Rights Instruments: United Nations through its various platforms has declared domestic violence to be a serious human rights concern. The organization has come out with Important decisions in this regard. Important among them being, Beijing Conference and its '*Platform of Action*' Appointing of Special Reporter on violence against women; Universal Declaration of Human rights (UDHR); Convention on the Elimination of

All Forms of Discrimination against Women (CEDAW); Declaration on elimination of violence against Women.

Important Legislative Solutions Worldwide: Keeping in terms with these declarations, countries worldwide are formulating legislations to proactively investigate domestic violence cases and do justice to the victims. In India, Domestic Violence Act came into being in 2005 (DVA-2005). It has been landmark legislation as it made domestic violence a punishable offense. It covers violence against both women and children. Before the Act came into being, the only options available to victims of domestic violence was to either opt for divorce from spouse or take the support of section 498A of IPC (Indian Penal Code). Due to procedural

Delays involved in these options, justice got both delayed and denied to the victims. This led to formulation of DVA, 2005. DVA along with providing support to married women also addresses the concerns of women who are in live-in relationships. Even a single act of harassment or violence can be reported under this Act. Thus, DVA, 2005 provides a comprehensive opportunity to all the victims of domestic violence, who otherwise undergo humiliation for longer period of time before reporting. It is a liberal and forward looking Act and gives women the right to continue living in shared household even when the dispute is on. The Act therefore, has tried to protect the physical, psychological as well as financial

Well being of the women complainant. Legal redress is ensured to women through this Act and the needy ones are to be provided with medical aid, security as well as shelter facility.

In United States of America, Violence against Women Act (VAWA) a federal legislation came into operation in 1994¹². It came into being after series of efforts in early 1990's. It works closely with other state agencies and is a legislation specifically designed to address domestic violence. It tries to coordinate and emphasize upon 'coordinated community response' at both State and local levels. It provides support to 'community based organizations, groups that provide culturally and linguistically specific services and tribal organizations'. The act undergoes regular reauthorization to keep itself well updated. Another important agency working in the US towards domestic violence is the 'Office on Violence against Women' (OVW) which was established in 1995. The office aims to "administer financial and technical assistance to communities across the country that are developing programs, policies and practices aimed at ending domestic violence...". To implement and carry out its objectives, it has launched partnerships with various agencies like police, health care providers, prosecutors, victim advocates and others. The office claims to have awarded \$4 billion in grants as part of its relief work and works closely with the Violence against Women's Act (VAWA).

In Pakistan, the bill outlawing domestic violence came into being in August 2009¹³. It readily got approval from both the Parliament as well as the President. The guilty are jailed for 6 months and fine of 100,000 is levied. It was a welcome decision and leaders from all political background hailed it as 'milestone' and 'landmark event'. The Act also covers women and children who are adopted, employed and works as domestic helps. In Pakistan, a bill of this nature of was very much needed as women there suffer from discrimination and face horrors like 'honour killing'. In Ghana, the Parliament passed the Domestic violence bill (DVB) in 2007¹⁴. Demand for such legislation was being raised since 1997 by various NGO's under the leadership of 'Gender and Human rights documentation centre'. The first

Significant milestone in this regard was achieved with the establishment of WAJU (Women and juvenile unit) in 1998. After lot of discussion and deliberation, the DVB finally came Through. The bill has been divided into three parts. Apart from explaining the nature and meaning of domestic violence, it provides provision of police assistance to the victims. To help the victims facing financial difficulties, a fund has been established by name, 'Victims of Domestic violence Support Fund'. The fund provides material support, rescue, rehabilitation and training to the victims. With the passage of the bill a huge milestone has been achieved in Ghana however, the civil society recognizes the enormous challenges that lay ahead in translating the law into action.

Civil Society Groups in India: For State machinery to be more effective, it is important that it is sufficiently supported by Civil Society Groups. Civil Society Groups work at grass root level and are more aware about challenges related to the issue. *Centre for Social Research and Women Power Connect* have launched awareness drives across India about the redressal mechanisms available regarding domestic violence. Delhi-based *Action India* regularly conducts signature campaigns, conferences, meetings and rally's to create awareness on Domestic Violence Act. *Bell Bajao!!* Is a popular civil society group which has been successful in reaching the youth about the issue? To promote its activities and ideas it makes use of social networking mediums like face book extensively and also conducts activities like Running video vans with distinctive audio-visual screenings. *Bell Bajao!!* Also organizes street theatre performances, puppet shows, opinion polls and interactive games to spread its message. *Oxfam India*, through its initiative "SWETCHA" in Andhra Pradesh

has been successful in raising awareness and has helped in reducing the social acceptance of violence against women in both private and public spaces. Mumbai based NGO, *Centre for Enquiry into Health and Allied Themes* (CEHAT) and *Point of View* released a short film in February 2011 tracing the life of a victim of domestic violence who ends up in a hospital after repeated instances of abuse¹⁵. A special screening of the film was done for the women of *Dharavi*, many of whom related to the film closely and recounted their horror-filled experiences with domestic violence and surviving it.

CONCLUSION

We can therefore conclude that domestic violence is indeed a serious human right issue and it can be eradicated from the society only when responsibility towards it is shared by all stakeholders, collectively. States should work towards strict implementation of legislations related to domestic violence and stringent punishment should be attached to any kind of violation. By doing so, women will be assured of effective and immediate remedy. Awareness about domestic violence is gradually increasing among people. Modification in the field of Education, Legal aid, Counselling, Rehabilitation and self regulatory guidelines will help the cause in a big way. By addressing the problem in an efficient manner, it will help in restoring the lost self esteem of women in the society. They can be assured of a more peaceful, successful and empowered life.

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GLOBALISATION AND ITS IMPACT ON INDIAN ECONOMY

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ABSTRACT

The term globalization comes from English, as base of the word "globalization" which refers to the emerging of an international network, belonging to an economical and social system. One of the earliest uses of the term "globalization", as known, was in 1930 -in a publication entitled Towards New Education - to designate an overview of the human experience in education. A near-term "giant corporations" was used in 1897 by Charles Russell Tazel to describe the big national trusts and other large enterprises of the time. Since 1960 both terms began to be used interchangeably by economists and researchers in social sciences and were used until about mid 1980. Since the invention of the concept, globalization has inspired numerous interpretations definitions and has had a history going back in time to the great commercial and imperialist movements throughout Asia and the Indian Ocean since the fifteenth century.

Globalization means different things to different people. It can be defined simply as an expansion of economic activities across political boundaries of nation states. More importantly it refers to a process of deepening economic integration, increasing economic openness and growing economic interdependence between countries in the world economy.

Globalization in India is generally taken as integrating the economy of the country with the rest of the world. This in turn implies that opening up the economy to foreign direct investment by providing facilities to foreign companies to invest in different fields of economic activities in India. It can be achieved by removing constraints and obstacles to the entry of MNCs and by allowing Indian companies to enter into foreign collaborations in India.

1] INTRODUCTION:

Globalization has positive as well as negative effects. One side if globalization has accelerated the growth rate of GDP on the other side it has generates high inequalities among Indian people. There are few people who are exploiting the resources of economy and most of the proportion of national income is possessed by them. This type of unequal distribution of income is generating poverty, unemployment etc.

Globalization in terms of connectivity across the entire world of the economic and cultural life increased throughout the centuries. Yet many believe that the current situation is a fundamentally different order from what it was before. Globalization in terms of connectivity across the entire world of increased economic and cultural life throughout the centuries. Indian economy had experienced major policy changes in the early 1990s. The new economic reform popularly known as Liberalization, Privatization, and Globalization (LPG), aimed at making the Indian economy as fastest growing economy and globally competitive.

There were the economic compulsions at home and abroad that called for a complete overhauling of our economic policies and programs. Major measures initiated as part of liberalization, privatization and globalization in early nineties included the following:

- 1) The first step towards globalization was the devaluation of the currency by 18-19 percent against major currencies in the international foreign exchange market. These measures were taken to resolve the balance of payment crisis.
- 2) In order to make the process of globalization smooth, under the privatization scheme, most of the public sector undertakings were sold to private sector to give opportunity to private players in the economy.
- 3) Allowing foreign direct investment across a wide spectrum of industries and encouraging non debt flows. The department has put in place a liberal and transparent foreign investment regime where most activities are opened to foreign investment on automatic route without any limit on the extent of foreign investment.

2] EFFECTS OF GLOBALISATION ON MACRO-ECONOMIC BALANCES:

Analyzing the data in pre globalization and post-globalization periods. Olekalnsa and Cashin (2000) concluded :Indian government revenue and expenditure data indicates that adherence to the inter term poral budget constraint has not characterized Indian fiscal policy. These results provide support for the moves towards fiscal consolidation, which occurred since the early 1990s. However, it is important to note that the

reforms are unlikely to have led to a sustainable path for the debt stock. This is despite the fact that the size of the budget deficit as a proportion of GDP has fallen since 1991. Following the reforms, deficits have been financed through borrowings in a relatively less regulated financial market. As domestic markets have been liberalized, the cost of domestic borrowing has increased and concessional external financing has become a smaller proportion of total borrowing

3] AGRICULTURE AFTER GLOBALISATION:

The statistics of area under 12 major crops in India covers about 95 percent of area under cultivation. However, the area under food crops as percent to the total area under cultivation has decreased. More so, the area under coarse (food) crops as percentage to total area under cultivation (as well as the total area under food crops) has decreased. This trend indicates a shift of the Indian Agriculture to cash crops and in the food grain sector to the finer crops.

4] GLOBALISATION AS A BOON:

- The foreign exchange reserves were \$39 billion (2000-01), \$107 billion (2003-04), \$145 billion (2005-06), and \$180 billion in 2007. According to reserve bank of India, India's foreign exchange reserves are \$351.83 billion as on 19 Feb, 2016.
- In 2010 India's share was 55 percent in Global Outsourcing market.
- The growth rate of GDP of India has been on the increase from 5.6 percent during 1980-90 to 7 percent in the period of 1993-2001. In the last fifteen years except two or three years, rate of GDP growth was more than 7 percent. It was 9.2 percent in 2006-07. At present in 2016 GDP is growing at 7.4 percent shown by union budget 2016-17.
- As per the Forbes list 2015, India has 100 billionaires. There were only 40 billionaires in India as per Forbes 2007 list. The assets of these 100 billionaires are more than cumulative investment in the 91 public sector undertakings by the central government of India.

5] GLOBALISATION AS A CURSE:

- Agriculture sector is the backbone of the Indian economy. Above 65 percent people are working in agriculture sector. This sector has been neglected by government in post reform period and share of agriculture has decelerated continuously. At the time of independence, agriculture was contributing nearly half of the GDP but now its share is only 20 percent in total GDP of country.
- **Poverty and unemployment:** as per the Forbes list 2015, India's number of billionaires has crossed 100 and the wealth they possess is more than the investment in public sector undertakings by central government. This has led to wide range of inequalities of wealth among Indian people. Some people are such who dying from starvation and some are dying due to consumption of excessive food in our country.
- **Job and social insecurity:** globalization has generated problems like job and social insecurity. Public sector provides jobs along with social as well as job security and other benefits also. But in the modern era a person can get a job but neither he would get a neither secure job nor social security.

6] A COMPARISON WITH OTHER DEVELOPING COUNTRIES:

India's share of global trade is similar to that of the Philippines an economy 6 times smaller according to IMF estimates. Now India is in the process of restructuring her economy with aspirations of elevating herself from her present desolate position in the world. The need to speed up Indian economy is more imperative and having witnessed the positive role of the foreign direct investment has played the rapid economic growth of the most of The South Asian countries and most notably china, India has embarked on an ambitious plan to emulate the successes of her neighbours to the east and is trying to sell herself as a safe and profitable destination for foreign direct investment.

7] POLICY IMPLICATIONS:

1) UNCTAD had underlined the large amount of losses to the exchequer of developing countries (\$100 billion a year) due to the routing of FDI through tax havens therefore early implementation of GAAR (General anti avoidance rule) is required which has been delayed by present government.

2) In the case of agriculture, if the FDI is allowed 100 percent in multi-brand retail sector, then farmers can get remunerative prices for their crop. Farmers are getting meager prices for their produce due to many types of intermediaries between sellers (farmers) and buyers.

3) To attract investors from different countries infrastructure, Social as well as physical should be improved. Social infrastructure includes education and health on the other hand physical infrastructure includes transportation, energy, banking services etc. A good and efficient infrastructure can play a vital role in the augmentation of globalization process.

8] CONCLUSION:

Globalization has its own negative as well as positive impacts in modern era. Our policy implications have been against common man. It is the government which can reap the benefits from globalization if it prepares and implement pro-people policies to attract foreign direct investment. There is example of many developed as well as developing countries such as south ASEAN countries like china, who have yielded a lot from globalization by trading all over the world. Our policies are influenced by big corporates and elites it is proved by the increasing number of billionaires in India as per Forbes list. Even our elections are financed by corporates so it is obviously that government policies are too influenced by corporates to fulfil their own personal interests. It is the policies of china and Russia who have utilized the foreign direct investment to elevate masses above the poverty line. Such policies and attitude should be adopted by India towards globalization. Only pro- poor policies and workforce ready for jobs will be beneficial for government who believes the theory trickle-down effect. Hitherto that trickle-down effect has not been seen by Indian people. Indians are still waiting for good days.

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GREEN BANKING**Basavarajappa.U.K**Assistant Professor, Department of Economics, Government First Grade College, Soraba, Shivamogga, Karnataka, India

ABSTRACT

In a globalised economy, the industries and firms are vulnerable to stringent environmental policies, severe law suits or consumer boycotts. Since banking sector is one of the major stake holders in the Industrial sector, it can find itself faced with credit risk and liability risks. Further, environmental impact might affect the quality of assets and also rate of return of banks in the long-run. Thus the banks should go green and play a pro-active role to take environmental and ecological aspects as part of their lending principle, which would force industries to go for mandated investment for environmental management, use of appropriate technologies and management systems. This paper explores the importance of Green Banking, sites international experiences and highlights important lessons for sustainable banking and development in India. However, we find that there has not been much initiative in this regard by the banks and other financial institutions in India though they play an active role in India's emerging economy. Therefore, banking sector plays a crucial role in promoting environmentally sustainable and socially responsible investment. Banks may not be the polluters themselves but they usually have a banking relationship with some companies and their projects- polluters or could be in future.

Banking sector is reckoned as environmental friendly in terms of emissions and pollutions. Internal environmental impact of the banking sector such as use of energy, paper and water is comparatively low and clean. Environmental impact of banks is not physically related to the banking activities but with its customer's activities. Therefore, environmental impact of bank's external activity is huge, though difficult to estimate. Environment management in the banking business is considered likely to be risk management. It increases the enterprise value and lowers loss ratio as higher quality loan portfolio results in higher earnings. The development of extensive rules for environmental management like resource conservation, clean water act, clean air act, toxic substance control act are also viewed as potentially significant contributor to the recent increase in environmental liability for banking institutions. Adoption of the above principles would offer significant benefits to financial institutions, to consumers and also the stakeholders.

1) INTRODUCTION:

Green banking practices are also labelled as "ethical banking" or a sustainable banking. Until recently, green banking just seemed like an initiative and such environmental concerns did not really seem to be relevant to a bank's operations. Initially, a bank checking their client's environmental worthiness would have been considered as prying into a private business. However, now the perception looks towards how this brings risks to their business. Although the banking and financial institutions are not directly affected by the environmental degradation, there are indirect costs to banks.

Sustainable development has emerged as a new paradigm of development in response to the current discourse of development that over-exploits natural environment for economic prosperity. The sustainable development can best be achieved by allowing markets to work within an appropriate framework of cost efficient regulations and economic instruments. One of the major economic agents influencing overall industrial activity and economic growth is the financial institutions such as banking sector. The banking sector influences the economic growth and development in terms of both quality and quantity, there by changing the nature of economic growth. Banking sector is one of the major sources of financing investment for commercial projects which is one of the most important economic activities for economic growth.

Banking sector is generally considered as environmental friendly in terms of emissions and pollutions. Internal environmental impact of the banking sector such as use of energy, paper and water are relatively low and clean. Environmental impact of banks is not physically related to their banking activities but with the customer's activities. Therefore, environmental impact of bank's external activity is huge though difficult to estimate. Internationally, there is a growing concern about the role of banking and institutional investors for environmentally responsible/socially responsible investment projects³. Banking and other financial institutions are more effective towards achieving this goal for the kind of intermediary role they play in any economy and for their potential reach to the number of investors.

2) GREEN BANKING:

Green Banking is a new phenomenon in the financial world. Banks as the financing agent of the economic and developmental activities have an important role in promoting overall sustainable development. Green banking is the term used by banks to make them much more responsible to the environment. The term green banking means developing inclusive banking strategies which will ensure sustainable economic development. Green Banking entails banks to encourage environment friendly investments and give lending priority to those industries which have already turned green or are trying to go green and, thereby help to restore the natural environment.

Green banking means combining operational improvements, technology and changing client habits in banking business. It means promoting environmental-friendly practices. This comes in many forms such as – using online banking instead of branch banking; paying bills online instead of mailing them; opening up CDs and money market accounts at online banks, instead of large multi-branch banks; or finding the local bank in the area that is taking the biggest steps to support local green initiatives. Foreign banks are practicing green banking on a much serious note. The Indian banks are still taking baby steps into this form of banking. Still, many of them are keen to actively pursue this strategy.

“Green Banking” itself insinuates promoting environmental friendly banking practices and reducing carbon footprint from banking activities. To add simplicity to this term, it is a form of banking which ensures less utilization of natural resources and optimal reduction of wastage of paper/ carbon footprint. Green banking is being practiced by all banks, which consider all the social and environmental/ecological factors with an aim to protect the environment and conserve natural resources.

3) IMPORTANCE OF GREEN BANKING:

Traditionally, banking sector’s concern for environmentally degrading activities of clients is like interfering or meddling in their business affairs. However, now it is being perceived that dealing with environment brings risks to their business. Although the banking and financial institutions are not directly affected by the environmental degradation, there are indirect costs to banks. Due to strict environmental disciplines imposed by the competent authorities across the countries, the industries would have to follow certain standards to run their business. In the case of failure, it would lead to closure of the industry’s leading to a likelihood of default to the bank.

The importance of Green Banking is immense for both the banks and economy by avoiding the following risks involved in banking sector.

- ✓ **Credit Risk:** Credit risks may be higher due to the probability of customer default as a result of uncalculated expenses for capital investment in production facilities, loss of market share and third party liability claim. Credit risks are also associated with lending on the security of real estate whose value has diminished owing to environmental problems (additional loss in the event of default). Further, risk of loan default by debtors due to environmental liabilities because of fines and legal liabilities and due to reduced priority of repayment under bankruptcy. In few cases, banks have been held responsible for actions occurring in which they held a secured interest.
- ✓ **Legal Risk:** It can occur in different forms. Most obviously, banks like other companies are at risk if they themselves do not comply with relevant environmental legislation. But more specifically, they are at risk of direct lender liability for cleanup costs or claims for damages if they have actually taken possession of contaminated or pollution causing assets. An Environmental management system helps a bank to reduce risks and costs, enhance its image and take advantage of revenue opportunities.
- ✓ **Reputation Risk:** The adoption of green banking strategies will help the bank to deal with these risks involved in their business operation. Green banking strategies involves two components (1) managing environment risk and (2) identifying opportunities for innovative environmentally oriented financial products. To manage environmental risk, the banks have to design proper environmental management systems to evaluate the risks involved in the investment projects. The risks can be internalized by introducing differential interest rates and other techniques. Moreover, bank can withdraw itself from financing high-risk projects. The second component of green banking entails creating financial products and services that support commercial development with environmental benefits. These includes investment in renewable energy projects, biodiversity conservation, energy efficiency, investment in cleaner production process and technologies, bonds and mutual funds meant for environmental investments etc.

4) GREEN BANKING – INTERNATIONAL INITIATIVES:

The financial sector's growing adherence to environmental management system is attributed to the direct and indirect pressures from international and local Non Governmental Organisations (NGOs), multilateral agencies and in some cases the market through consumers. In the early 1990s, the United Nations Environment Programme (UNEP) launched what is now known as the UNEP Finance Initiative (UNEPFI). Some 200 financial institutions around the globe are signatories of this initiative statement to promote sustainable development within the framework of market mechanisms toward common environmental goals. The objective is to integrate the environmental and social dimension to the financial performance and risk associated with it in the financial sector.

As the commitment of this UNEPFI statement goes, sustainable development is regarded basic to the sound business management. It advocates for a precautionary approach towards environmental management and suggests integrating environmental considerations into the regular business operations, asset management, and other business decisions of the banks. IFC's environmental unit was established in 1991 for reviewing each project for environmental assessment. As we reach the boundaries of ecological boundaries of the ecological limit upon which all commerce relies, the financial sector should take its share of responsibility for reversing the effects this detachment has produced".

All these concerns for sustainable finance or green finance have compelled the banking institutions to devise a common and coherent set of environmental and social policies and guidelines that can be used to evaluate the projects. The coverage of projects being financed is expanded in this revised set of principles by lowering the finance threshold from \$50 million to \$10 million. Presently 46 financial institutions from 16 countries with business operation in more than 100 countries have embraced this equator principle. So this principle has become a common standard of project finance that incorporated environmental and social issues in project finance.

5) GREEN BANKING IN INDIA:

Incidentally, India's is the world's sixth largest and second fastest growing country in terms of producing green house gases. Delhi, Mumbai and Chennai are the three of the world's ten most polluted cities. The major polluting industries in India are (a) primary metallurgical industries namely zinc, copper, steel etc. (b) paper & pulp (c) pesticides/insecticides (d) refines (e) fertilizers (f) tanneries (g) sugar (h) textiles (i) chemicals/pharmaceuticals etc.

The banking operation and investment by financial institutions should take care of environmental management of these polluting industries by improving the overall environment, the quality and conservation of life, level of efficiency in using materials and energy, quality of services and products. In this context, the role of banking sector, which is on major financing sources to the Industries, assumes high importance. The environmental regulations in India can be broadly classified into two broad categories i.e. command and control regulations and liability law. Once legal framework for the environmental pollution standards are formulated in India, the polluting industries either have to close down or have to make necessary investment to comply with the standard. In this process these industries will lose their competitiveness in the international market, which would directly affect Indian economy and the banking sector.

Thus in the present context, it is equally important for banks to guard themselves against the conversion of the now performing assets into non-performing one in the future. Realization of these facts by banks will certainly make them fast adopt the concept of Green Banking

6) SMALL SCALE SECTOR IN INDIA AND GREEN BANKING:

Industries irrespective of their size (large, medium or small) emit pollutants to the environment in which we all inhabit. Though the large-scale industries are more capable of degrading the environment, they have adequate financial resources to install pollution control equipment or waste treatment plants to control pollution. Moreover, these large-scale industries are always in the eyes of the government or the pollution control board, these industries strives hard to adhere to set emission standards. On the other hand, the small-scale industries (SSIs), on account of their financial constraints may not be able to install the necessary equipment to meet the emission standards prescribed by the competent authorities. Also because of their small scale of operation, the SSIs escape from the eyes of the concerned authorities. SSI constitute major portion of Indian industry.

These industries account for about 40 percent of industrial production and 30% of total manufacturing exports. Use of western technological systems in small scale industries produces enormous gaseous, liquid and solid wastes. However, they may not be in a position to bear additional expenditures on account of environment audit

and pollution control equipments. Further, SSI exports takes place through merchant exporters, and export houses. They may also be in the form of export orders from large-scale enterprises for production of parts and components for use for finished exportable goods. The exports from SSI sector have been clocking excellent growth rates in recent years and this has been mostly fuelled by the performance of garments, leather and gems and jewellery exported by this sector. SMEs have difficulty in adopting expensive quality management systems, or certification procedures that sometimes have to be repeated several times. The main external barriers are technical trade restrictions or non-tariff barriers (like standardization, quality requirements, conformity assessment, packaging and labelling, ecology requirements, etc.); Different countries specify different testing and certification procedures.

7) ENVIRONMENTAL MANAGEMENT BY THE BANKING INSTITUTIONS:

The financial institutions should encourage projects which take care of following points while financing them viz., (a) sustainable development and use of natural renewable natural resources (b) protection of human health, bio-diversity, occupational health and safety, efficient production, delivery and use of energy (c) pollution prevention and waste minimization, pollution controls (liquid effluents and air emissions) and solid and chemical waste management and (d) there should be a third party expert to draw a plan for the environment management plan.

They should keep following aspects in mind while financing any projects

- While investing or funding the projects, the financial institutions should assess the sensitive issues like vulnerable groups; involuntary displacement etc and projects should be evaluated in terms of environmentally important areas including wetlands, forests, grasslands and other natural habitats.
- Banks also need to monitor post transaction for the ideal environmental risk management program (Rutherford, 1994) during the project implementation and operation. There should be physical inspections of production, resources, training and support, environmental liability, audit programs etc

8) ENFORCEMENT OF ENVIRONMENTAL MANAGEMENT AND ROLE OF THE GOVERNMENT:

The financial institutions also should make sure that the customer is ready to comply with environment management plan during the construction and operation of the project and provides regular reports, prepared by in house staff and third party experts. There should be a direct communication between the lenders and monitoring group. Though commercial banking has been more attentive to the investment banking than the environmental problems, the environmental liabilities would play a larger role in their investment decision in the near future. Further, the environmental audits are required to determine the environmental status of a facility, property, and operation and to identify regulatory compliance status, past present problems and potential environmental risks and liabilities associated with the project. These should be done by an independent body or by an environment investigation team.

But to ensure all these work, there should be legislation, which will enforce the standards along with training and demonstration skills. Government should enact legislation to force banks to consider producing a formal environmental policy statement and making this publicly available. The problems in India are the legislation is not yet framed and in few cases, things are not strictly enforced, but things can change overnight resulting in major compliance problems for the companies concerned and increased risk for the banks that have lent to them. There should be continuous dialogue relating to environmental matters with relevant audiences, including stakeholders, employees, customers, governments and the public.

9) SUSTAINABLE DEVELOPMENT AND SUSTAINABLE BANKING:

Sustainable Development is the way of using the resources that not only meet the human needs of present and future generation but also preserve the environment. The field of sustainable development comprises of three constituents – environmental sustainability, economic sustainability and socio-economic sustainability. Sustainable banking as per the United Nations Environment Programme Finance Initiative (UNEP-FI) is defined as “the process by which the banks consider the impact of their various operational activities and their products and services for meeting the needs of the current as well as the future generations”.

Banking sector is under huge pressure from its different shareholders to carry out its business in ethical ways. Many initiatives have been taken to promote sustainable banking across the globe and one very important such initiative is establishment of United Nations Environment Programme Finance Initiatives (UNEP-FI) in 1990. Few countries have imposed heavy penalties to banks for violating socio-economic principles e.g. the US Comprehensive Environmental Response Compensation and Liability Act (CERCLA) lead to loss to the banks

in the United States. The penalty was imposed to many banks in the United States for pollution of the environment by the clients whom the banks had financed. Those banks were made to pay huge remediation cost.

Direct impacts of banks are related to its products and services. Sustainability in banking sector has basically two forms .Firstly, through adoption of environmental and social responsibility in bank's day to day operations like wise use of paper, energy conservation etc. and secondly, by including sustainability in to banks' products and strategies like green lending, etc.

10) CONCLUSION:

In a rapidly changing market economy where globalization of markets has intensified the competition, the industries and firms are vulnerable to stringent public policies, severe law suits or consumer boycotts. This would affect the banks and financial institutions to recover their return from investment. Thus, the banks should play a pro-active role to take environmental and ecological aspects as part of their lending principle which would force industries to go for mandated investment for environmental management, use of appropriate technologies and management systems.

Green Banking if implemented sincerely will act as an effective ex ante deterrent for the polluting industries that give a pass by to the other institutional regulatory mechanisms. There has not been much initiative in this regard by the banks and other financial institutions in India though they play an active role in India's emerging economy. The banking and financial sector should be made to work for sustainable development. As far as green banking is concerned, India's banks and financial institutions are running behind time. None of our banks or financial institutions have adopted equator principle even for the sake of records. None of them are signatory to the UNEP Financial Initiative statement. It is time now that India takes some major steps to gradually adhere to the equator principles-guidelines that use environment-sensitive parameters, apart from financial, to fund projects.

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CHALLENGES TO STRENGTHENING AGRICULTURAL INNOVATION SYSTEMS

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ABSTRACT

While agricultural innovation has never been better studied and understood, many of our ideas about innovation have failed to fundamentally change the institutional and policy setting of public and private investment intended to promote innovation for development. The paper asks “students of innovation” why a virtual spiral of innovation practice and policy learning has not emerged. The paper then locates the current interest in innovation systems in the evolving and contested approaches to agricultural development, noting that this is characterised by a long history of false dichotomies. The contingencies of the emerging agricultural scenario will demand the more networked modes of collective intelligence and innovation that are embodied in the innovation systems concept. The paper argues, however, that the innovation systems idea should be viewed as a metaphor for innovation diversity, rather than another competing innovation narrative. The way forward, it is suggested, is to create a united front of different collective intelligence-based innovation narratives to kick-start the virtuous spiral of innovation practice and policy learning. This is needed to strengthen agricultural innovation systems and thus achieve developmental goals. The paper argues that it is the responsibility of all us “students of innovation” to argue for this space for diversity to flourish and to help consolidate and promote what is known about agricultural innovation. If we are not more successful in stimulating institutional and policy change we will still be debating these issues 20 years hence.

1. INTRODUCTION

Innovation is the implementation of something new or improved (whether technology or otherwise) in products (goods or services), processes, marketing or organizational methods. In other words, it means applying ideas, knowledge or practices that are new to a particular context with the purpose of creating positive change that will provide a way to meet needs, take on challenges or seize opportunities. Such novelties and useful changes could be substantial (a large change or improvement) or cumulative (small changes that together produce a significant improvement). Innovation can be classified using several different methods. Some apply in certain specific contexts, such as those frequently mentioned in our agricultural milieu: What types of innovation are there?

Institutional innovation:- These innovations, for our purposes, entail a change of policies, standards, regulations, processes, agreements, models, ways of organizing, institutional practices or relationships with other organizations, so as to create a more dynamic environment that encourages improvements in the performance of an institution or system to make it more interactive and competitive.

Technological innovation:- This is the application of new ideas, scientific knowhow or technological practices to develop, produce and market new or improved goods or services, reorganize or improve production processes or substantially improve a service. Technological innovations are generally associated with changes in goods or productive processes; but technological innovations may also be applied to marketing processes or forms of organization by either producers or institutions.

Social innovation:- This is the development or substantial improvement

Of strategies, concepts, ideas, organizations, goods or services, to bring positive changes in the way of meeting or responding to social needs or serving social purposes. Social innovations are constructed jointly by several different stakeholders for the well-being of individuals and communities; they may generate employment, consumption, participation or introduce some other change to improve the quality of life for individuals and that can be duplicated in other settings. Other classification systems are more general and can be used more widely, such as the following categories based on the OECD definition (2005)

Product innovation:- changes or additions to goods produced or services delivered.

Process innovation:- changes to the way goods are produced or services are delivered.

Marketing innovation :- changes in the method or conditions for marketing the good, or changes in the placement or target of the good or service.

Organizational innovation:- changes in an organization's structure, activities or services, in its processes or methods, or in its relationship with other stakeholders (such as partnerships). Innovations can also be classified according to who implements them:

Entrepreneurial:- These innovations may be implemented equally by small scale producers or by large companies. Such innovators may introduce changes in products, processes, marketing or organization to bring about economic, social or environmental improvements.

Organizational or institutional:- These changes are implemented by various kinds of organizations, institutions or associations, whether public, private, academic or non-governmental. They could also be introduced by national innovation systems. Again, these innovations may relate to products, processes, marketing or organizations and may seek different types of objectives.

Innovation requires knowledge from multiple sources, including from users of that knowledge; It involves these different sources of knowledge interacting with each other in order to share and combine ideas; These interactions and processes are usually very specific to a particular context; and Each context has its own routines and traditions that reflect historical origins shaped by culture, politics, policies and power. It seems it is becoming ever more urgent that all of us reflect on our own and collective contributions to the institutional and policy changes needed to promote innovation. Do we need to change the way we work? Why are not our own ideas, finely-crafted tools and approaches changing the world and unleashing the power of science and knowledge to create wealth, reduce poverty and preserve our environment? It is a good question, and it is the same question we have been levelling at bio-physical scientists for years about the impact of their technologies on development. You might ask what any of this has to do with strengthening agricultural innovation systems.

2. AGRICULTURAL INNOVATION SYSTEMS: A PERSONAL STATE OF-THE-ART

For every agricultural innovation systems specialist there is a different interpretation of what this idea means. One definition is that an innovation system comprises the organisations, enterprises and individuals that demand and supply knowledge and technologies, and the policies, rules and mechanisms which affect the way different agents interact to share, access, exchange, and use knowledge. There is now a very rapidly growing literature on agricultural innovation systems. My own work has had two major thrusts. First was a series of case studies where we used the framework to explore and explain different approaches to agricultural innovation. This, in turn, helped us firm up the idea of an innovation system as an analytical framework. The second thrust has been on Operationalising the concept in the sense of using it diagnostically to help design interventions to strengthen innovation capacity.

These two thrusts were brought together in a study we conducted for the Agriculture and Rural Development (ARD) division of the World Bank, where we developed an analytical framework, tested it on case studies and then developed an intervention framework. The main findings of the study, as one reviewer pointed out, were not so much important because they were all new, but because they brought together these findings in one place and gave them prominence in the form of a World Bank study. The findings included:

Innovation is rarely triggered by agricultural research and, instead, is most often a response of entrepreneurs to new and changing market opportunities.

The market is not sufficient to promote interaction; the public sector has a central role to play. Social and environmental sustainability are integral to economic success and need to be reflected in patterns of participation and interaction that are considered when strengthening innovation capacity. Mechanisms at the sector level that are critical for coordinating the interaction needed for innovation are either overlooked or missing.

The study made two now very familiar recommendations:

1. A major shift in interventions away from supporting agricultural research and with a new focus on strengthening patterns of interaction across the whole range of actors involved in innovation.
2. A priority within this new focus is to find ways of developing and adapting habits and practices that foster a capacity to innovate, which integrates pro-poor and premarket agendas.

3. ANOTHER COMPETING INNOVATION NARRATIVE OR A METAPHOR FOR DIVERSITY?

But is this just one more competing narrative of how agricultural science and innovation should be organised? Commentators accustomed to polarised narratives and blueprint approaches could understandably make the mistake of seeing this as another aspiring alternative. Of course, in many senses it is

an alternative model, but what it does not do is make prescriptive recommendations along the lines of “for innovation to take place one must have a system with one private sector actor, one research actor, one banker, one policymaker and one farmer — all with pre-specified roles.” And this is where most people get confused.

Instead, it points out that what is required are coordinated networks of actors relevant to specific challenges or opportunities, and locations — and accompanied by supporting policies and ways of working specific to those challenges, opportunities and locations. Recent work at LINK on the nature of innovation capacity suggests that a range of different types of innovation systems already exist and predicts that this diversity will increase in the future. These systems range from public sector, science-driven systems working on food crop productivity, through private sector-coordinated networks innovating around value chains, to participatory partnerships between science and local communities focusing on natural resource management. They rely on scientific and others sources of knowledge to differing extents, and have different governance mechanisms. Some will be largely self-organising while others will need public intervention to organise interaction. And some are organised towards innovation for directly reducing poverty while others are organised towards directly improving the competitiveness of the private sector. There are a multitude of legitimate agendas in society and there are different ways of organising innovation that relate both to this diversity as well as the different ways of producing and using knowledge that some tasks demand.

4. CREATING SPACE FOR DIVERSITY AND SHARING INNOVATION EXPERIENCES

Ultimately, the question of organising interactions for innovation is a question of what policies and institutional regimes are going to be needed to make this happen, and happen in ways that best balance the trade-offs among societies’ multiple goals. It appears there are two priorities here if we want to help stimulate institutional and policy change. The first is to create the space for the diversity of different ways of organising interactions to emerge. The greater the diversity we create, the more innovation experiences there are to help us understand how best to organise for innovation. This, in turn, helps us develop policies and institutions that support the collective intelligence approach across the agricultural sector and the wider society it is located in. This is the virtual spiral of innovation practice and policy learning I mentioned in my introduction.

The problem here is that to bring about policy and institutional changes one needs sufficient diversity of innovation experiences to build our repertoire, draw generalities from and make the case for change. Often, however, policy and institutional settings stifle the diversity of approaches. Anybody working in large agricultural research organisations will know all too well the restrictions placed on doing things differently.

5. CONCLUSION

Innovation is a driver of economic growth and well-being in the countries. It is a dynamic, holistic process that generally occurs inside the AISs. If the work of diverse participants is strengthened – research, agricultural extension and other forms of support for innovation – the AISs can become more efficient and competitive. This can happen if all stakeholders can develop and strengthen their own capabilities, and if relationships among them are bolstered. The new IICA vision of innovation for agriculture revolves around a comprehensive, broad-based approach whose cornerstone is innovation work and whose efforts are directed toward promoting a welcoming environment that includes public policies and an institutional framework to reward and support innovative, entrepreneurial work, strengthen the AISs and promote promising technologies with the potential to have an impact on the territories and the high priority value chains. The tools for achieving this will depend on the context or reality being addressed; this means there are no recipes for promoting a culture of innovation, but that solutions may arise from many different sources, stakeholders or types of innovations.

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NEOLIBERAL FREE MARKET GLOBALISM: A CASE OF HEGEMONIC IDEOLOGY

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ABSTRACT

To a good degree, the process of globalization and neoliberal free market globalism are perceived to be synonymous and coterminous. This paper seeks to argue that there are different ideological discourses on globalization and neoliberal globalism is one of them. The paper purports to investigate as to how and why the neoliberal market globalism has come to acquire the status of the hegemonic ideology and how does it sustain its domination.

The paper briefly discusses the different ideologies on globalization. Then the role of liberal ideology as a hegemonic ideology is discussed. The paper also discusses certain powerful claims made by the hegemonic ideology and then finally concludes by discussing the different perspectives on the hegemony established by neoliberal free market globalism.

INTRODUCTION:

As defined by Roland Robertson, the process of globalization can be conceptualized as the compression of time and space and intensification of global consciousness. Is globalization a neutral process? The answer appears to be in negative. There are a variety of theoretical lenses through which one can look at the process of globalization and can draw distinctively different conclusions about its nature, relevance and trajectory. In addition to this, globalization is said to have its own ideologies which paint the process in to different colors and depict different kind of pictures of it. Different ideologies of globalization characterize it differently and project it in a variety of ways. (Steger, 2001) has pointed out that there are at least three ideological discourses on globalization which present us distinctively different images about the nature, relevance, role and the trajectory of the process of globalization.

As (Steger, 2005) argues, an ideology can be said to be the beliefs, assumptions, ideas and views about a phenomenon. Ideologies do not only depict and presume about the nature of the phenomenon but they also prescribe as to how it should be like. Ideology thus, is not just concerned about what is but also what ought to be. Ideologies are concerned about broad generalization about the phenomenon. They tend to create a generalized and commonly recognized and accepted meaning. Ideologies tend to create a common sensical understanding of the phenomenon. Ideologies therefore can be said to be associated with the process of discourse formation. They are inherently associated with the naturalization and universalisation of certain views about a given phenomenon.

In one of his works, (Steger 2005) criticizes Michael Freedman's argument that there's no ideology of globalization because the process has not reached to the level of required maturation and it does not fulfill the conditions required for it to be called an ideology. Steger points out that a look at the process of globalization will conclusively demonstrate that it fulfills all the prerequisite conditionalities to be fit to be conceptualized as an ideological discourse fulfilling the three criteria suggested by Freedman, namely:

1. Its degree of Uniqueness and morphological sophistication;
2. Its context bound responsiveness to the broad political processes; and
3. Its ability to produce effective decontestation chains.

IDEOLOGIES OF GLOBALIZATION:

As underlined above, in one of his books Steger discusses the three ideologies of globalization.

Neoliberal free market globalism happens to be the first and most dominating ideology which argues that an autonomous individual taking part in free market exchange represents globalization. This ideology focuses on growing materialism, consumerism, secularism, individual autonomy, free market and democratization as the fundamental features of globalization.

Justice globalism is the second ideology which has categorical assumptions and statements to make on globalization. Starting from a diametrically opposite stance to neoliberal globalism, the justice globalists argue that a world based on egalitarian and equalitarian socialist values is possible. They argue for fair globalization and fair trade instead of free trade. The justice globalists which come from a variety of heterogenised

backgrounds, seek to invessage the process of globalization which bridges the vast social, economic and cultural asymmetries and disparities.

Jehadist globalization happens to be the third ideology on globalization. This ideology is situated at the far right of the political spectrum. This perspective advocates for the values of equality, Islamic brotherhood, justice and a theocratic state based on the Islamic political values as the true essence of globalization. This ideology opposes the neoliberal globalism as consumerist and materialist which is an assault on the religious political values of islam. The concept of secularism is rooted in the civilisational values of Judeo-Christian traditions and is detrimental to the religious values of Islam.

However, one has to be cautious in the sense that these ideological discourses and narratives are not antiglobalisation but alter-globalization. It means that these ideologies respectively present an alternative vision of globalization. All of them have alternative conception and project of globalization and none of them opposes the process of globalization. They only differ on the trajectory and the nature that the process of globalization should adopt.

Out of these three ideologies, the neoliberal free market globalism has come to acquire the hegemonic position. This ideology has created and is able to sustain a hegemonic discourse and continues to dominate the thoughts of people and design their conceptions about globalization. A variety of social actors ranging from media, elite, international economic institutions to multinational corporations are interested in the perpetuation of this hegemony because it benefits them immensely.

The neoliberal market hegemony sustains by providing fake promises to the world. The ideology promises nothing less than emancipation which is enrooted in the very process of globalization as it is unfolding today. As (pett, 2003) has demonstrated, the neoliberal hegemony is based on the rhetoric of emancipation. The time and space compression prepares ground for more and more interaction and communication. It thus enables for different cultures, different civilizations and different languages to come in unprecedented proximity to each other. It helps people to appreciate each other's language, culture and customs and so on. This rosy picturisation of the process of globalization by the neoliberals appear to be absolutely liberating in nature. It leads one to believe that the process of globalization will liberate human beings from the exploitative structures in the long run. however, a careful analysis of the process of globalization reveals a totally different and to a good degree, a negative image of the process. There are a variety of processes which destroy the liberating potential of neoliberal globalization.

Firstly: quite the opposite of its promises, the neoliberal globalization doesn't respect the cultural diversity and plurality. People do not get a fair chance to appreciate each others culture and lingual multiplicity. On the contrary the process of globalization imposes cultural homogenization on the people. The increasing cultural sameness characterized by the cultural attributes of consumerism and materialism is highly counter productive to the preservation and appreciation of cultural plurality. The media tends to feed people with homogenized images and tends to saturate them with the same kind of incidents and advertisements. This all intensely undermines globalisation's potential to liberate humanity.

Secondly: the corporate sector which is driven by the Mantra of profit maximization, always eagerly seeks for cheap and exploitable labor. This process drives them to the third world where they exploit cheap labor without taking any adequate safety measures. This further disappoints the people about the liberating potential of globalization. This disheartens those who believe that free market can liberate people and can create an egalitarian society in the long run.

Thirdly: Globalization has taken an authoritarian trajectory. It's the economic trinity, including world bank, IMF and WTO which in a very authoritative way drive the process of globalization on to the neoliberal trajectory. The process lacks democratization and popular participation which renders it very uncomfortable. This discourages people and convinces them that the process of globalization is not for everyone.

WHAT BROUGHT HEGEMONY?:

(Kotz) argues that neoliberalism is the updated and refined version of old classical liberalism. It focuses on the movement of goods, services and capital but not people. It continues and sustains its existence because it is found to be a viable and useful option by the corporate to sustain their big business and draw profit out of it. It replaces the regulating state model or the Keynesian model and advocates deregulation and individual autonomy. It has followed a specific historical trajectory. Liberal project is not the result of an inevitable natural civilisational process but is the result of the decisions and choices made by the human agency. It's a deliberate attempt and not a natural occurrence.

As *Richard Peet* has argued, the project of neoliberalism is the revival of old classical liberal project both at the academic and praxiological level. Second world war and its aftermath produced the Keynesian state or the welfare state model where the state was a regulator in many sectors of economy and would play a significant role. Gradually we find an increasing support for the neoliberal model as argued by Hayek and Milton Friedman. It was argued that this ideology is based on scientific wisdom. Considering the era that science has in our society, everything which is scientific is considered to be neutral, objective and impartial. The same innocence was accorded to the neoliberal project and its characterization as scientific immensely contributed to make neoliberal market globalism as the hegemonic global ideology.

Hayek philosophized that an individual can realize their potential only in an autonomous society. Most of the civilisational achievements have been achieved in the phases when individual was given an opportunity to pursue his or her freedom which has resulted in the production of outstanding creativity and knowledge. This claim coming from Hayek made neoliberal a desirable and the best alternative to be adopted to manage economic affairs of a society. These views of Hayek propelled people to believe that there should not be any impediment in the autonomous pursuit of an individual and only the device of free market can bring about this atmosphere.

Another dimension is the role of think tanks, popular media, authors, scholars and intelligentsia to propagate and disseminate the common sensical ideas about neoliberal free market globalism. Huge funds were allocated for the televisions, other publications, and documentary formation and so on in order to disseminate this ideology as the best ideology to govern ourselves. This demonstrates as to how gradually a commonsensicalisation happened. This explains as to how gradually the universalisation and naturalization of the wisdom of neoliberal globalism came to be accepted as uncontested.

The role of the political establishments is yet another dimension which ensured that the neoliberal market globalism comes to acquire the hegemonic status. The regimes of Reagan and Thatcher made sure that the market wins over the state control. Reagan would opine that market control is the best and most optimal control. Market is the best decision maker.

These leaders imposed the neoliberal agenda and created a hegemonic atmosphere.

CERTAIN POWERFUL CLAIMS WHICH PERPETUATE HEGEMONY:

Having discussed as to how the neoliberal market globalism discourse came to attain the hegemonic status, let us now turn to discuss certain powerful claims that this ideology makes about itself which further helps to sustain and perpetuate its control and prohibits any alternative and contestation.

Steger has argued that there are at least 6 powerful claims about globalization.

Claim 1: globalization is about the victory of market forces over the state forces. This claim argues that globalization is all about market and liberal forces. Globalization as market is a convenient marriage between two ideological inclinations. On one hand it consists of the liberal ideology as argued by the people like *Herbert Spenser*, *Friedman* and *Hayek*, on the other it consists of the neoconservatives like *Thatcher* and *Reagan*.

This claim advocates that neoliberal market globalism is a scientific, neutral and objective process. Market wins over the state and thus market controls everything. This claim however ignores the fact that it's the states who engineer market. Without the consistent and perpetual support of state at regular periods, the market will not be able to sustain itself.

Claim 2: is that globalization is irreversible and inevitable. As *Manfred Steger* argues, the speeches and utterances about the globalization often argue as if its inevitable, irreversible, indispensable and soon. It will be instructive to quote some sentences from that kind of frequently made speeches.

Bill Clinton in one of his major speeches on US foreign policy says: "*Today we must embrace the inexorable logic of globalization Globalization is irreversible.*

Protectionism will only make things worse".

Frederick Smith of *FedEx* corporation proclaims: "Globalization is inevitable and inexorable and it is accelerating Globalization is happening, it's going to happen. It does not matter whether you like it or not, it's happening, it's going to happen".

This is a way to contest globalization as an ideology. But at the same time this ideology becomes a managing ideology. By proclaiming globalization as irreversible and indispensable, this ideology becomes a deterministic ideology.

This claim seeks to argue that it's the result of some sort of civilisational progress. The argument is that the neoliberal market globalization is the final culmination of civilisational evolution of human kind which has been evolving for centuries. This is the phase of "end of history" which produces an inevitable period. this characterization gives the process a legitimacy and recognition. Claiming it inevitable means that neoliberalism has no alternative which makes it the only option. Claiming it irreversible means that it can not be politicized and it is beyond politics.

Claim 3: is that nobody is the in charge of globalization.

The claim argues that globalization is based on self regulating market. The states merely facilitate the self regulating market and it functions on its own. This demonstrates that there's a leaderlessness when it comes to the transaction of business at the global level. However, after 9 11 it became amply clear that united States and its power is behind the process of globalization. Us controls and regulate the process because it has inherent interests in the sustaining of neoliberal market globalism.

The neoliberal free market globalism is not controlled by technology and market but by the hegemonic state in the global system. The power hierarchy and asymmetry at the global level provides conducive conditions for the establishment of hegemony. And the hegemon is the real state driving the process of globalization.

Claim 4: is that in the longer run, globalization benefits everyone.

It is based on the progressive notion of liberalism which argues that at the long run, everybody develops and fruits of progressive individual benefit everyone. It means that neoliberal trajectory has been following a linear trajectory which will result in the emancipation and liberation of all human beings. Along with this, there's a dream that this ideology sells. The dream is about the utopia of equality to all based on the notion of consumerist and materialist development. It argues that a world where nobody is suffering is possible.

The ideology claims that although short term disparities will come in through globalization. At the longer span they'll be corrected by the market itself and all market irregularities will settle down. Globalization benefits everyone because everyone at the longer run can adapt their skills to the process of globalization.

Globalization benefits everyone because it promotes and encourages efficiency. It propels the people to sharpen and hone their skills and so on.

Secondly as Hayek would say, free trade and individual autonomy helps in the complete growth of the individual and it becomes possible for a person to realize their maximum potential.

Another area in which it contributes is the promotion In technology generation and trade of technology. The process of technology transfer is immensely significant for the developing countries.

However, the two best cited cases as an example of the success of globalization are India and china. But in both of these countries the disparities between rich and poor are rising sharply.

The fifth claim argues that neoliberal market globalism leads to the democratization of the world.

The process of democratization has been associated with liberalism, conservatism and even socialism. The logic here is that if you leave the individual to make free choice and allow him or her to make her choices with autonomy, it will create a democratic atmosphere which will further democratize the world. Neoliberalism, democracy and individual autonomy are taken to be quite the coterminous here. as Francis Fukuyama has argued, the increasing economic development will lead to the emergence and consolidation of civil society which will further create democracy. Therefore, there exists a clear link between democracy and economic growth through globalization.

However one can not overlook the fact that this is a very thin definition of democracy. This Anglo- American project of democracy has to do only with certain procedural aspects like voting and doesn't go beyond that. This thin definition of democracy is not concerned with the thick democratic aspects such as the welfare of people and the bridging of disparities.

This conception is based on the assumption that market and democracy are compatible with each other. However the reality is that market doesn't get along with substantive democracy and the requirement of a true economic democracy. For instance, many democratically elected regimes have been destabilized by the United States to ensure that the free market project continues and there's no obstruction to its perpetuation. The coercive and compelling dimensions enrooted in the phenomenon of marketisation and neoliberalisation is itself undemocratic and does not get along with the democratic processes.

The final claim is: that globalization requires a war on terror.

After 9/11 the war on terror has become the famous buzz word for the proponents of globalization.

It justifies the militaristic and nationalistic responses to the terrorism. This In the other sense makes globalization more assertive and authoritarian. Now the advocates of globalization have justification behind coercion and use of force.

For a long time it was being argued that globalization is all about anglo-americanisation and homogenization of the globe. It was argued that it was a kind of soft neo-imperialism. However 9-11 has revealed the hidden structures and now it has become amply clear that the phenomenon of globalization is directly strategically controlled by united states. This however runs contrary to the other claims made by globalization. For instance this challenges the myth that globalization is inevitable or irreversible. Because if some country is the manager of globalization, it can not be inevitable. It also destabilizes the myth that globalization is universal and applicable to all and nobody is in charge of globalization.

THE NATURE OF FREE MARKET NEOLIBERAL GLOBALIST HEGEMONY:

Having looked at the powerful claims made by globalization, let's now look at the nature of hegemony as discussed by (Peet, 2003).

Firstly: Characteristic of the hegemony is that it sustains through the creation of commonsensical understanding. There is a common sensicalisation of the concept of hegemony as it is. It does not only common sensicalises what is but also what ought to be. Hegemony is intrinsically associated with the naturalization of certain conceptions as unchallengeable common wisdom which can not be contested.

Secondly: The media, televisions and newspapers along with the other mediums of information are used to disseminate the common sensical understanding about the global ideology. The ideology is common sensicalised through mass media and popular media. Media controls the minds of people, and who so ever controls media controls people therefore. The same logic is used in creating a universalized and naturalized understanding of a particular ideology as natural. In this case, neoliberal free market globalism is considered to be natural and universal.

Thirdly: The neoliberal free market globalist ideology does not hesitate to use force if its needed. The force is used in deviating cases. As discussed above, many democratically elected governments have been destabilised and toppled just because they did not comply with the hegemonic global order. Hegemony thus, is an effective and appropriate combination of coercive and consensual means.

Fourthly: The project of neoliberal globalization is based on the fake promises of liberation and emancipation of human beings. As argued in the fourth powerful claim above, globalization promises that the process is helping and beneficial to all in the longer run. These promises are sustained through media as argued above and also through the contribution coming from academicians. Francis Fukuyama's "end of history" thesis is one of such rhetorical promises. This thesis argues that globalization is the result of historical and civilisational development. Many other rhetorical claims and fake promises about globalization convince people and ensure their consent to its perpetuation.

Fifthly: The process of globalization is depicted and pictured as a scientific wisdom. It is argued that the process of neoliberal market globalization is based on the scientific wisdom. Scientific wisdom is taken to be neutral to all. Science doesn't discriminate against anyone and it is impartial to all. Scientific wisdom is also objective. Its about the reality which is out there and objective and our subjective dispositions and values do not influence it. A neutral and objective phenomenon will be more acceptable and appealing to the people. This is what makes neoliberal market globalism a very attractive and fascinating process to many. If a scientific wisdom promises to deliver certain promises, people are likely to trust it without questioning the process. A scientific Endeavour is taken to be a very innocent and very neutral phenomenon.

Finally: The regime is sustained not only through media and intelligentsia but also through the international regimes and institutions. The regimes and institutions are an integral part of perpetuating and naturalizing the common wisdom. The neoliberal free market globalism is propagated through what Richard Peet calls as "the unholy trinity". They used all sorts of coercive measures to ensure compliance. The imposition of structural adjustment programs on the countries is one such measure.

PERSPECTIVES ON HEGEMONY:

Let's now turn to discuss how we can understand this hegemony. What are the lenses that we can deploy to study this hegemonic discourse?

First of all, the assumption that this ideology is a scientific, objective, nature and impartial, has to be challenged. Once we successfully challenge this myth and are able to see beyond this assumption we get a completely different picture of the hegemonic discourse.

There are two focal projects subject to globalization; political and power project.

Globalization is a political project, the political project means it's from someone's vantage point. It implies that someone has their political interests to fulfill out of the process of globalization. The tool of culture is used to naturalise and universalize the process. At times the culture is used to make the phenomenon of neoliberal market globalisation as attractive and fascinating. It makes the process desirable. Secondly, the globalization is a power project. The way globalization is happening. The way it is being universalized demonstrates that it's a power project.

The first lens to understand the phenomenon of globalization is the Marxist term as ideology. "Ideology" the term as used by Marxists has a different meaning. It means the ways in which the elite preferences and interests are naturalized as the common interests of society.

The second perspective is the *Gramscian* perspective. This perspective argues that hegemony is the combination of coercive and consensual means. Normally it's the consent which is created and coercion is applied in the marginalized deviating cases. Gramsci has discussed as to how consent for the domination is manufactured. It's about the common sensicalisation of certain beliefs, values, preferences and choices as natural and universal for the whole society and the world. The intellectuals, civil society, church, or the super structure in other words plays an equally significant role in universalizing the beliefs and values as common values.

The **third perspective** on hegemony could be the perspective of discourse formation. This is Foucauldian understanding on hegemony.

Foucault seeks to trace the archeological and Genealogical formation of a discourse. According to Foucauldian understanding, the hegemony of neoliberal free market globalism is rationalized, systematized and arranged in such a way which convinces masses beyond any doubt about its credibility.

Once thus convinced, people are not allowed to think beyond the ideological discourse. Their thinking is limited to think within the ideological narrative only and to suggest changes within this framework. They can not think beyond the framework. The ideological narratives and discourse convince people that there's no other alternative and there's no point thinking beyond ideology.

Finally, new vocabulary is invented. New concepts are used, new kind of language is polished and new fascinating ideas are brought to the forth to justify the hegemony which makes people absolutely succumb to the narrative.

As (Broomhill, 2001) has argued that the neoliberal project is presented as the only viable and effective program at the international level by the right wing economists, corporate, global financial institutions and the intellectuals. He argues that it leaves no choice with the state and they're made to succumb to the neoliberal project. Doing a case study on the development in Australia, he argues that it's not the choice but compulsion for the countries to adopt the neoliberal project. He argues the process of globalization is a discourse which renders the phenomenon of local insignificant. The narratives and discourses at the global level are politically disempowering and discouraging.

CONCLUSION:

Globalization thus is not devoid of ideological discourses. There are at least three conclusively strong ideological narratives on globalization. Through the use of media, intellectuals, corporate sector and international regimes and institutions, the neoliberal free market globalism has come to hegemonize the process of globalization.

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A STUDY ON CUSTOMER PERCEPTION TOWARDS SOCIAL MEDIA IN DEVELOPING A BRAND IMAGE POST COVID-19

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ABSTRACT

This exploratory studies examines how the COVID-19 pandemic caused will increase in purchasers' social media advertising behaviors withinside the India . Previous studies at the effect of a deadly disease has centered on conduct for preventive health, however, little interest has been given to the effect of a deadly disease on purchaser behaviors. To bridge this gap, the Consumer Decision-Making Model become used as a framework to analyze modifications in purchasers' social media behaviors as they preform numerous purchaser decision-making processes. More specifically, a questionnaire become used to acquire survey statistics from 327 India. purchasers. Analysis of Variance assessments have been executed to study suggest variations in purchasers' use of social media as a purchaser decision-making device. The findings confirmed that purchasers have elevated their usage of social media as a device for figuring out products, amassing statistics on products, comparing products, and making product purchases. Thus, the findings exhibit the developing significance of social media advertising because the COVID-19 pandemic began. Given that the COVID-19 pandemic is a international phenomenon, the findings possibly may be extrapolated throughout many nations. Suggestions are furnished to assist organizations undertake to modifications in purchasers' social media behaviours as they relate to the purchaser decision-making processes.

Key Word – social media, customer perception, brand image, purchase intension satisfaction.

INTRODUCTION

Early in 2020, the India began to experience a healthcare pandemic from a novel coronavirus commonly known as COVID-19. Previous research on the impact of a pandemic has focused on behavior for preventive health, however, little attention has been given to the impact of a pandemic on consumer behaviors. To bridge this gap, the Consumer Decision-Making Model was used as a framework to investigate changes in consumers' social media behaviors that have occurred since the COVID-19 pandemic was declared. Investigating the impact of this pandemic on consumers' social media marketing behaviors is important because recent findings indicate that the pandemic is having significant and structural impacts on consumers' purchase behaviors , as well as their decision-making processes , which could result in significant changes in marketing practices. More specifically, analyzed changes in India decision-making behaviors since the start of the COVID-19 pandemic and found that the COVID-19 pandemic altered consumers' product needs, shopping and purchasing behaviors, and post-purchase satisfaction levels. With public healthcare concerns and governmental COVID-19 pandemic mitigation policies, the role and impact of social media as a marketing tool stands to increase in importance because, at a time when social distancing is a common practice, social media offers avenues for consumers to interact with others without having physical contact. As such, COVID-19 will likely also result in shifts in consumers' use of social media during consumer behaviors. Therefore, businesses may find new opportunities to gain competitive advantage through their use of effective social media marketing strategies.

While research is sorely needed to understand the healthcare and macro-economic implications of COVID-19, marketing research is also needed to examine the impacts of COVID-19 on consumers' behaviors. For example, with restrictions on personal contact and other pandemic mitigation policies, consumers may alter their decision-making behaviors, such as behaviors related to shopping and product acquisition, as well as their post-purchase behaviors.

COVID-19 is a recent phenomenon, therefore, little has been published of its impact on social media marketing behavior in the India .This paper explores the role that social media plays in the consumer decision-making process. The authors hypothesize that social media marketing behaviors have shifted due to the COVID-19 pandemic. The current research focused on the India . economy because it is the largest consumer spending economy in the world and the COVID-19 pandemic has significantly impacted Indian healthcare.

PROBLEM STATEMENT

Online marketing is the current trend today. People will continue to use online marketing for their business growth because online marketing is one of the easiest ways to market their product to the consumers. Advancement in the information technology through internet makes more people choosing online marketing as their purchasing method since it allows easy purchasing and shopping. People who invent online marketing

need to have a different way or method to attract customer to buy their product. This happens because the customer has a different way to make judgements about the product they want to buy. Many things can contribute to the customer purchasing decisions. Whether that factor is relevant or not but it still depends on the customer itself depending on individual perception toward a product they choose. Brand image is reflected in the product itself and the brand image actually come through the customer perception about a product and service but the different customer may have their own perception and a lot of factors can be influenced to affect the brand image of the product to customer mind.

Besides that, different level of group or customer also will have a different level of opinion to evaluate what is the factor that can affect brand image toward customer purchasing. Different level of customer might have a different evaluation to make their own purchasing and set their own priority in purchasing habit. Working people may look for a financial part, for example, maybe they are more concern about pricing. Housewives may have their own factors to make purchasing, same as students. However, today, students can be considered as one of the biggest customers who makes online purchasing in online marketing, but a different type of student have their own judgement for making purchasing such as the price of the product, a brand of product and much more. It all depends on their attitude, lifestyle, the level of income and others. According to Hansen and Christensen (2007), the researchers' household behaviour and household purchase decisions have become an issue. The researcher also states that the continuation of the work on consumer expectations also contributed to the speculative of 'the powerful consumer'. This research statement shows that the consumer has their own perception and evaluation in determining their purchase decision toward a product they want to buy. Based on the researcher statements, it also shows that the customer has issues in making purchase decision because of their power in making decision depends on what the product has to offer them. The research question is an important part of conducted research and the research objective will be guided and presented as follows:

1. What are the brand image factors that enhance the students purchasing in online marketing?
2. What is the relationship between brand image factors and student purchasing in online marketing?

LITERATURE REVIEW

According to Achmad Yanu Alif Fianto (2014) Market place or value opposition is not restricted to provide purposeful attributes of the product itself but has been associated with a brand image which could create a unique brand image for its users, in particular within the service industry. There is influence of brand image on purchase behavior as well as identifying and analyzing the mediating role of brand trust in the relationship between brand image with purchase behavior. Brand image have a tremendous position in influencing the purchasing conduct and brand trust additionally grew to become out to have a mediating position, despite the fact that not absolutely in the courting among brand image with purchase behavior.

According to Yi Zhang (2015) The idea "brand image" has drawn significant interest from academics and practitioners because it changed into recommend, as it performed an vital role in advertising and marketing activities. although brand image was identified as the driving force of brand asset and brand overall performance, few research have elaborated on the relationship between brand image and brand equity. primarily based at the brand image theories, this examine reviewed extant studies about the impact of brand image on consumer from perspective of customer equity.

According to adesh padival (2019) The drastic increase within the usage of social media most of the people in India has created a brand new platform for promotion, that is, social media commercials. however, the effectiveness of these commercials has been interrogated through many. lower reputation of commercials has been one of the foremost challenges confronted by the marketers. Henceforth, it's far essential to recognize the crucial elements influencing the customers' mind-set towards social media commercials. Thus the factors influencing behavioral intention of the consumers concerning social media commercials. The constructs like company popularity, emotional enchantment, informativeness, creativity, irritation, and materialism were taken into consideration to have an effect on the mindset, which in flip encouraged the behavioral intention of consumers. So the customers' notion towards social media commercials and will assist the marketers in framing effective advertisement techniques.

According to Sukanya Sharma (2020) on this virtual generation, the net, and Social Media (SM) has had an intensive effect at the purchasing behavior of "costumers" The SM gives a platform in which "costumers" are exposed to the quality product with the quality price along with critiques and opinions about the products. So, we are able to turn our heads and study a brand in a way as if the brand is talking to us. Brands sincerely support the connection with customers and inspire buy intention. furthermore, SMMA has a robust application in growing a advertising and marketing strategy for business. It has turn out to be a significant device that

collaborates with agencies and people. it is concluded that the “costumer”- brand dating does have a superb and statistically massive effect on consumers’ purchase intention through SM.

According to Dr. M. Thirumagal Vijaya,(2019) understanding consumer’s perception towards social media marketing has constantly been one of the goals of advertisers. advertisements which are successful in delivering its messages to its audiences can assist to promote and construct attention on the corporation’s services. With the speedy improvement of information technology worldwide within the past decade, social media advertising and marketing are increasingly counting on various modes of interactive technology to market it and promote their products and services. moreover, the concept of executing a content material that is modern and entertaining ought to get purchasers to engage electronically in an effective manner. This effective characteristic can be visible as a destiny of advertising and can become extra figurative in consumers’ minds than television advertising and marketing as a marketing.

.According to Fazlul Hoque, (2020) The growing use of the internet has opened a brand-new door to customers for on-line purchasing and sellers for marketing their merchandise or service thru individualized messages cost effectively through transferring the commercial enterprise platform from brick-and-mortar orientation to an online platform. Social media have added a brand-new interactive surroundings wherein consumers can communicate with a enterprise; share their fantastic and terrible experience with the other purchasers, trade thoughts which in the long run have an impact on the marketing decision of the organization and customer purchase intention similarly. hence, the marketers are connecting themselves in numerous social media which includes facebook, Myspace, Instagram, WeChat, imo, Skype, Line and others for engaging and interacting with more customers to serve better with the aid of understanding real needs. To understand the customer perception on buying thru fb, determinants motivating to purchase through fb or social media. On social media , the customers have been in various age group but most important segments of the purchaser had an age between 21-30 and 31-40 years.

According to Uttera Choudhary (2019) The idea of social media is top agenda for all of the enterprise firms nowadays. advertising and marketing Executives, Researchers and specialists all are trying very hard to discover the approaches wherein a brand could make maximum use of various social media platforms. The various factors related to social media which impacts the brand loyalty of the customers. .The elements which have an effect on the loyalty degree of clients in the direction of their desired brand. those factors are: (1) Accessibility; (2) Informative; (3) brand image; (4) customer care services; (five) advertisements; (6) relationship constructing; (7) convenience; (eight) feedback. The belief of consumers toward exclusive social media practices used by entrepreneurs. extraordinary strategies can be designthrough social media for the brand image and brand loyalty.

RESEARCH METHODOLOGY

Scope of the study

This study is conducted in Maharashtra area only

Objectives of the study

1. To study the Change in consumer satisfaction while developing brand image through social media
2. To study the influence of various social media platforms in creating and adding value to the brand image
3. To study the Role of brand ambassadors in creating the initial branding of the product through social media

Hypothesis of the study

H01: There is no significant difference in the consumer satisfaction towards use of Different social media platforms in Post covid-19

H11: There is significant difference in the consumer satisfaction towards use of Different social media platforms in Post covid-19

H01: There is no significant difference in the consumer satisfaction towards use of Brand advocate in Post covid-19.

H11: There is significant difference in the consumer satisfaction towards use of Brand advocate in Post covid-19.

H01: There is no significant difference in the consumer satisfaction towards use of Brand ambassadors in Post covid-19.

H11: There is significant difference in the consumer satisfaction towards use of Brand ambassadors in Post covid-19.

Sample size

115 sample were selected for this study. people from various age group were the respondents of this study.

Sampling method

Under Simple Random sampling method were used for this study.

Statistical test used:

Following test are applied depending on hypothesis statement:

1. Correlation test is used as there are grouping variable.
2. one way ANOVA is used .

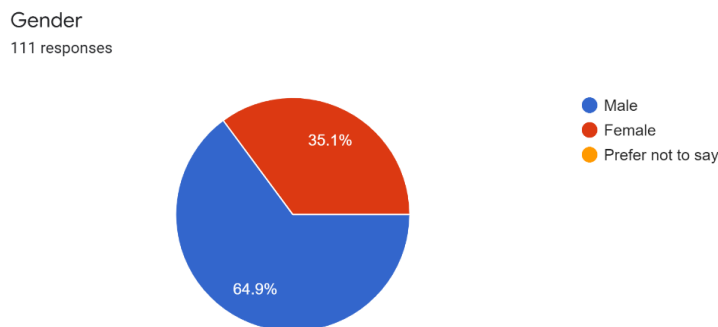
Data collection

Primary data is used for this study.

Questionnaire were designed according to different variable.

DATA INTERPRETATION AND ANALYSIS

Gender

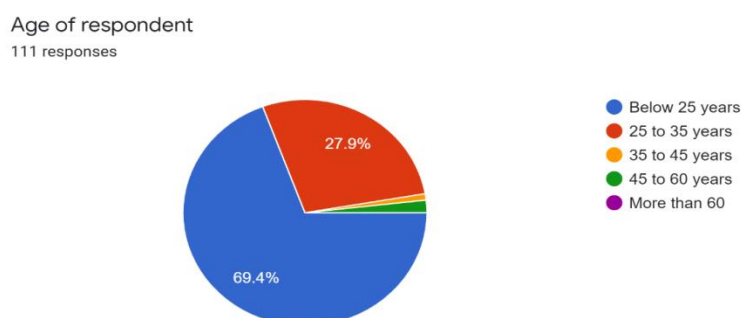


Table

gender	Frequency
male	65
female	32
other	2

From the above, it can be seen that out of 111 respondents, 65 respondents are in male group 32 respondents are in the female group 2 respondents are in the other group..

Age



Table

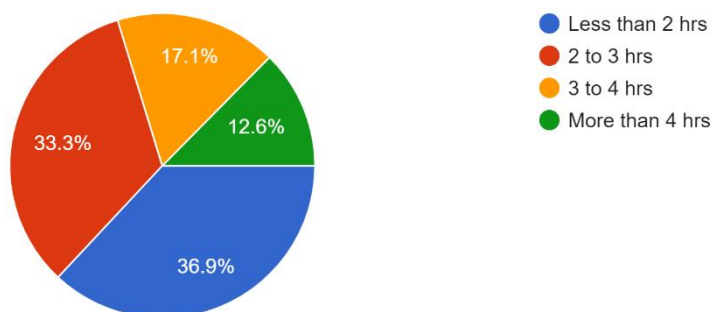
Age Group	Frequency
Below 25 years	69.4%
25-35	27.9%
35-45	2%
50 & Above	2%

From the above, it can be seen that out of 111 respondents, 69.4 respondents are in the age group of below 25 , 27.9 respondents are in the age group of 25-35, 2 respondents are in the age group of 35-45, and 2 respondents are in the age group of 50 & above.

Time spent on Social media

How many hours per day do you spend on social media?

111 responses



Table

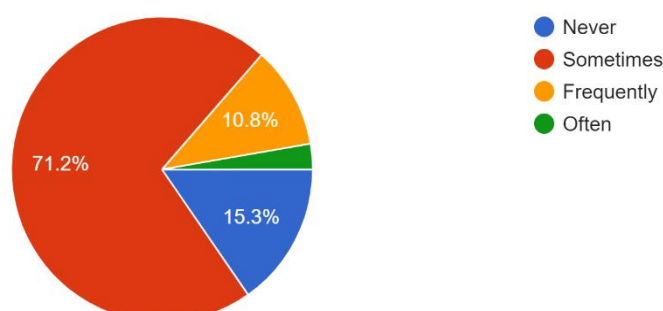
hours	Frequency
< 2	36.9
2 to 3	33.3
3 to 4	17.1
4<	12.6

From the above, it can be seen that out of 111 respondents, 36.9 respondents are in the group of less than 2 hours, 33.3 respondents are in the group of 2-3, 17.1 respondents are in the group of 3-4, and 12.6 respondents are in the age group of more than 4

4.. Social media analysis

How often do you comment or share your view about the activities on social media?

111 responses



Table

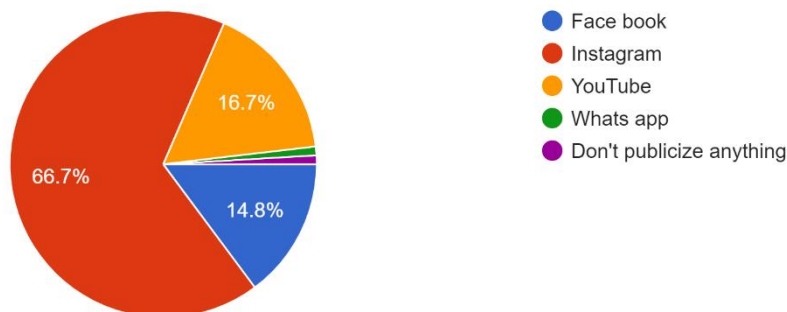
variance	Frequency
never	15.3
sometimes	71.2
frequently	10.8
often	3.7

From the above, it can be seen that out of 111 respondents, 15.3 respondents are in the group of never , 71.2 respondents are in the group of sometimes, 10.8 respondents are in the group of frequently , and 3.7 respondents are in the group of often .

Platforms Of Social Media Used

How do you publicize a particular brand among the network on social media?

108 responses



Table

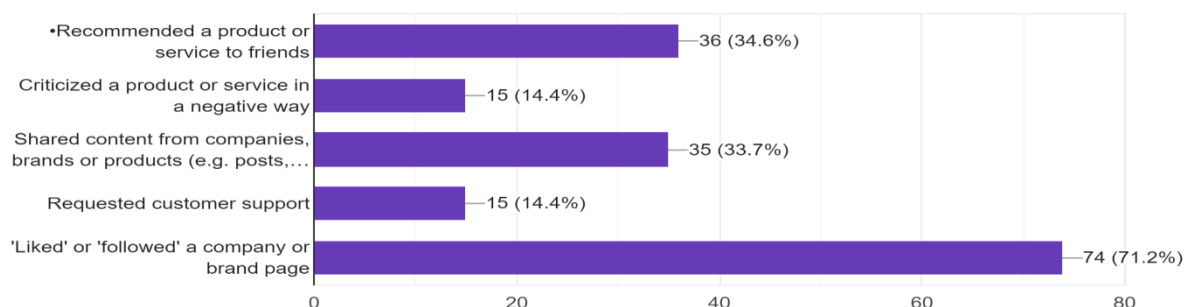
Social media	Frequency
Face book	14.8
Instagram	66.7
Youtube	16.7
whatsapp	1.2
nothing	0.2

From the above, it can be seen that out of 111 respondents,14.8 respondents are in the group of facebook , 66.7 respondents are in the group of Instagram , 16.7 respondents are in the group of youtube, and 1.2 respondents are in the group of whatsapp rest 0.2 for no publicizing

Survey of 30 days

In the past 30 days, have you done the following activities on social media?

104 responses



From the above, it can be seen that out of 111 respondents, 34.6 % respondents are in the group of product recommendation from people , 14.4% respondents are in the group of negative publicity, 33.7 % respondents are in the group of shared content from companies , and 14.4 % respondents are in the group of coustemer support and lasty 71.2% fall under liked and following brand category .

Limitations of the Study

The study has few number of limitations although the results are interesting and re-enforce the past studies. Among the limitations of this study is the use of observation to the influence of brand image to purchase behavior and observe mediating role of brand trust to the relationship of brand image with purchase behavior at once. In the other side, the respondent of this research is the students of Islamic private universities while Islamic values itself is existed in broaden sector. Indeed, the results of this study is hardly generalized to other industry sector in the other sectors as well.

DATA INTERPRETATION AND ANALYSIS

Descriptive Analysis

Parameters for Analysis	Independent Variable			Dependent variable
	Social Media Platforms	Brand Ambassadors	Brand advocate (I.e., Brand Recommdation Through Social Media)	Consumer Satisfaction
Sum	484	463	454	492
Count	114	114	114	114
Minimum	1	1	1	1
Maximum	5	5	5	5
Range	4	4	4	4
Mean	4.245614035	4.061403509	3.98245614	4.315789474
Median	4	4	4	4
Mode	5	5	4	5
Standard Deviation	0.822505836	0.975894441	0.917495219	0.787131027
Sample Variance	0.682502717	0.960798013	0.849247011	0.625058221

The mean value of different Social Media Platforms is 4.24 and the mean of Brand Ambassadors is 4.06 and the average or mean value of Brand advocate (I.e., Brand Recommdation Through Social Media) Through Social Media is 3.98 and the mean of Dependent variable Consumer Satisfaction is 4.31. The standard deviation different Social Media Platforms is 0.82, Brand Ambassadors is 0.97, Brand advocate is 1.05, and the standard deviation is Consumer Satisfaction 0.78 also The Sample variance are for different Social Media Platforms is 0.68, Brand Ambassadors is 0.96, is 0.84, and the standard deviation is Brand advocate 0.62.

Inferential analysis

Correlations Analysis

Correlations

		platforms	Ambassadors	Recommondaction	Satisfaction
platforms	Pearson Correlation	1.000	.616	.604	.459
	Sig. (2-tailed)		.000	.000	.000
	N	115	115	115	115
Ambassadors	Pearson Correlation	.616	1.000	.489	.515
	Sig. (2-tailed)	.000		.000	.000
	N	115	115	115	115
Recommondaction	Pearson Correlation	.604	.489	1.000	.432
	Sig. (2-tailed)	.000	.000		.000
	N	115	115	115	115
Satisfaction	Pearson Correlation	.459	.515	.432	1.000
	Sig. (2-tailed)	.000	.000	.000	
	N	115	115	115	115

The correlation between Platforms (Social media platforms) and Ambassadors (Brand ambassadors) remains 0.616 which implies there is positive relationship between these two variables and conclude that strong correlation. The correlation between Platforms (Social media platforms) and brand recommendation (i.e., Brand advocate through social media) is 0.604 this is strong positive relationship between these variables. The correlation of Platforms (Social media platforms) and satisfaction (consumer satisfaction) is 0.459 this is moderate relationship but less positive than others variables the correlation between Ambassadors (Brand ambassadors) and brand recommendation (i.e., Brand advocate through social media) is positive 0.489. Between Ambassadors (Brand ambassadors) and satisfaction (consumer satisfaction) is 0.515 which implies there is positive relationship but less positive than the others variables brand recommendation (i.e., Brand advocate through social media) and (satisfaction) consumer satisfaction is Positively correlated and the value is 0.432. Correlation between Platforms (Social media platforms) and Platforms (Social media platforms) is equal 1 same for Ambassadors (Brand ambassadors) brand recommendation (i.e., Brand advocate through social media), and (satisfaction) consumer satisfaction correlation among themselves

Satisfaction By platforms

ANOVA					
Satisfaction towards Different Social media platforms					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	12.26	4	12.491	7.52	.0004
Within Groups	55.84	110	189.264		
Total	71.10	114			

Interpretation: The above table shows that there is change in the satisfaction of customers towards use of Different Social media platforms in Post covid-19 according to gender. Due to changes in satisfaction level of customers of Faculties towards use of Different Social media platforms in Post covid-19 according to Gender, the calculated p-value Qualification.

Due to changes in perception of customers towards use of Different Social media platforms in Post covid-19 according to Qualification, the calculated p-value (sig value) of F-test is 0.0004. It is less than standard p value 0.05 (5% level of significance). Therefore, F test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant difference in the satisfaction level of customers of Faculties towards use of Different Social media platforms Post covid-19 according to Gender.

Satisfaction By Brand ambassadors

ANOVA					
Satisfaction towards Brand ambassadors					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	25.96	4	6.49	15.82	.0056
Within Groups	45.13	110	0.41		
Total	71.10	114			

Interpretation: The above table shows that there is change in the satisfaction of customers towards use of Brand ambassadors in Post covid-19 according to Gender. Due to changes in satisfaction level of customers of Faculties towards use of Brand ambassadors in Post covid-19 according to Gender, the calculated p-value Qualification.

Due to changes in perception of customers towards use of Brand ambassadors in Post covid-19 according to Qualification, the calculated p-value (sig value) of F-test is 0.0056. It is less than standard p value 0.05 (5% level of significance). Therefore, F test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant difference in the satisfaction level of customers of Faculties towards use of Brand ambassador's Post covid-19 according to Gender.

Satisfaction By Brand advocate

ANOVA					
Satisfaction towards Brand advocate					

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	16.91.	4	4.49	8.58	.036
Within Groups	54.13	110	0.49		
Total	71.10	114			

Interpretation: The above table shows that there is change in the satisfaction of customers towards use of Brand advocate in Post covid-19 according to Gender. Due to changes in satisfaction level of customers towards use of Brand advocate in Post covid-19 according to Gender, the calculated p-value Qualification.

Due to changes in perception of customers towards use of Brand advocate in Post covid-19 according to Qualification, the calculated p-value (sig value) of F-test is 0.036. It is less than standard p value 0.05 (5% level of significance). Therefore, F test is rejected. Hence null hypothesis is rejected and alternate hypothesis is accepted.

Conclusion: There is significant difference in the satisfaction level of customers of Faculties towards use of Brand ambassador's Post covid-19 according to Gender.

CONCLUSION

It is concluded from the study that, during this Post covid-19 (post covid-19), the Brand image have the customer satisfaction for Different social media platforms, i.e., Communication on social media (post engagements, reactions), Brand advocate (i.e., brand recommendation through social media) and Brand ambassadors can add more variation they are creating significance difference at early stage post covid, etc.

There isn't any doubt that social media community is influencing the Satisfaction Level of customers which shifted the clients from buying at marketplace or shopping center to e-buying at a few extents. These e-buying choices are decided via way of means of the employer elements, demographic elements of the clients and technological environment. Social media have opened a brand-new possibility for entrepreneurs to recognize the actual want of the clients and supply the goods or offerings assembly up the expectancy at most excellent level. On the alternative hand, clients declare that they may be exploited via way of means of presenting the replica of the well-known brand, charging an exceptionally better fee than the marketplace going fee and they may be now no longer refunded in case of dishonest via way of means of entrepreneurs. Sometimes it isn't always feasible to discover the markers who behavior commercial enterprise seasonally or occasionally. Since the clients opt for buying via social media networks, the policymakers must installation a few guidelines and rules for making sure the betterment of the clients and affordable income for the businessmen.

SUGGESTION

We suggest that In this digital era any organization must have social media account it should be maintain in such way that consumer should be attracted towards the product.

1. If company wants to develop brand image through social media at its initial stage customers satisfaction is important if customer is satisfied it will lead to Brand advocate (i.e., brand recommendation through social media)
2. There is an influence of various social media platforms (Facebook Twitter linked in what's app YouTube Instagram etc.) in creating and adding value to the brand image. Social media platform helps in communicating with the consumers and taking feedback from them about the product very easily
3. The Role of brand ambassadors in creating the initial branding of the product through social media

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HEALTH AND SAFETY IN THE WORKPLACE- AN ETHICAL PERSPECTIVE

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ABSTRACT

Ethical issues in business affect a variety of aspects related to business general operation standard and ethics for your business will help you to create trust between the organisation and the employee, clients, suppliers etc.

The regulations stipulated by the occupational safety and health administration (OSHA) refers to programs, guidelines and procedures that protect the safety and health of any person engaged in work or employment.

Health and safety program are also called as Occupational health and safety program or safety management system. The aim goal of health and safety program is to create the safe working environment to employees and to reduce the risk of injuries, accident, death etc.,

Employee have a right to safe working condition in an organisation. When health and safety procedure are correctly followed, they can prevent accidents, injury and reduce the risk of employee illness and which will reduce the employee absenteeism and sick leave.

Large or small company it doesn't matter all the company face workplace danger that threaten their health and safety of the employee. It is very important in organisation to protect the employee by providing health and safety training as well as make sure that the training is updated on the regular basis.

The main objective of this research paper is to understand the health and safety procedures in the workplace and to analyse employee's perception of health and safety measures.

To ascertain the availability of safety equipment in the workplace and provide suggestion to improve health and safety within workplace and health and safety measures to taken during covid-19 pandemic.

In this study descriptive research is adopted. For this study 200 employees from various Organisations and Industries have given the information to complete the survey which was done through 'Google Form'.

Area choose for the research was Chennai city.

This study has revealed that organisation has provided various health and safety measures to employees and they also follows health and safety procedure in the organisation.

The organisation addressed the health and safety issues with great concern. The Employees perceived the measures to be satisfactory and more efforts need to be taken in this regard.

The research paper had made an effort to study the employee health and safety and procedure followed in the organisation and how the organisation had handle or take measure during covid-19 pandemic to safeguard the employee's health and safety.

Keywords- Employee health and safety, Covid-19pandemic, Safety procedure and workplace.

INTRODUCTION-

Every year lakhs of employees and workers are getting injured, death and Chemical hazards which also lead to partial disability or complete disability. In recent years a light flashed and attention was given to health and safety due to pressurize given from the Government, trade union, awareness of employers and Labour laws. Workplace health and safety mean to protect workers, family members, customer and other who will be affected by the workplace environment. Many people die as a result or workplace-related accidents or diseases. Employers have a common law duty to take reasonable care of the safety of their employees. A health and safety program their aim is to prevent workplace injuries, death, illnesses and financial hardship these events can cause for workers, their families and employers. It is very important that organization follows the safety and health procedures they can help to prevent accident and reduce illness, injury and successful occupational health and safety practice it requires participation of the both employers and workers in health and safety program it involves safety, industrial hygiene etc. Covid-19 pandemic has caused drastic changes in many industries and IT sectors the spread of this deadly virus has bought changes in these sectors like employee to work from home avoid covid-19 spread among employees. Later Covid-19 reduced government announced to open IT sector and

Industries with 50% of employee & worker it is responsibility of management to ensure the health and safety of the employees during covid-19 and providing worker by providing mask, sanitizer, regular temperature checkup and instruct the employee to maintain social distancing in workplace

NEED FOR THE STUDY-

Health and safety is very important to protect the employee. Employers have a responsibility to ensure the health and safety of employees in the workplace. They have to set the protocols and make sure the workplace is compliance with standards. Employers must give the information to employee about the risks in the workplace and give instruction and how to deal with these work place. The need for study is to understand the health and safety procedures in the workplace and to analysis the level of satisfaction of employee regarding health and safety in workplace and to study health and safety measures taken during covid-19 pandemic

NATIONAL POLICY ON SAFETY, HEALTH AND ENVIRONMENT AT WORK PLACE BY GOVERNEMENT OF INDIA

- Government of India firmly believes that without safe, clean environment as well as healthy working condition, social justice and economic growth cannot be achieved and that safe and healthy working environment is recognized as a fundamental right, Education, Training are essential for prevention and promotion of such measures.
- The fundamental purpose of this National policy on safety, health and environment at workplace, is not only to eliminate the injuries, diseases, disaster and loss of national assets and environment performance through proactive approaches but also to enhance the well-being of the employee at large. The necessary changes in this area will be based on a co-ordinated national effort focused on clear national goals and objective.
- The formulation of policy, priorities and strategies in occupational safety, health and environment at work place is undertaken by national authorities in consultation with social partners for fulfilling such objectives. A critical role is played by the government and the social partners, and health organization is ensuring prevention and in also providing treatment, support and rehabilitation services.
- The changing job patterns and working relationship, the rise in self-employment, greater sub-contracting, outsourcing of work, homework and the increasing number of employees working away from their establishment, problem to management of occupational safety and health risk at workplace. New safety hazards and health risks will appear along with the transfer and adoption of new technologies. Many of the well-known conventional hazards will continue to be present at the workplace till the risks arising from exposure to these hazards and brought under adequate control. Advancement in technology have minimized or eliminated some hazards at workplace, new risks can emerge in their place which needs to be addressed.
- They provide a statutory framework on occupational safety and health in respect of all sectors of industrial activities including the construction sector, enforcement and incentives for better compliance.
- Providing a system of incentives to employers and employees to achieve higher health and safety standards.

WHAT IS HEALTH AND SAFETY?

Health and safety mean the laws, rules and principle that are intended to keep people safe from injury or disease at work and in public places and health and safety is a vital part of a successful business.

TYPES OF WORKPLACE HAZARDS-

- ✓ **CHEMICALS HAZARDS-** Chemicals which are stored and not used not used they can lead to injury, even fire or even explosions may harm the workers by contact with the skin or inhalation so to prevent the chemical hazards from ensure that employer and employee are properly trained includes WHMIS (Workplace hazardous materials information system, MSDSs (Material data sheets).
- ✓ **PHYSICAL HAZARDS-** Physical hazards are those activities which threaten the safety. The common hazards are air quality, radiation or noise which lead cause injury, illness and death. Company should ensure that the right equipment, training is provided to worker and maintain the procedure.
- ✓ **ERGONOMIC-** Ergonomic hazards are present in office environment to construction sites. Which includes injuries, strains by lifting, pulling or standing for long time, shift timings. Organisation must ensure that employees are comfortable to do their jobs and to reduce stress of employee by providing counseling to help deal with stress and make them do some exercises to prevent musculoskeletal disorders.

- ✓ **WORKPLACE HAZARDS-** Workplace hazards mean organisation should make sure that there is proper ventilation, proper spaces are given to work and workers in workplace should get regular safety training and have strict safety procedures.

FEW TYPES OF ACCIDENTS-

- **SLIP AND FALLS-** Slip and fall includes wet floors and icy surfaces or uneven walking surface which lead to severe injuries like broken bones, spinal cord etc. Employers should train and equip staff to clean up spills and clean the floors regularly.
- **FALLS FROM HEIGHTS-** Construction workers face the risk of falling from stairways, platforms, ladders or scaffolding. Safety training and employee diligence can also reduce injuries.
- **REPETITIVE STRAIN-** Repetitive injuries have become increasingly common amongst employees who tend to complete the task again and again on daily basis. If an employee type for hour every day may likely to suffer from back pain.

GUIDE TO HEALTH AND SAFETY IN THE WORKPLACE-

The guide aims to raise awareness of your Employer's Duties and rights & responsibility of Employee so that you can have a safe and healthy workplace-

❖ EMPLOYER'S DUTIES-

1. Maintain, design and provide workplace which are safe working condition and without risk to health.
2. Identify the workplace hazards take right measure to control or avoid risks.
3. Provide first aid facilities in workplace if some injuries happen immediately we can provide first aid until the appropriate medical personnel arrives.
4. Ensure that safe working practices are developed and well implemented.
5. Ensure that proper ventilation, temperature, lighting, toilet, washing and rest facilities meet the standard of health, safety and welfare sought by the statutory bodies.
6. Provide Protective clothing, glass while working and appropriate warning signs should be provided.
7. Ensure that equipment is provided and is regularly maintained.
8. Take Necessary Precaution actions against the risk caused by the explosive hazards, dust, noise and radiation etc.
9. Provide training, information and instruction to employee to deal with accidents and emergencies.

❖ EMPLOYEES RIGHT & RESPONSIBILITIES-**Rights-**

1. To select safety representatives a part of this consultation with your employer.
2. The right to know about the health and safety in the workplace.
3. The right to refuse the work which could affect the health and safety of the person.

Responsibilities-

1. Employee responsibilities is to participate in appropriate training which is provided by the company.
2. While working in place make a proper use of protective equipment like Caps, Shoes, Gloves etc.,
3. It is responsibility of employee to tell your employer regarding health-related issues that affect your work performance.

OBJECTIVE OF THE STUDY-

- To understand the health and safety procedures in the workplace.
- To ascertain availability of safety equipment in the workplace.
- To analyse employee's perception of health and safety measures.
- To study health and safety measure taken during covid-19 pandemic

LIMITATION OF THE STUDY-

- The study is conducted only in Chennai and the questionnaire was distributed in the same geographical location
- Out of large population the study is restricted only to 200 respondents.
- The report was designed on the belief that information provided by the respondents is correct.

RESEARCH METHODOLOGY-

The study was descriptive in nature and survey was used to complete the study. An account of the nature of data used in sample design and the framework of statistical analysis is given below.

NATURE OF THE DATA:

This study uses only primary data.

PRIMARY DATA:

A well-structured questionnaire with closed ended question was used to collect data from respondents.

SAMPLE DESIGN:

This study was conducted with in Chennai city.

SAMPLE POPULATION:

The population of the study was employee working in IT sector and industries.

SAMPLE TECHNIQUE:

Convenient sampling technique was used to select the sample.

SAMPLE SIZE:

The sample size of the study is 200 respondents from employee working in IT sector and industries.

TOOLS USED FOR DATA ANALYSIS:

Excel was used to analyse the results, statistical tool used for analyzing data is percentage analysis and weighted average scores.

DATA ANALYSIS AND INTERPRETATION-

1. TABLE 1.1- Safety meeting held in your workplace

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Every week	28	14%
Every month	78	39%
Every two month	89	44.50%
Not regularly held	5	2.50%
TOTAL	200	100%

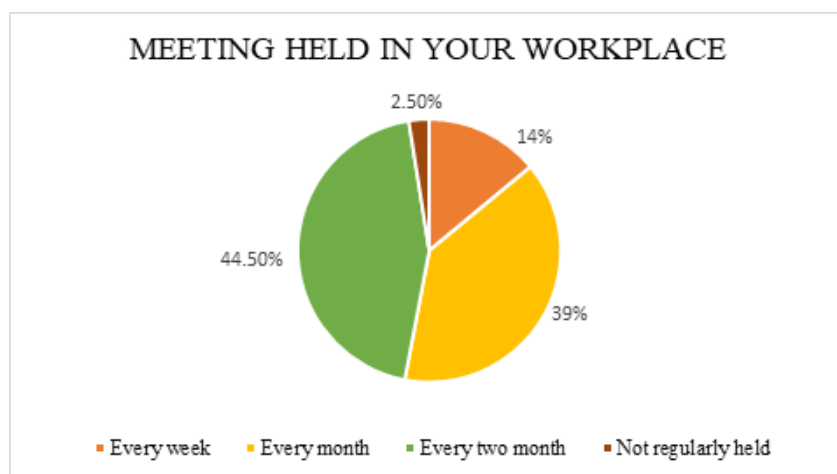


Table 1.1 and Figure 1.1 reveals that the majority 44.50% of the respondents say that every two month they conducted safety meeting held in workplace, 39% of the respondents that conduct safety meeting every month, 14% of the respondents say that they conducted safety meeting every week and 2.50% of the respondent say that they not regularly held meeting in the workplace.

2. TABLE 1.2 Sufficient first aid equipment in workplace

PARTICULAR	NO OF RESPONDENTS	PERCENTAGE
YES	153	76.50%
NO	47	23.50%
TOTAL	200	100.00%

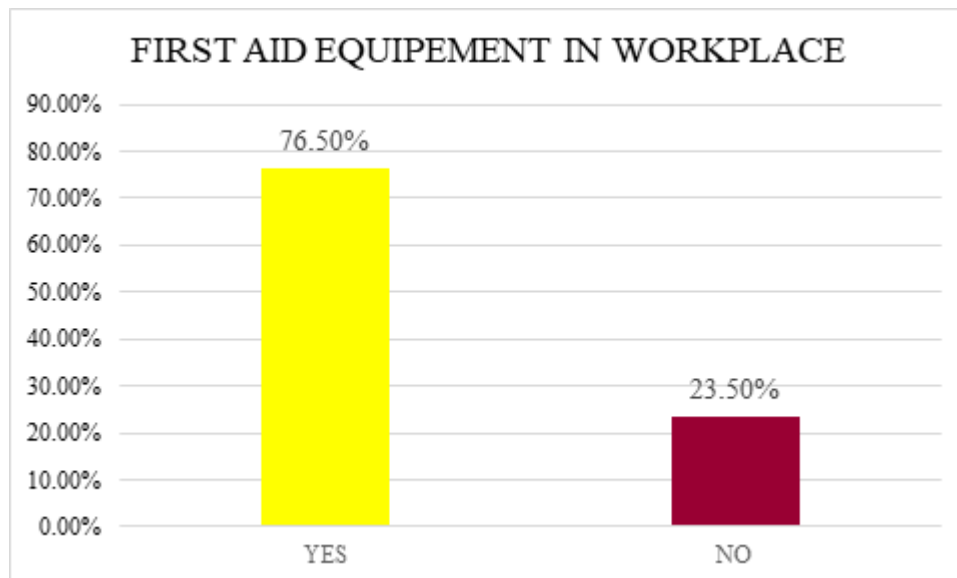


TABLE 1.2 and FIGURE 1.2 reveals that majority of respondent that 76.50% say YES that they have sufficient first aid equipment in workplace, and 23.50% says NO that they don't have sufficient first aid equipment in their workplace.

3. TABLE 1.3 Purpose of the Health and Safety Act

PARTICULAR	NO OF RESPONDENTS	PERCENTAGE
Protect workers	76	38%
Establish procedure for identifying and dealing with workplace hazards	85	42.50%
Enforcement for Non-compliance	23	11.50%
All the Above	16	8%
TOTAL	200	100%

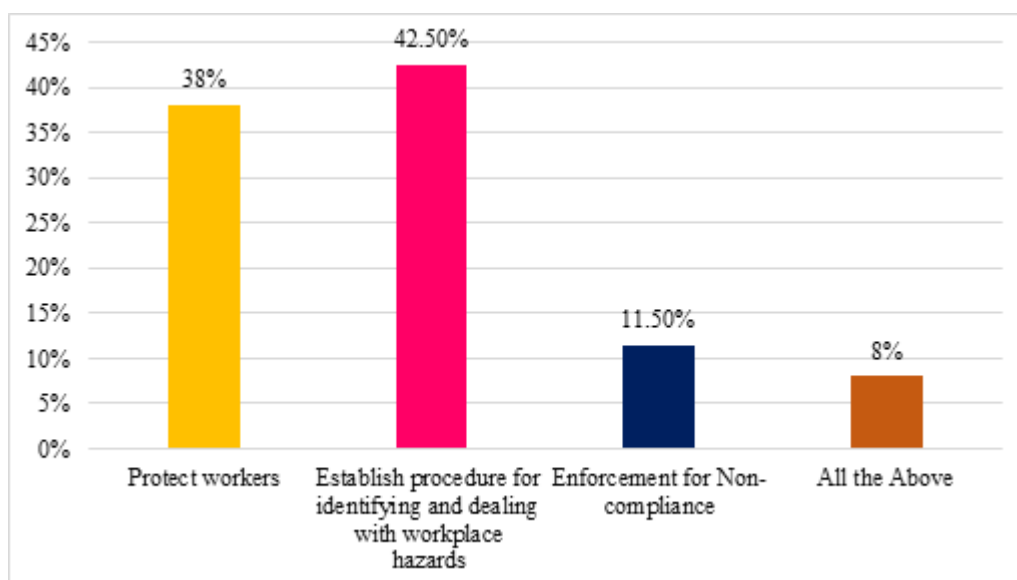


TABLE 1.3 and FIGURE 1.3 reveals that 42.50% of respondent say that purpose of health and safety Act is to establish procedure for identifying and dealing with workplace hazards, 38% of the respondent say the purpose of health and safety Act is to protect the workers, 11.50% of the respondent say that Enforcement for Non-compliance and 8% of the respondents say that the purpose of the health and safety is all the above.

4.TABLE-1.4 Effective of the health and safety department

PARTICULAR	NO OF RESPONDENTS	PERCENTAGE
Excellent	27	13.50%
Good	70	35%
Satisfactory	89	44.50%
Poor	10	5%
Very poor	4	2%
TOTAL	200	100.00%

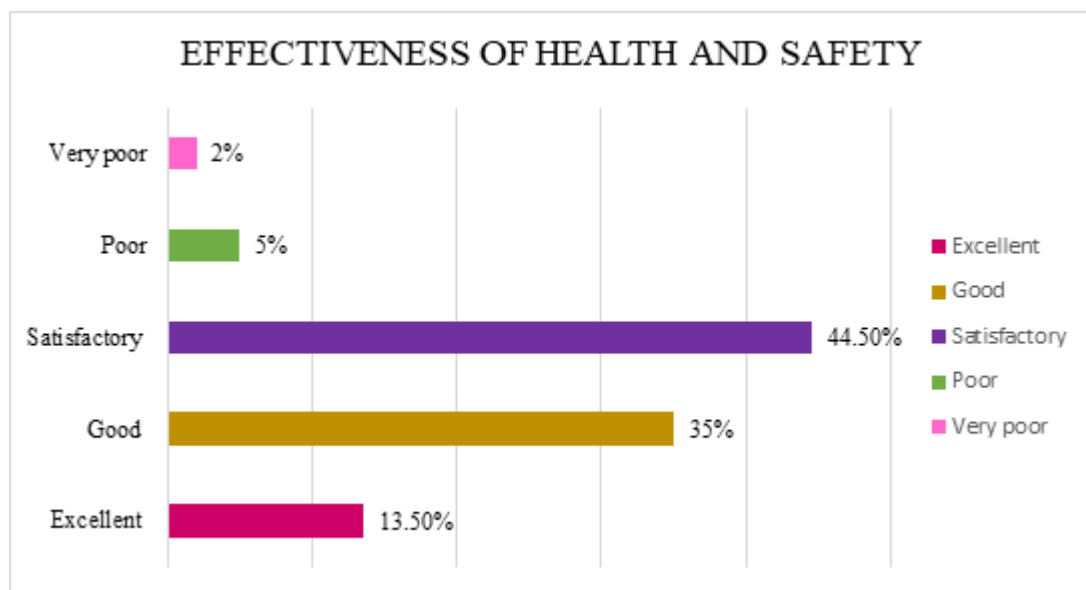


TABLE 1.4 and FIGURE 1.4 reveals that 44.50% of the respondents says that they are satisfactory with the health and safety department in the workplace, 35% respondents says that Good effectiveness of the health and safety department in the workplace, 13.50% respondents says that health and safety department in the workplace is excellent, 5% of the respondent says that health and safety department in the workplace is Poor and 2% of the respondents say that the effectiveness of the health and safety department in the workplace is very poor.

FINDINGS-

- Around 75% respondents accept that they have safe working place.
- Many respondents 80% of the respondents are strongly agree that initiative's taken in workplace regarding cabs drops during night shift and if they work till late night
- Around 79% of the respondents says that they conduct workshop on stress management etc.
- 68 % people say that they have a safety representative in their organisation and remaining 32% that they do not have a safety respondent.
- Around 84% of the respondent Strongly Agree that workplace health and safety is considered extremely important.
- Majority of the respondent 88% say that they provide PPE (Personal Protective Equipment) like clothing, helmets, goggles and other garments to protect from getting injury or infection.
- Around 68% of the respondents say that health and safety procedures are clearly communicated.
- Majority 77% of the respondents says that proper spacing and ventilation are maintained in industries.

- Many organization's around 89% respondent say they have taken a health and safety measure during covid-19 crises.
- 1. Providing masks and sanitizers, distancing maintained at work areas etc
- 2. Temperature check-up morning as well as evening
- 3. Avoidance of gathering in groups
- 4. Employee are doing their work from home as to protect the safety of employee.

SUGGESTIONS-

1. Conduct regular meeting regarding health and safety in the workplace
2. Conduct stress management workshops to employee to get relief from work stress.
3. Provide training programmes to the new employee regarding instruction and guidelines to be followed in the workplace and industries
4. Improve Communication between managers and employees & workers are important because if any problem regarding workplace they easily communicate with the people.
5. Warning signs should be placed in the workplace at appropriate locations.
6. Appoint safety officer to perform health and safety duties in the workplace.

CONCLUSION-

Health and safety are considered extremely important. They must ensure that employees are working in safe surrounding's. Health and safety are the key factor for all the industries/IT sector in order to promote the wellness of both employees and employer. It is duty and moral responsibility of the company to look after the employee's protection. These is very important to protect the employee and establish procedure for identifying and dealing with workplace hazards and to eliminate workplace injuries, death and exposure of hazardous substances. Due to covid-19 various measure has been taken from management to avoid spread of virus and to safeguard the employee's health and safety by providing mask & sanitizer and avoidance of gathering in groups and maintain social distancing also conducting covid-19 medical camp for employees. The paper has covered health and safety procedures in the workplace and to ascertain availability of safety equipment in the workplace and to know the health and safety measure taken during covid-19 pandemic. It is important for Industry & company to follows the procedure and guidelines which is provide by the government to protect health and safety of employees.

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**A STUDY ON SOURCES OF OCCUPATIONAL STRESS AND THEIR COPING MECHANISMS
AMONG UNIVERSITY TEACHERS IN MADURAI DISTRICT**

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ABSTRACT

The rate at which change is occurring in today's world is both overwhelming and breath-taking. In today's fast-changing world, no one is stress-free, and no career is stress-free. Everyone, whether in the family, business, organization, school, employment, or any other social or economic activity, endures stress. Although stress has become a major worry in everyone's life, everyone still wishes to live a stress-free life. Stress is a difficult subject to avoid. People's stress levels are often influenced by the type and demands of the environment in which they live. As a result, teachers, engineers, surgeons, managers, and people in other professions are exposed to a variety of stressors to varying degrees. Because they assist society, the professional function is incredibly demanding. Teachers' stress has become a topic of professional concern, but no large-scale studies on teacher stress have been conducted. Teacher stress is defined as an unpleasant negative emotion experienced by a teacher as a result of some part of their employment, such as anger, frustration, anxiety, despair, or anxiousness.

Keywords: overwhelming, stress-free, endures stress, employment, frustration, anxiety, despair, or anxiousness.

INTRODUCTION

Every person's day-to-day life is filled with stress. We commonly believe that stress is generated by external events and environmental dynamics. However, we must stress that stress is created by our response to the external world. The reaction is determined by how we perceive and comprehend changes or a specific occurrence. Depending on how two people react to the identical incident, it can bring them joy or cause them stress.

Occupational stress is a type of stress that occurs during work. Workplace stress is a relatively recent phenomenon in today's world. The nature of labor has changed dramatically over the last century, and it continues to evolve at breakneck speed. From an artist to a surgeon, from a commercial pilot to a sales executive, it has affected practically every profession. Change inevitably brings stress, and professional or job stress can be harmful to one's physical health. As a result of work-related stress in the lives of organized workers, organizations' health suffers.

Stress is an inherent part of life and the workplace. It is the body's broad, non-specific response to any demand placed on it. Occupational stress is defined as physical, mental, and emotional wear and tear caused by a mismatch between the job's requirements and the employee's capabilities, resources, and needs to meet those expectations. Workplace stress is pervasive and intrusive.

Stress has now become a source of concern for people in all types of jobs. However, there is no denying that some occupations have suffered worse than others. Several studies have found that individuals who engage in high levels of personal connection, such as nurses and teachers, are more sensitive to occupational stress and professional "burnout" than those who work in product-oriented firms. People working in the volunteer sector and in education were found to be the occupational groups most impacted by occupational stress, according to a poll performed by the Trade Union Congress (TUC, 1996). High levels of stress are frequently found in studies of the teaching profession, which appear as weariness, anxiety, sadness, irritability, and elevated levels of stress-related illness. Teachers had much worse mental health than other highly stressed professional groups, according to Travers and Cooper (1991).

OCCUPATIONAL STRESS AMONG THE TEACHERS

With a focus on faculties and within the broader concept of occupational stress, Kyriacou and Sutcliffe defined stress as a negative effect (such as anger or depression) by a teacher that is usually accompanied by potentially pathogenic physiological and biochemical changes (such as increased heart rate or the release of adrenocorticotrophic hormones into the blood stream,

Occupational stress is defined as a negative physical and emotional response that arises when a worker's capabilities, resources, or needs do not match the demands of the job. Occupational stress can cause health problems and even damage.

Occupational stress is caused by the working conditions and environment of the system in the workplace. The researcher must limit their field of investigation because it is tough to narrow the region of inquiry in employee stress.

The reaction of an individual to a troubling issue in the workplace is referred to as occupational stress. It is defined as an organizational participant's adaptive response to an external event that results in physical, psychological, and/or behavioral abnormalities.

Occupational stress can take on both good and bad characteristics. When a circumstance presents an opportunity to gain something, occupational stress is said to be beneficial. The term "eustress" is used to denote good stress. Eustress is frequently considered as a motivator since, without it, an individual lacks the 'edge' required for top performance. When stress is linked to heart disease, alcoholism, drug misuse, marital breakdowns, absenteeism, child abuse, and a variety of other social, physical, organizational, and emotional issues, it is considered undesirable.

Constraints and demands are linked to workplace stress. The former keeps a person from doing what he or she wants. The latter refers to the loss of a sought object. The desire to possess a new Maruti Car but the inability to raise the necessary funds is a barrier. A demand is defined as a desire to attend a social function but being unable to do so due to pressing official obligations. When constraints and demands are combined with a high level of ambiguity about the outcome, occupational stress is a possibility.

Occupational stress is usually divided into two categories. Internal or external stimuli events that produce a response are referred to as stressors and stress responses. Internal stresses include thoughts and feelings, whereas external stressors include noise and interpersonal interactions. A complex reaction to a stressor is the stress response. Physiological, cognitive, and/or behavioral components are generally present.

Workplace stress can be caused by either work-related or personality-related issues. Occupational stress is defined as a mismatch between a person's skills and abilities and the demands of his or her profession, or a mismatch between a person's requirements and the environment in which he or she works. Cooper and Marshall (1976) define occupational stress as "environmental elements or stressors connected with a particular job, such as work load, role conflict, role ambiguity, and bad working conditions." Regardless of how stressful one's job is in comparison to another, it's important to remember that every profession has potential.

Travers and Cooper (1991) identified work-related sources of occupational stress. It should be noted that, while the sources are common to all employment, the degree to which they are discovered to be informally linked to stress in each work varies.

Definitions of what occupational stress is are crucial, but what happens to an individual who is experiencing occupational stress is also significant. The emotional response, the bodily response, and the behavioral response are the three components of the stress experience.

CAUSES OF STRESS

Occupational stress can result from a variety of factors. The following are some of the most evident sources of workplace stress:

- Inhumane working conditions
- Lengthy hours of work
- Collaboration with coworkers
- Insecurity in the workplace
- Long commutes to and from work
- The organization's management style
- A misalignment between the job's requirements and your own strengths and needs
- A lack of flexibility in working hours
- Taking on too much or not enough responsibility

NEED FOR THE STUDY

Individuals who enter the teaching profession become professionals. They choose occupations, and then professionalize themselves, and thus they find themselves at odds. Furthermore, teaching positions are designed in such a way that a person is subjected to both overload and severe time constraints at the same time. People who are stressed frequently express their dissatisfaction in a variety of ways, including excessive criticism of the government and management, as well as a demonstrated difficulty to get along with others. A basic comprehension of this behavior in college faculties improves one's understanding of individuals and groups by providing certain principles. These concepts aid in the recognition of distress symptoms and the type of behavior to be predicted, allowing actions to be made to intentionally change the environment to elicit expected responses.

Individual performance in the education sector, however, cannot be quantified as precisely as in the teaching field, therefore such individual behavior cannot be easily discovered. Stress symptoms take a long time to manifest. When it explodes, it impacts not only the individual involved, but also coworkers through strained interpersonal relationships, and eventually the kids' education, which is at the heart of the education department's performance. As a result, the current study focuses on occupational stress events and their perceived impact on college lecturers. The researcher attempted to investigate occupational stress among instructors in Madurai Kamaraj University's arts and science colleges.

STATEMENT OF THE PROBLEM

There are some beneficial and negative implications in the education sector, particularly higher education, as a result of the adoption of the concept of self-financing colleges in Tamilnadu. The favorable outcomes are a poor quality of life for employees at these organizations due to employment insecurity, low pay, poor fringe benefits, and a lack of assistance programs. Faculty at these universities are dealing with serious issues surrounding their role, work, and work-life balance.

Faculty members are stressed due to an increase in clerical labor, as well as a hard workload in teaching, low recognition, favoritism, and private ownership. In the educational sector, faculty stress has an impact on not only the health of the faculty and institution, but also the quality of the next generation of students. However, due to the commercialization of education, no one, with the exception of a few managements, is concerned about these issues. It has an impact on both the quality of instruction and the production of quality citizens in India. It's becoming a bigger issue across the board in higher education.

REVIEW OF LITERATURE

Li, Quanman & Miao, Yudong & Zeng, Xin & Tarimo, Clifford & Wu, Cuiping & Wu, Jian. (2020) Between February 4, 2020 and February 12, 2020, took survey on 88611 teachers (with a response rate of 94.75%) in three cities in Henan Province, China. The Generalized Anxiety Disorder measure was used to assess anxiety (GAD-7). This large-scale study looked at the prevalence of anxiety among teachers and the factors that can influence it, which will be beneficial to international and national decision-makers.

Pandey, Naveen & Saxena, Prof. Abhay (2015) The purpose of this research study is to critically analyze the existing literature on teacher occupational stress and to explore its findings in order to produce new insights and future research possibilities. the researcher has attempted to present all of the existing literature findings in a comparative tabular manner, which will aid others in conducting more research in this topic.

OBJECTIVES OF THE STUDY

- To identify the sources of work stress among faculty members at Madurai Kamaraj University's arts and science colleges
- To practice stress management strategies employed by Madurai Kamaraj University's arts and science college faculty.

RESEARCH METHODOLOGY

The research is based on both primary and secondary data. In Madurai Kamaraj University's arts and science colleges, 100 questionnaires were handed to 100 faculties from various self-financing colleges. The percentile approach was used to examine and understand data.

ANALYSIS AND RESULTS

TABLE- 1: DISTRIBUTION ON THE BASIS OF DEMOGRAPHIC FACTORS

	Count	Percent
Below 30 Yrs	35	35.0

Age Group	31 to 40 Yrs	50	50.0
	Above 40 Yrs	15	15.0
Marital Status	Married	70	70.0
	Single	30	40.8
Qualification	M.Phil.	45	45.0
	Ph.D.	35	35.0
	Others	20	20.0
Designation	Asst. Professor	75	75.0
	Asso. Professor	15	15.0
	HoD	07	7.0
	Others	03	3.0
Experience	Upto 2 Years	43	43.0
	2 to 5 Years	44	44.0
	Above 5 Years	13	13.0
Monthly Income	Below Rs.15,000	42	42.0
	Rs.15,001 to Rs. 22,000	37	37.0
	Rs.22,001 to Rs.30,000	15	15.0
	Above Rs.30,000	06	6.0
Family Size	Upto 3 Members	52	52.0
	3 to 6 Members	31	31.0
	Above 6 Members	17	17.0
	Total	100	100.0

INTERPRETATION

According to the table above, 50.0% of respondents are between the ages of 31 and 40. 70.0 percent of respondents are married, 75.0 percent are Assistant Professors, 42.0 percent earn less than Rs.15, 000 a year, and 52.0 percent come from a family of up to three members.

TABLE- 2: DISTRIBUTION ON THE BASIS OF STRESS CREATING FACTORS

S.No.	Factors	Agree		Disagree		No Response		Total	
		Count	%	Count	%	Count	%	Count	%
1	Insecurity in the Workplace	85	85.0%	10	10.0%	05	5.0%	100	100%
2	Students' poor behavior and a bad attitude toward learning	82	82%	11	11.0%	07	7.0%	100	100%
3	Ineffective departmental leadership/management politics	68	68.0%	27	27.0%	05	5.0%	100	100%
4	lack of motivation	65	65%	30	30.0%	05	5.0%	100	100%
5	Colleagues with a negative attitude	72	72.0%	25	25%	03	3.0%	100	100%
6	Extra duty that is excessive	88	88.0%	10	10%	2	2.0%	100	100%
7	Participation in non-teaching responsibilities	76	76.0%	16	16.0%	08	8.0%	100	100%

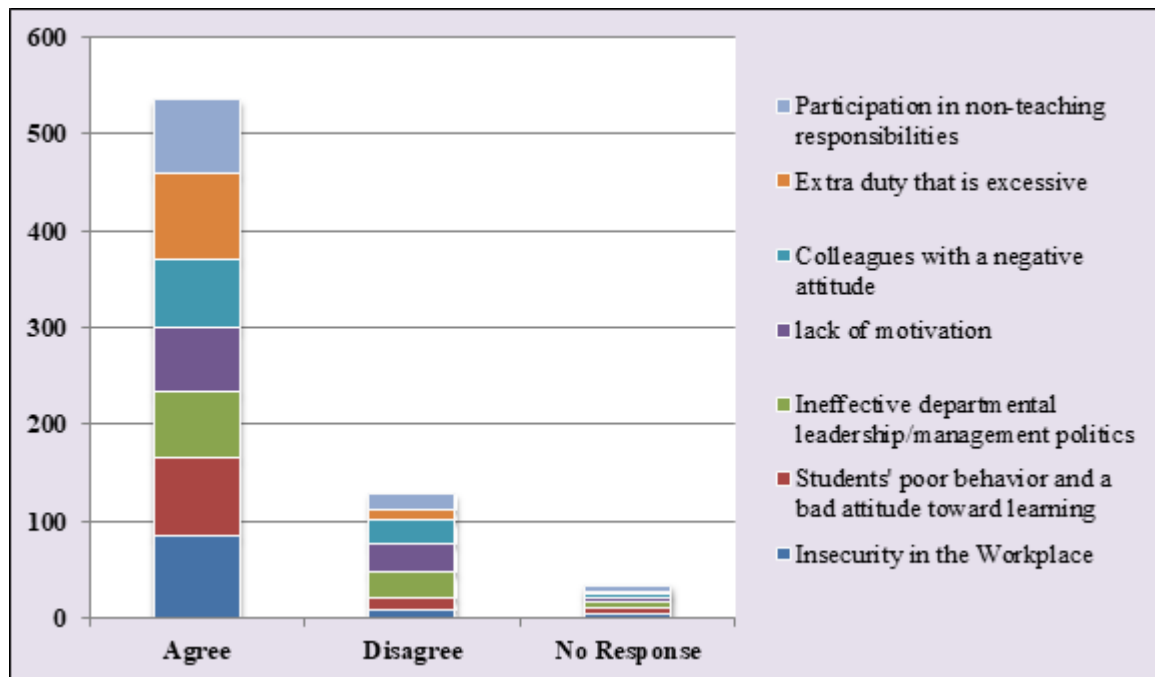


Figure- 1: distribution on the basis of stress creating factors

INTERPRETATION

Excessive Additional Duty is the cause of stress, according to 88.0 percent of respondents, according to the table above. Poor student behavior and their unfavorable attitude toward study, according to 82.0 percent of respondents, is the source of stress. Job insecurity is the cause of 85.0 percent of respondents' stress, whereas involvement in non-teaching duties is the cause of 76.0 percent of respondents' stress. Ineffective departmental leadership/management politics is cited by 68.0 percent of respondents as a source of stress. Negative Colleague Attitude, according to 72.0 percent of respondents, is the cause of stress, while Lack of Motivation, according to 65 percent of respondents, is the cause of stress.

CONCLUSION

Stress has become a modern issue, and as an occupational hazard in the field of education, it must be handled as soon as possible. When stress is recognized and appropriately managed, it may make a person creative and constructive. It is usually important to keep occupied in times of significant stress or difficulty, to channel your anger and energy into something productive. For coping with stress, a positive attitude and meditation will be beneficial. Having a broader view of life will undoubtedly alter one's sense of stress. Let us hope that we will be effective in converting distress to stress for the sake of our personal and organizational health.

SUGGESTION FOR FUTURE RESEARCH

Future scholars will be able to investigate the effects of stress in greater depth. The relationship between personality, emotion, and stress can be investigated in order to design interventions to assist people in managing stress at work. It is possible to perform experimental study to see if actual changes in job requirements and role features affect teacher satisfaction. Because the current study is limited to arts and science colleges, a future researcher may look into other sorts of institutions. It is possible to conduct a comparison study of job stress factors among teachers in arts and science institutions, as well as professional colleges affiliated with various universities. A separate research effort may look into the ways and means of reducing job stress among teachers. In the near future, structural equation modeling may be used to investigate the function of job satisfaction as a mediator between occupational stress and its repercussions.

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**STRUCTURAL EQUATION MODEL (SEM) FOR PREDICTING WORK LIFE BALANCE ON
EMPLOYEE WELL-BEING IN HIGHER EDUCATION SECTOR**

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ABSTRACT

At present, well-being remains as an important topic that is constantly discussed in the academia setting. Intense technological revolution and changes in administration, approaches as well as job characteristics have increased the need for thorough well-being administration among workers in higher education sectors, especially among academics as they serve as the backbone of higher education system. This paper investigated the well-being conditions of academics through the lenses of their work-life balance. To address this proposition, a total of 307 academics were observed, whereby their conditions of well-being were investigated by evaluating their mental health, job satisfaction and turnover intention. This study utilized a quantitative approach, using a self-administered survey as the data collection tool. Results stated that satisfaction with Family and Self-Life, Role Overload, Awareness towards Work Life Balance, Flexible Environment and Self Appreciation of work are significantly impact on work life balance. Results also obtained pointed out two important patterns, one of which was that poor work-life balance was connected to poor condition of mental health, lower job satisfaction and higher turnover intention. In contrary, great work-life balance was linked with good mental health condition, higher job satisfaction and lower turnover intention. Discussion drawn from this paper highlighted the significance and twofold effects of work-life balance in affecting academics' well-being, which will in turn benefit future researchers, human resource practitioners and academics itself.

Key words: Satisfaction with Family and Self-Life, Role Overload, Awareness towards Work Life Balance, Flexible Environment and Self Appreciation of work.

INTRODUCTION

Work-life balance" typically means the achievement by employees of equality between times spent working and personal life. A good work-life balance for employees can improve staff motivation, increase staff retention rates, reduce absence, attract new talent, and reduce employee stress. Work life balance is viewed as an alternative to the control approach of managing people. The work life balance approach considers people as an asset to the organization. It believes that people perform better when they are allowed to participate in managing their work and make decisions. This motivates people by satisfying not only their economic needs but also their social and psychological well-being. To satisfy the new generation of employees which is skilled, talented and diverse, organizations should concentrate on the job designs and organization of work. Also today's employees are realizing the importance of relationships and are trying to strike a balance between career and personal lives.

LITERATURE REVIEW

Schenettler et al. (2017) and others conducted a study on the relationship between satisfaction with family life and satisfaction with life in a sample of university students in Chile. The study consists of 370 students. The study shows correlation between satisfaction with life and satisfaction with family life, and a positive relationship between moral support and satisfaction with life. In addition, it shows that there were no gender differences.

Tasdelen-Karckay (2016) aimed to adapt a measure of satisfaction with family life in a sample of Turkish adolescents. It consists of 506 adolescents. The results of the study show that internal consistency coefficients were high, with a general stability of 0.95, while the correlation coefficients ranged between 0.75 and 0.48.

Asadullah and Fernandez (2008) found that WLB practices increase the likelihood of reporting higher satisfaction and the results of the study indicate that WLB practices at the forefront of worker welfare policy improve the wellbeing of the workforce

Wilkinson (2008) awareness of work-life balance policies within the surveying profession in Australia and New Zealand found that of the issues and options is not evenly spread amongst professional surveyors in the region. The implication explored in the study is that employers ignore work-life balance issues at their peril.

D. Anderson and C. Kelliher (2009) Flexible working result in employee loyalty and engagement, increased organizational commitment, and higher job satisfaction, also flexible working packages help to recruit and retain talented employees for the organization.

Anon (2008) Flexible working practices are beneficial for employers, hence flexibility was embedded to the work in order to give employees an option to choose at what time, how much time, and from which place to work. Furthermore, increased productivity, reduced employee turnover and absenteeism have been identified as advantages of flexible working for the employers.

Erez, M., and Judge, T. A. (2001) Employees who have high self-esteem generally work more efficiently, need less time off and interact better with others. Employees with low self-esteem are commonly less productive, prone to making mistakes and may hesitate to present ideas.

Korman, (1966) Self-esteem reflects the degree to which the individual “sees him/herself as a competent, need-satisfying individual” (p. 32); thus, the high self-esteem individual has a “sense of personal adequacy and a sense of having achieved need satisfaction in the past”

Carson et al. (1997) Self-esteem is central to the explanation of employee attitudes (example job satisfaction), motivation, and performance. High self-esteem precedes self-enhancement motivation, while low self-esteem precedes self-protection motivation (along with other dispositions like locus of control, and positive and negative affectivity).

RESEARCH GAP

Researchers have predominantly focused on either work-life balance issues or occupational stress faced by educational sector in India and very limited work has been done in the area of work-life balance along with job stress of educational sector. The confirmatory factors with respect to work life balance on employee well-being are not much studied and there are many unanswered questions. What is the role of Job Stress on work life balance well-being of employees? How do the Job Stress and work life balance well-being of employees vary with respect to the confirmatory factors of the educational sector? How do the work to family conflict and the family to work conflict influence the work life balance well-being of employees? What is the impact of work to family support and family to work support on well-being? These answers which profoundly are the root causes of work life balance well-being of employee issues and the impact of work-life balance attributes on employee well-being in higher education sector are analyzed in this study.

RESEARCH PROBLEM

Research Objectives

1. To identify the work life balance attributes in higher education sector.
2. To measure the impact of work life balance attributes on employee well-being in higher education sector.

Research Hypothesis

H₀₁: There is no significant relationship between work life balance attributes on employee well-being in higher education sector.

RESEARCH METHODOLOGY

This study is made to know the work life balance issues and work life balance practices adopted by the Indian higher education sector that contribute to their better performance. The specific confirmatory factors that cause employee well-being and job stress for academic professionals are analyzed to address the work life balance well-being of the employees. Detailed analyses of work family conflicts and work supports are taken up in the study.

Sampling Procedure

More than 400 questionnaires were mailed to academic professionals and received 360 filled questionnaires. Out of 360 questionnaires 307 were useful with full information in all aspects. Hence the sample size of this study is 307 employees.

Statistical Tools

- Reliability test
- Confirmatory Factor Analysis
- Multiple Linear Regression.

Data Analysis & Results

Reliability Test

Case Processing Summary

		N	%
Cases	Valid	307	100.0
	Excluded ^a	0	.0
	Total	307	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

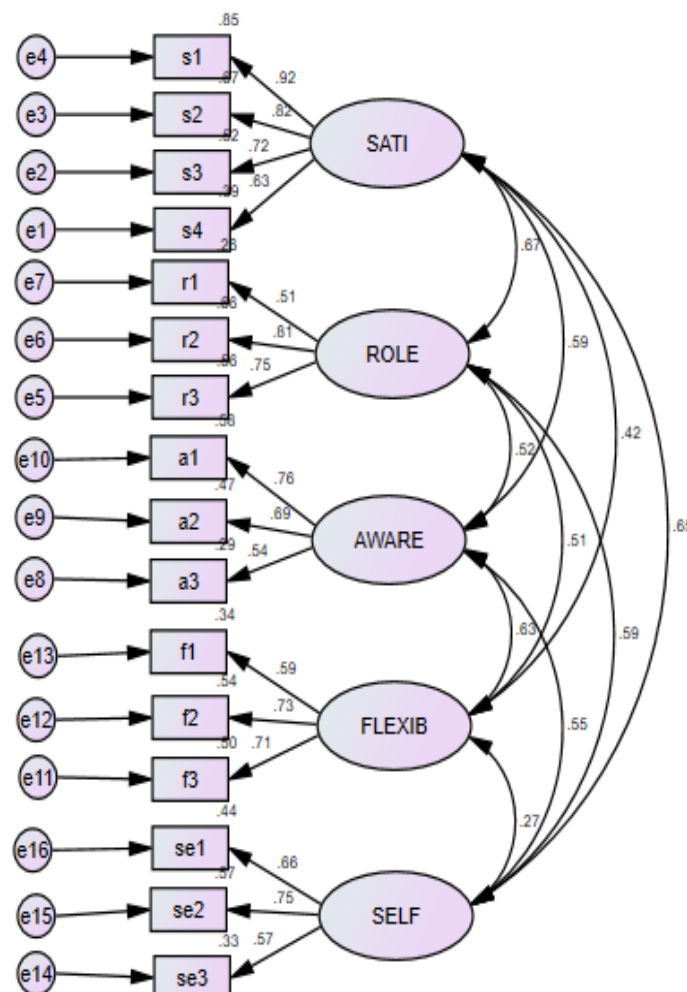
Cronbach's Alpha	N of Items
.878	16

The internal consistency of the questionnaire of 16 items with a value of the Cronbach's Alpha is 0.878, which shows that data is 87.8 per cent reliable.

Confirmatory Factor Analysis of Work Life Balance

The measures adopted to study the retention practices have already been validated by other researchers as mentioned earlier. So, we have only conducted a confirmatory factor analysis in order to establish the valid factor structure of work life balance. The proposed five-factor model (see Figure 1) was found to fit the research study. The model with a chi-square of 258.050, df =94 CFI = 0.903, TLI = 0.876, AIC = 258.050, RMSEA = 0.080. Good fit values that are generally acceptable for CFI and TLI should be near to 0.95 and for RMSEA should be less than 0.08 (Hair et al., 2010).

Figure 1: AMOS output of the measurement model or CFA –Standardized



Selected Variables Expansion

SATIS (Satisfaction with Family and Self-Life), ROLE (Role Overload), AWARE (Awareness towards Work Life Balance), FLEXIB (Flexible Environment) and SELF (Self Appreciation of work).

Table 3. Confirmatory Factor Analysis of Alternative Models

Model	χ^2	Df	χ^2/Df	TLI	CFI	RMSEA
Five-Factor Model	258.050	94	2.745	.876	.903	.080

Work Life Balance attributes (satisfaction with family and self-life, role overload, awareness towards work life balance, flexible environment and self-appreciation of work). Figure 1 shows a significant inter-factor correlation between satisfaction with family and self-life and role overload at a significant level ($r = 0.67$, $p < 0.05$), satisfaction with family and self-life and awareness towards work life balance ($r = 0.59$, $p < 0.05$), satisfaction with family and self-life and flexible environment ($r = 0.38$, $p < 0.05$), recruitment & selection and employee feedback ($r = 0.42$, $p < 0.05$) and satisfaction with family and Self-Appreciation of work ($r = 0.65$, $p < 0.05$), role overload and awareness towards work life balance ($r = 0.52$, $p < 0.05$), role overload and Flexible Environment ($r = 0.51$, $p < 0.05$), role overload and Self-Appreciation of work ($r = 0.59$, $p < 0.05$), Awareness towards Work Life Balance and Flexible Environment ($r = 0.63$, $p < 0.05$) and Awareness towards Work Life Balance and Self Appreciation of work ($r = 0.55$, $p < 0.05$), Flexible Environment and Self Appreciation of work ($r = 0.27$, $p < 0.05$). The result of the confirmatory factor analysis of alternative models is displayed in Table 3.

Multiple Linear Regression

In order to test hypothesis 1, we performed a regression analysis. In the regression analysis technique, we have regressed five work life balance attributes on employee well-being.

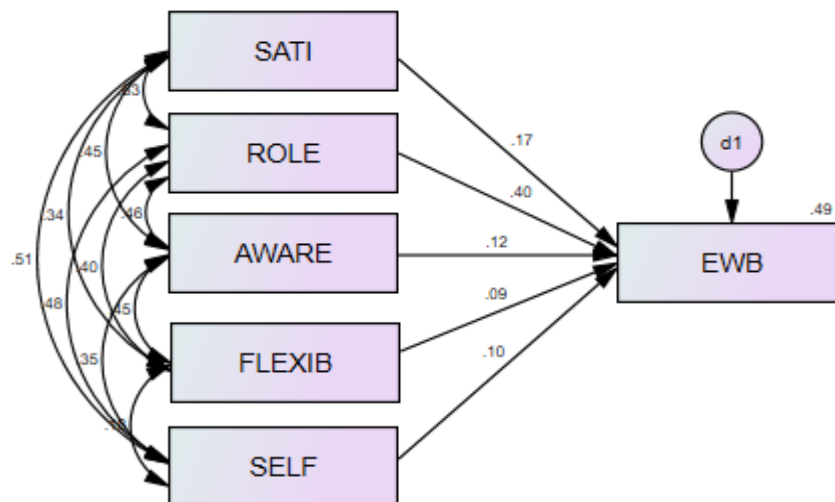
**Figure: 2.** A Structural Equation Model Showing Impact of work life balance attributes on employee well-being.**Structural Model Fit Estimation**

Figure 2 indicates the standardized path regression coefficients and the relationship between unobserved and observed variables with respect to the path diagram. Structural model Fit Indices:

Table: 4. Structural Model Fit Estimation

Indices	Recommended Value	Model Fit Indices
CMIN/Df	< 3	2.731
p-value	≥ 0.05	0.000
GFI	≥ 0.90	1.000
AGFI	≥ 0.80	0.278
NFI	≥ 0.90	1.000
CFI	≥ 0.90	1.000
RMSEA	≤ 0.08	0.037
P Close	≥ 0.05	0.000

The structural model fit is checked based on CMIN/Df, p-value, Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), NFI, Comparative Fit Index (CFI), Root Mean square of approximation (RMSEA) and P Close. The Model fit indices for the constructs have been found and the summary of the result is shown in the above table where the obtained Model fit indices are compared with the recommended value. We have not considered the actual chi square value as the chances of model rejection will be high when the sample size increases. Hence we have divided the chi square value with the degrees of freedom so that we can overcome the sample size issue. The result of chi square value divided by the degrees of freedom is shown in the table as 2.731 which is below than the acceptable limit 3. The obtained p-value is 0.00 which is less than the recommended value. The obtained GFI value is 1.000 which is above the recommended value of 0.9. The obtained AGFI value is 0.278 which is above the recommended value of 0.8. The obtained NFI value is 1.000 which is greater than the recommended value of 0.90. The obtained CFI value is 1.000 which is greater than the recommended value of 0.90. The obtained RMSEA value is 0.037 which is lesser than the recommended value of 0.08. The obtained P-close value is 0.000 which is lesser to the recommended value of 0.05. Hence we can find the overall model fit indices are within the acceptable recommended values as proposed by the researchers, so we can conclude that the hypothesized model fits with the sample data. All the 24 parameters have met all the other recommended value to verify fitness of the Model. Hence we can conclude that the Model is perfectly fit.

DISCUSSION

- The probability of getting a critical ratio as large as 2.874 in absolute value is .004. In other words, the regression weight for **Satisfaction with Family and Self-Life** in the prediction of **Employee Well-Being** is significantly different from zero at the 0.01 level (two-tailed).
- The probability of getting a critical ratio as large as 6.698 in absolute value is less than 0.001. In other words, the regression weight for **Role Overload** in the prediction of **Employee Well-Being** is significantly different from zero at the 0.001 level (two-tailed).
- The probability of getting a critical ratio as large as 2.205 in absolute value is .027. In other words, the regression weight for **Awareness towards Work Life Balance** in the prediction of **Employee Well-Being** is significantly different from zero at the 0.05 level (two-tailed).
- The probability of getting a critical ratio as large as 1.881 in absolute value is .000. In other words, the regression weight for **Flexible Environment** in the prediction of **Employee Well-Being** is not significantly different from zero at the 0.001 level (two-tailed).
- The probability of getting a critical ratio as large as 1.854 in absolute value is .000. In other words, the regression weight for **Self-Appreciation of work** in the prediction of **Employee Well-Being** is significantly different from zero at the 0.001 level (two-tailed).

PRACTICAL IMPLICATIONS

Setting team goals is necessary for any college as the nature of work in natural ways supports teamwork. Enough training and emphasis must be placed in building teams and working in teams. Selection tools must ascertain ability of prospective job incumbents to work in teams. Team goals would go a long way in ensuring that teams exert conformance pressure on non-compliant colleagues.

Equitable pay for equitable work, fairness in policy - in offering foreign assignments, in distribution of rewards, and fairness in offering work-life-balance privileges should ensure that organizations can achieve a higher level of satisfaction for employees. Appropriately designed jobs that utilize the entire skill set of employees, assign tasks that are significant along with feedback should let employees experience heightened meaningfulness at the workplace. These will also ensure that employees have increased sense of responsibility and job satisfaction.

CONCLUSION

Work life balance is an emerging phenomenon in the context of modern day organizations. The organizations have to pay more attention on strengthening of human resources policies to augment its employees' performance and satisfaction. Concentration on life over work or work over life will not yield anticipated returns to both the employees and employer. The work-life balance is a prominent issue concerning both the employees and the employers in the education sector and hence this present work is taken up.

SCOPE FOR FURTHER RESEARCH

The study can be replicated for other industries and the work life balance and stress management practices can be assessed to conceptually bring out a concrete linkage between the two. A longitudinal study on the impact of

the initiatives of the organizations on the improvement of work life balance and stress management levels would throw greater light on the concept. Further, a study on the role of self-efficacy on work life balance and stress management levels also would be a significant contribution.

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CAUSATIVE FACTORS OF EMPLOYEE COMMITMENT IN EDUCATION SECTOR

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ABSTRACT

The present research was conducted to study the current level of Employee Commitment, causative factors for Employee Commitment\Detachment in the Indian scenario and education sector in specific. Based on data analysis the factors which have emerged as the most important determinants of Employee Commitment are Organizational Support, Intrinsic motivators, Employee centric Organizational culture, Distributive justice, Effective goal-setting, Hygiene elements, Equity, Appraisal Transparency, Customized Training, Feedback, and Peer Cohesiveness. The findings confirm that Leaders behavior, timely rewards and recognition, pay are the strong drivers of Employee Commitment. Fair pay and satisfying benefits package also lead to highly engaged employees. The research confirms that a positive work environment, in which employees feel valued, respected and supported. At the organizational level, it is necessary to develop cultures of two-way trust. Commitment is fostered when there are relatively flat hierarchies, widespread use of rituals and rites to celebrate contributions and success, and where there is consistent celebration of accomplishment and innovation. High levels of work pressure and stress can lead to disaffection and detachment.

Key Words: Employee Commitment, Distributive Justice, Equity, Appraisal Transparency, Organizational Support, Fair Pay and Positive Work Environment.

INTRODUCTION

Most organizations today realize that a ‘satisfied’ employee is not necessarily the ‘best’ employee in terms of loyalty and productivity. It is only an involved employee who is intellectually and emotionally bound with the organization, feels passionately about its goals and is committed towards its values who can be termed thus. He goes the extra mile beyond the basic job responsibility and is associated with the actions that drive the business. Moreover, in times of diminishing loyalty, Employee Commitment is a powerful retention strategy. The facts that it has a strong impact on the bottom-line add to its significance. Commitment is about inspiring employees to do their best. The quality of output and competitive advantage of a company depend on the quality of its people.

Employee Commitment is generally the level of commitment and involvement an employee has towards his or her organization and its core values and beliefs. An involved employee is presumed to be aware of business context, and work dynamics with colleagues and peer groups to recover performance within the job for the benefit and merit of the organization.

REVIEW OF LITERATURE:

Hayase and Lynn Kalani Terumi (2009) in their study determined how internal communication has an effect on Employee Engagement levels. Examining the factors of communication and Engagement, they found a relationship does exist. The results indicated that organization could utilize internal communication to improve Employee Engagement.

Shashi (2011) reinforced the importance of employee communication on the success of a business. She revealed that an organization should realize the importance of Employee Engagement, more than any other variable, as the most powerful contributor to an organization’s competitive position.

Bhatla (2011) focused on the need for such employees and how their presence can improve the progress and work efficiency of the organization as a whole. Also focused on the challenges faced by the HR managers to improve employee engagement for an organization’s survival.

Susi & Jawaharrani (2011) examined some of the literature on Employee engagement, explore work-place culture & work-life balance policies & practices followed in industries in order to promote employee engagement in their organizations to increase their employees’ productivity and retain them. Work-life balance is key driver of employees’ satisfaction.

Dr. Yasmin Janjhua (2011) in her study proved that job characteristics contribute to job engagement, and organizational engagement. If the employees feel that their jobs provided variety, freedom, identity and proper

feedback the employees get more engrossed and engaged in their work thereby leading to more quality, productivity and efficiency. Perceived organizational support was significantly positively related to job engagement and organizational engagement.

Siddhanta & Roy (2012) explored implications for theory, further research and practices by synthesizing modern 'Employee Engagement' activities being practiced by the corporate with the review of findings from previous researches / surveys.

Dharmendra Mehta and Naveen K. Mehta (2013) in their study found different dimensions of Employee Engagement with the help of review of literature. This can be used to provide an overview and references on some of the conceptual and practical work undertaken in the area of the Employee Engagement practices.

Dr. Ranjana Gujarati, Dr. Varuna Tygai and Rohan Thapur (2014) study found that in these two countries, Employee Engagement has been affected by organizational and economic issues both for short and long term.

NEED FOR THE STUDY

Highly involved employees produce a substantive contribution to their organization and may possibly see organizational achievement, however the inverse holds true yet. Detached employees are frequently a serious problem for the organization. Companies should take proper measures to reduce the level of detachment. The absence of Commitment is the most common problem all over the world which affects both massive and tiny organizations' making them incur substantial expenses, fail to meet expectations on vital errands, and to make eternal of client disappointment Ramprasad, (2006). Detachment will have an effect on the financial performance of an organization too. An involved employee may decrease disengagement and stress, and was empirically proved that it is a vital element for the accomplishment of an organization as well as individual clients. In this situation, it was expected that high levels of Employee Engagement increases commitment and reduces attrition. Hence this study is taken up to highlight the extent of Employee Commitment, the causative factors for Commitment or detachment if any, and to identify the ways and means to enhance Employee Commitment in Education sector India.

RESEARCH GAP

Very few studies are found in Employee Commitment and also less focus to determine the factors that most significantly affect Commitment and level of Employee Commitment in education sector. Sadly, Employee Commitment is not a one-dimensional concept, something that can be improved by conducting a survey. Instead, businesses those are thriving at growing Employee Commitment understand that it needs a culture adjustment. And the results highlight that there is a straight association between Employee Commitment and administrative performance.

STATEMENT OF THE PROBLEM

Commitment is the psychological or sensitive measurement rather than physical which is complex and may be easily biased. In order to handle this situation, researchers must focus particularly on the Commitment levels of employees in human services field. Empirical information is required for professionals so they can better comprehend Employee Commitment and use to build up managerial involvements and various strategies to promote Commitment for Human resource management.

SIGNIFICANCE OF THE STUDY

The results of this study will provide insight and information for educational professionals and researchers about Employee Commitment in the field of Human services. As the level of Employee Commitment was measured, Team leaders can develop and implement strategies that would actually improve Commitment in their groups, thereby possibly raise the overall effectiveness of the institute, and possibly diminishing level of absenteeism, burnout, and attrition.

OBJECTIVES

1. To examine the causative factors for Employee Commitment
2. To identify the influence of administrative inputs on the Employee Commitment.

SAMPLING DESIGN

The sampling unit for the study includes employees' of selected Affiliated Engineering Colleges of India. Multistage sampling procedure is adopted. On first stage 6 Engineering Colleges of India are selected using purposive Sampling. As many as 20 affiliated engineering colleges have been approached for the gathering of the primary data. But support was extended by the following 6 colleges only. The colleges thus selected are MITS, AITS, SSITS, SSE, SRIT, and BITS. In the Second stage 100 employees from each college are selected

using convenience sampling which forms 600 employees as the sample size. Statistical tools used are Validity , Reliability, Factor Analysis, and ANOVA.

LIMITATIONS

- There is unwillingness on the part of some respondents to spare time, due to work pressure.
- The study is limited to affiliated engineering colleges located in India.
- There is a possibility of bias, influencing the outcomes of the study.

TOOLS FOR ANALYSIS

Reliability Analysis

Cronbach's Alpha	Part 1	Value	.696
		N of Items	38 ^a
	Part 2	Value	.699
		N of Items	38 ^b
	Total N of Items		76
Correlation Between Forms			.746
Spearman-Brown Coefficient	Equal Length		.854
	Unequal Length		.854
Guttman Split-Half Coefficient			.854
Cronbach's Alpha			.827

The internal consistency of the questionnaire of 76 questions with value of the Cronbach's Alpha is .827, which shows that data is 82.7% reliable, and Guttman Split-Half Coefficient is .854 and can be used for the purpose of analysis.

FACTORS CONTRIBUTING TO EMPLOYEE COMMITMENT

Factors contributing to Employee Commitment

S. No	Factor Name	Factor Loading value	Factor
1	I am given enough freedom to decide on issues under my preview.	0.702	Organizational Support
	If given the opportunity, my organization would take advantage of me	0.552	
	I am satisfied with the promotional policies in the organization	0.543	
2	In the workplace my co-workers and subordinates give due respect to my thoughts and feelings.	0.715	Intrinsic Motivators
	The organization I work for, elevates my respect in the public	0.591	
	My job itself provides me information about my work Performance.	0.519	
3	My work supervisor really cares about my well-being.	0.689	Employee oriented organizational culture
	My organization would forgive a honest mistake on my part	0.634	
	Most often I use all the skills at work.	0.557	
4	Given my performance, my outcomes are justified	0.675	Distributive Justice
	The outcomes I receive reflect the effort I have put into my work	0.615	
5	At work, I am always identified by the tasks I perform	0.759	Effective goal-setting
	My organization strongly considers my goals and values	0.517	
6	I need not worry of my job as long as I meet standards.	0.740	Hygiene elements
	I have been able to express my views and feelings during those procedures	0.623	
7	We wish we could be paid worth our work	0.737	Equity
8	Those procedures have been applied consistently	0.749	Appraisal Transparency
	My supervisor strongly considers my goals and values.	0.619	

9	Training is facilitative and helps me to perform better	0.770	Customized training
10	I am always informed of expectations and my current performance.	0.718	Feedback
11	My co-worker really cares about my well-being	0.741	Peer Cohesiveness

ANOVA table for Different Factors and Employee Commitment

Factors	Sum of Squares	Df	Mean Square	F	Sig.
Job Characteristics	39.697	2	19.848	40.002	.000
Perceived Organisational Support	62.085	2	31.043	67.678	.000
Perceived Supervisor Support	60.903	2	30.452	66.104	.000
Co-worker Support	13.350	2	6.675	12.354	.000
Rewards and Recognition	21.079	2	10.540	19.985	.000
Distributive Justice	21.221	2	10.610	20.128	.000
Procedural Justice	43.497	2	21.748	44.401	.000
Senior Management	5.816	2	2.908	5.259	.005
Cultural balance of formal and informal workplace	3.618	2	1.809	3.250	.039
Compensation & benefits	1.584	2	.792	1.414	.244
Career Opportunities	12.481	2	6.240	11.519	.000
H.R. Initiatives	4.883	2	2.442	4.403	.013
Policies and Procedures	1.226	2	.613	1.094	.336

- From the ANOVA table, it is observed that Job Characteristics, Perceived Organisational Support, Perceived Supervisor Support, Co-worker Support, Rewards and Recognition, Distributive Justice, Procedural Justice, Senior Management, Cultural balance of formal and informal workplace, Career Opportunities, and H.R. Initiatives have significant impact on Employee Engagement. It is observed that Compensation & benefits and Policies & Procedures have no significant impact on Employee Commitment.
- There is no recognition for their work in the organization and there is no flexibility in their work schedule. Few managers do not communicate with their employees' regarding their progress due to ego or misunderstandings. Superiors always focus on mistakes rather than on the progress of the employees.
- The study also reveals that employees take an active interest in what happens in the organization only when they are committed and dedicated. Employees go extra mile only when they feel recognized, concern for employee feelings, healthy, competitive environment, challenging work environment and allocating off shore projects based on merit and experience.
- The study reveals that employee feels motivated, enthusiastic and energetic when the project is challenging, new tasks that inculcate new skills, innovative and when they are rewarded even for small successes.

SUGGESTIONS

- As per the survey conducted, employees need to know how their behavior affects them. For instance, the employees are required to confront with their own behavior patterns and the expectations of the clients. To address this problem, organizations may arrange workshop on interpersonal communications through tools like Johari Window which would help them to know others and others to know them.
- As per the survey, most of the employees opine that they are not involved in decision making, so training may be provided to top level employees in servant and distributed leadership so that they focus on employee empowerment and encourage innovation. Employees work through within relationships, rather than individual action. Participative decision making helps to obtain innovative and creative ideas from the employees.
- As there is no much feedback on employee's progress/ career growth while the project is continuing, and the managers are not able to assess, communicate and use the same as a motivator. In order to achieve that training may be given to the project leaders on performance evaluation so that their employees' performance may be evaluated periodically. Constructive and regular feedbacks regarding their progress or career growth enhances Employee Commitment.

CONCLUSION

Employee Commitment is a positive attitude held by the employees towards the organization and its values. It is rapidly gaining popularity, use and importance in the workplace and impacts organizations in many ways. The importance of Employee Commitment in the organizational setting is undeniable.

The results reveal that employees who hold jobs that offer high levels of autonomy, task variety, task significance and feedback are more highly engaged and, in consequence, receive higher performance ratings from their supervisors. The findings confirm that Leaders behaviour, timely rewards and recognition, pay are strong drivers of Employee Commitment. Fair pay and satisfying benefits package also lead to highly engaged employees.

SCOPE FOR FUTURE RESEARCH

The study can be replicated in other sectors where attrition and absenteeism has become a common problem. Similar study can also be done in other sectors like hospitality, infrastructure, retail, automobile etc to know the Employee Commitment levels.

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A STUDY ON RISK AND BENEFITS OF MOBILE BANKING TECHNOLOGY

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INTRODUCTION

Mobile banking is a term used to refer to systems that allow customers of a financial institution to conduct a number of financial transactions through a mobile device such as a mobile phone or tablet. Mobile banking differs from mobile payments, which involve the use of a mobile device to pay for goods or services either at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment. The earliest mobile banking services were offered over SMS, a service known as SMS banking. With the introduction of smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. Mobile banking has until recently most often been performed via SMS or the mobile web.

Nowadays mobile phones are getting more and more advanced. People can't live without gadgets and companies do their best to make different innovative apps. Banks know that society is evolving so they have to adapt to changes and make it easier for customers to control their savings. In fact, mobile banking offers many advantages but still is surrounded by stereotypes. Let us show all the advantages and disadvantages of telephone banking. Despite the fact of technology revolution, many people still don't know what is mobile banking and if it is safe to use. If you are planning to go with it, you should analyze all benefits and drawbacks but first you have to know the definition of mobile banking. It is an app which allows you to do financial transactions on your device.

Advantages of Using Mobile Banking

The most obvious advantage is, of course, easy access. With only a smart phones in your hand, you have a possibility to check your balance, transfer your funds or pay bills. It's safer to use a special app than online Internet banking. The greatest advantage is that most banks allow their customers to do online shopping without paying bills, which is very useful for online stores' fans. Also, you can easily monitor your account – you can check your transfers, transaction history, deposits etc. Mobile banking is something like remote control.

Disadvantages of Telephone Banking

- The main disadvantage is that it is not suitable for every phone. If you want to use mobile banking, you can download the app, which is available only for smart phones. There is a risk of hacking too, but it is easy to be safe from that – don't share your password with anyone.
- Mobile banking gains popularity from year to year. This option deserves attention, because it allows you to use money without leaving home. Now, when you know how mobile banking works, you can start using it and check by yourself how convenient it is.

Problems of Customers of Mobile Banking

- Not sure about the safety of transaction
- Mobile security
- Network availability
- Heavy charges for transactions
- E-mail and web security
- Identity theft
- Literacy of people in rural areas
- Not aware of new innovation
- Handset operate ability
- Application distribution
- Inadequate guidance

Account Information Services

Mobile Accounting service represents the part of Mobile Banking which deals with utilizing account specific banking services via mobile devices. Mobile Accounting services may be distributed in following various categories to differentiate various services that are mandatory to operate an account and services. The services are required that inform a customer of transactions and other activities involving his or her account.

Account Administration Service

Various activities can be performed by the account holders related to banking services through Mobile banking. These activities can be known as Account Administration. Following Mobile accounting services are defined that are used by administrator.

- **Access administration:** Mobile phones may be used to administrator the access to an account. For instance to change the individual PIN number (Unique Number) or to request new Transaction Numbers.
- **Access monetary information through Mobile:** Mobile Financial information's can be accessed through Mobile banking services.
- **Speedily block missing debit and credit cards:** through Mobile non-voice telecommunication systems, we can be used round the clock to speedily block lost credit and debit cards irrespective of the current geographic location.
- **Issue new cheque book:** New Cheque books can be ordered online through Mobile phone having banking services by the account holders if required.
- **To change operative accounts:** Through Mobile banking service a customer can change his default operative account and do transactions using a different account. This option is attractive for customers holding several sub- accounts. Funds of sub-accounts may be hereby utilized in a targeted manner without first transferring the amount to the default account.
- **To change order book:** Orders to sell or purchase stocks, which are not yet carried out, can be modified via mobile devices that are allowed to access the customer order book.

MARKETPLACE INFORMATION SERVICES:

This Information Service Is Not Directly Related To The Customer Account. This Type Of Information Is Generated Externally Or Internally. Exchange Rates Can Be Example Of Externally. Bank-Specific Interest Rates Can Be Example Of Internally. Thus, Market Information Refers To Information With A Macro-Scope. The Individual Bank-Customer Does Not Play A Direct Role In This Service. The Information May Be Later Sorted Out To Provide To The Individual Needs And Preferences Of A Particular Account-Holder If Desired By Him And Subsequently Delivered On A Mobile Device Of His Choice.

Other Market Related Services Can Be As Follows:

- Commodity Prices
- Stock Market Quotes And Reports
- Foreign Exchange Rates
- Market And Bank-Specific Interest Rates
- Product Information & Offers

E-BANKING BARRIERS

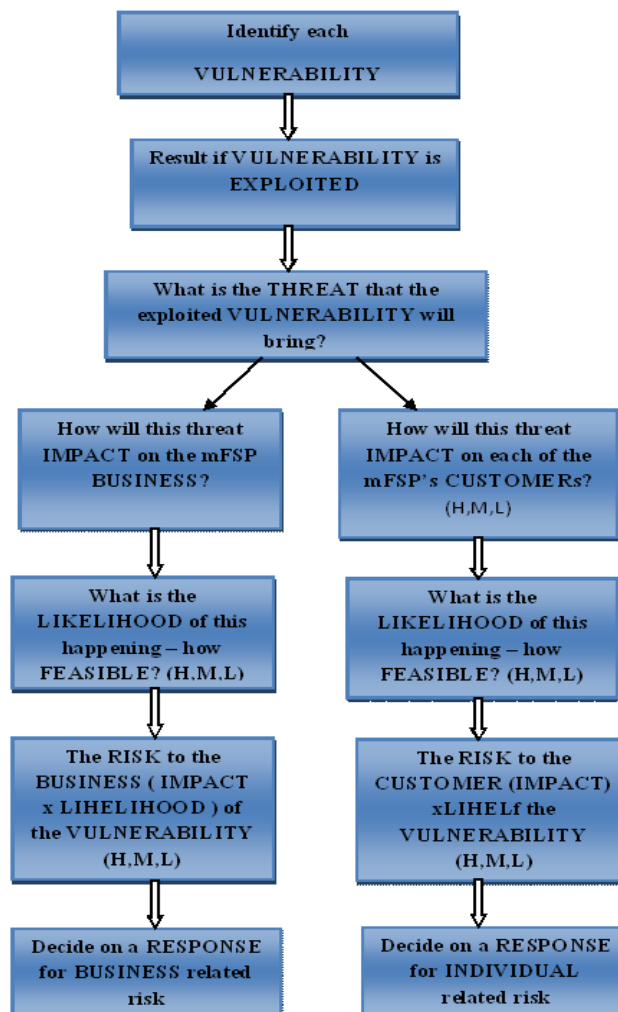
E-banking may be difficult to implement due to following reasons:

- **Internet Access:** Although Internet is growing at rapid rate, but still there is a large chunk of population which is not connected to the internet. **Walczuch et al. (2000)**, cited reasons behind this are lack of computer literacy, hardware cost and various other social/economic factors. Most important, some developing countries have under developed telecommunications infrastructure.
- **Language and Culture Issues:** Language and culture plays a major role in global business. Literacy, inadequate knowledge and unknown language might be barriers in using E-banking. English is the prime language used in internet banking websites. It is possible that local languages could make E-banking easy for some customers. Speed and cost are the two main problems associated with this, **Turban et al. (2000)**.
- **Availability and Security Issues:** Availability and security are critical issues in E-commerce. Any unplanned downtime' of systems or unauthorized access to data can result in a disaster. Similarly worms, viruses and online frauds are threats online business. This all means that organization must invest in IT

budget for fraud prevention and disaster recovery, which may include security measures like encryption technologies and maintaining two parallel sets of systems to ensure all time availability.

- **Technical Issues in E-banking:** Banks primarily depends upon ICT for their internal as well as external operations. A bank needs various technologies to deliver services via the electronic channels like universal connectivity, back end applications for linking E-banking systems to payment systems and to amalgamate different types of systems. Most of the back end systems often lack connectivity because were legacy systems. It is laborious to connect to these systems with new systems. Lack of integration is one of the most common reasons behind the collapse of E-banking ventures.
- **Issues Related To Development Of Bank Website:** In contrast to 'blocks and cement' bank office which goes about as a front end, E-banking site goes about as a front end that control all the exercises identified with E-banking. If there should be an occurrence of E-banking after login their record clients do the greater part of the work with no help. As per making positive involvement with E-banking conditions basic. To accomplish this target, a lot of arranging, assets and mastery is required.

Structured Risk Evaluation Process



Analysis Item	Explanation	Metric used	Example using plaintext SMS messages (UC1A)
Vulnerability	The weakness identified	Description of the weakness	SMSC not protected
Result	What happens if the vulnerability can be exploited	Identification of the result if the vulnerability materializes	The traffic through the SMSC can be logged and MSISDN and PIN harvested

Threat to the business	What is the resultant threat to the business if the vulnerability is exploited	Indication of how a threat to the business would materialise – as a: <ul style="list-style-type: none"> ➤ Fraudulent transaction ➤ Error transaction ➤ Loss of data privacy (exposure of information) ➤ Denial of service 	Fraudulent transactions can be initiated and access to personal data obtained
Impact	The magnitude of the event if it occurs There are two ways to look at the impact: <ul style="list-style-type: none"> • On the business as a whole • On the individual customer 	Business: <ul style="list-style-type: none"> • High Impact – the result of an event that will disrupt the business to the extent that its existence may be threatened • Medium Impact – the result of a non-routine event that will seriously disrupt the business • Low Impact – a routine event that is handled by the day today management processes and whose impact is absorbed in the operational expenditure Individual: <ul style="list-style-type: none"> • High Impact – loss of all funds and/or reputation • Medium Impact – loss that can be remedied but that seriously affects the individual's financial position 	Business: Mass attack is possible through the bulk harvesting of credentials (MSISDN and PIN) and it would have a major impact on the business due to bulk account compromise therefore Mass Impact is High Individual: the impact is High as the individual's account could be emptied of funds
Likelihood / feasibility.	Probability of the event happening – namely the probability that an attacker will be able to actually exploit the vulnerability	Business and Individual High – likely in the course of business in the short term	To get access to the SMSC is possible. There are people at an operator that could either gain access to a SMSC or to the transaction logs and traces. Thus the probability of an attack succeeding is High (both against the whole base and against an

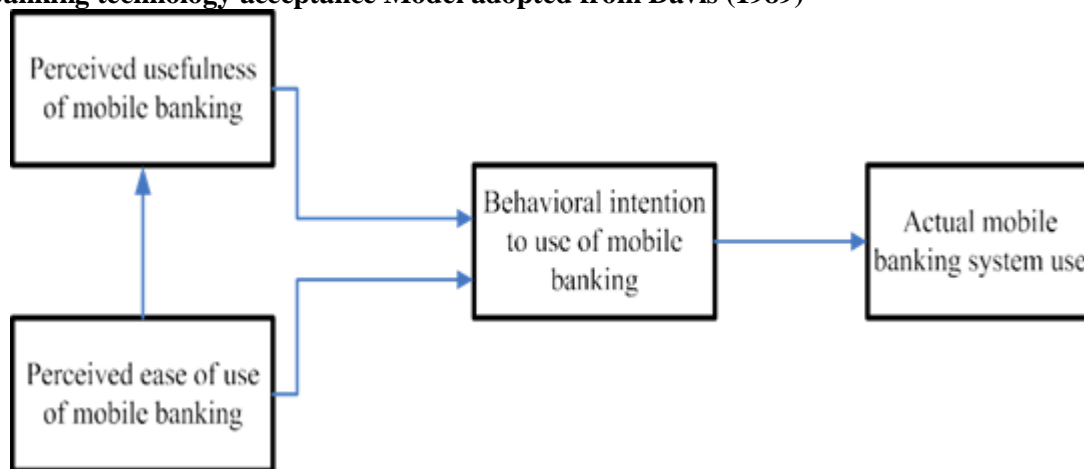
			individual).
Risk to the individual client and to the business	Measured as the magnitude of the Impact of the attack times the probability of it occurring – likelihood	<p>Business:</p> <ul style="list-style-type: none"> • High – will disrupt the business to the extent that it's existence may be threatened • Medium - will seriously disrupt the business Low – absorbable in day-to-day the operational expenditure <p>Individual:</p> <ul style="list-style-type: none"> • High – loss of all funds and/or reputation • Medium – seriously affects the individual's financial position • Low –recoverable using operational processes of the mFSP 	Thus a High magnitude times a High likelihood gives a High Risk which implies something that the management must manage both in terms of the business and in terms of their individual customer
Response assigned	The stance taken with respect to the risk	This will vary according to the evaluation of the risk; and will result in adjusted risk	Ensure protection of the SMSC by further isolation from access, regular checks for malware. Screening of authorization of staff to work on the SMSC and introduction of specific audited procedures for working on the SMSC

Factors affecting the adoption of mobile banking

- The technology acceptance model (TAM) has been used as a valid model in predicting the individual's acceptance of various corporate IT system. The model suggests that when users are presented with a new technology, a number of factors influencing their decision about how and when they will use it, notably:
- Perceived usefulness: This was defined by Davis (1989) as “the degree to which a person believes that using a particular system would enhance his or her job performance”. In the case of the study perceived usefulness would mean then degree to which an individual believes using mobile banking experience.
- Perceived ease use: Davis (1989) defined this as “the degree to which a person believes using a particular system would be free from effort”. While others believed that adoption of technology by users demands mental ability involving lengthy time. Perceived usefulness in the case of the study means the degree to which an individual believe that using mobile banking would be free from effort.

- The perceived usefulness is affected by perceived ease of use of mobile banking facilities. Both perceived usefulness and perceived ease of use of mobile banking hence the actual use of mobile banking will take place.

Mobile banking technology acceptance Model adopted from Davis (1989)



Mobile Banking Benefits

Portable banking gives advantages to banking organizations and clients. It diminishes the working expenses of a bank by disposing of the requirement for call focuses to give client assistance. Additionally, it diminishes finance costs in light of the fact that less human specialists are required. Portable banking is practical to a bank, and trend setting innovation empowers banks to proficiently screen banking administrations. False movement is additionally decreased on the grounds that clients can get moment updates of different exchanges through their cell phones.

Unsecure Information

There are a few dangers engaged with portable banking. Getting to money related administrations through portable financial involves submitting individual data through a content informing stage. Programmers can attempt to get to those messages through unbound Wi-Fi problem areas. Different dangers include the bank not putting resources into enough encryption security of its innovation. This would leave the client's very own data open for capture attempt.

Regulatory Issues

Banking foundations utilize telecom operators to deal with their portable financial administrations. The utilization of free or diversified telecom operators makes it hard for a nation's national bank to control banking tasks to have a general arrangement of guidelines. This implies various banks can set up various portable financial guidelines, utilize unsatisfactory financial security programming and charge high expenses for versatile banking. These issues can create client turmoil.

Viruses

Banking foundations ensure that their channels are secured by a safe layer to guarantee the wellbeing of their clients' data. Notwithstanding, some cell phones are truly helpless against infections, for example, Trojans. These infections give programmers the chance to get to your financial data through your cell phone.

Security

A few banks offer greater security for monetary administrations through their branches versus their versatile financial stages. A few banks don't offer portable financial administrations because of execution costs or essentially the dangers related with putting resources into the stage. Different dangers incorporate loss of a client's cell phone. Clients who lose or have their cell phone taken hazard losing their monetary data. This opens up the client to the chance of misrepresentation.

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METHODOLOGY:

The procedural approach of this stud

OBJECTIVES

- To find out the various factors influencing the adoption of Mobile Banking Services.
- The study the challenges involved in using Mobile Banking facility as a business tool and appreciate the advantages and disadvantages there in.
- To study the risk and benefits in the adoption of mobile banking services.

DATA ANALYSIS

Primary Data

The data and information is collected from the primary source of the customers through pre-tested, structured questionnaire.

Using Statistical Package for Social Science (SPSS) following test were administered

1. Percentage Analysis
2. Coefficients

Coefficients

The **Coefficients** table provides us with the necessary information to predict price from income, as well as determine whether income contributes statistically significantly to the model (by looking at the "**Sig.**" column). Furthermore, we can use the values in the "**B**" column under the "**Unstandardized Coefficients**" column, as shown below:

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.437	.238		14.422	.000	2.967	3.906
	2. Age	.083	.081	.072	1.026	.306	-.076	.242
a. Dependent Variable: 5. Reason for using Mobile Banking services offered by Bank?								

Interpretation

The b coefficients tell us reason for using mobile banking services offered by bank. The b coefficient of age is .083 which shows the reason of using mobile banking. Importantly the b coefficient is positive.

The 'B' column in the co-efficient table, gives us the values of the dependent and independent for the regression line.

The model is $(y) = 3.437 + 0.083 *(\text{age})$

The column "Sig." holds the p-values. As a rule of thumb, we say that a b coefficient is statistically significant if its p-value is *smaller than 0.05*. Dependent variable is statistically significant and the independent variable is not statically significant that is .000 is for dependent variable and .306 for independent variable which is more than .05.

The beta coefficients allow us to compare the relative strengths of variables.

FINDINGS FOR COEFFICIENTS

- ❖ The b coefficients tell us reason for using mobile banking services offered by bank. The b coefficient of age is .083 which shows the reason of using mobile banking. Importantly the b coefficient is positive.
- ❖ The 'B' column in the co-efficient table, gives us the values of the dependent and independent for the regression line.
- ❖ The model is $(y) = 3.437 + 0.083 *(\text{age})$
- ❖ The column "Sig." holds the p-values. As a rule of thumb, we say that a b coefficient is statistically significant if its p-value is *smaller than 0.05*. Dependent variable is statistically significant and the independent variable is not statically significant that is .000 is for dependent variable and .306 for independent variable which is more than .05.
- ❖ The beta coefficients allow us to compare the relative strengths of variables.

RECOMMENDATIONS

- ❖ It is important to ensure that we do not open a link through your email that is unknown. By doing so, we are making ourselves more vulnerable to mobile banking frauds. Also do not access your mobile banking from a wifi spot. This can be extremely dangerous. If you have your own data card that should be good enough. Another mobile banking safety tip that you must adopt is to ensure that you do not use easy passwords. That can be extremely dangerous and full of risks.
- ❖ In the findings it was found that respondents believed they would use mobile banking if it is easy to use because then it will be useful to them, therefore a conclusion made was that perceived ease usefulness of mobile banking. Furthermore respondents believed if mobile banking is easy to conclusion was made that perceived ease of use mobile banking positively affects the behavioral intention to use mobile banking. The respondents also believed that if mobile banking is useful they made that perceived usefulness of mobile banking has a positive impact on the behavioral intention to use mobile banking.
- ❖ Furthermore this study found that gender is an influencing factor in mobile banking usage because more males used mobile banking than females did. It can also be concluded that age is another factor which influences the user's intention to use a certain technology. The results of this were that young people used mobile banking more and as age increases mobile banking usage declines.
- ❖ With regards to the findings, it is recommended that for successful implementation of mobile banking in the future, service providers should focus more on marketing of the mobile banking technology to the elderly and make them understand the need and the importance of using mobile banking services, Furthermore they have to come up with ways to ensure that the more active users of mobile banking which are the youth are kept in using the technology.

CONCLUSION

As is the case always comfort and ease will come with some risk. You need to be careful on the mobile as well, though it brings lesser risk. Mobile money applications have and continue to hold the promise to improve the standard of living for many in the developing world. By enabling access to a cashless payment infrastructure, these systems allow residents of such countries to reap the benefits of affordable banking. Finally, future research should be based on the evaluation of the development impact of mobile phones that will impact on poverty reduction by helping to identify relevant applications and business models.

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A STUDY ON EFFECTIVENESS OF ROLE PLAYED BY MICROFINANCE IN WOMEN EMPOWERMENT – WITH SPECIAL REFERENCE TO KARNATAKA

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ABSTRACT

Microfinance is emerging as a powerful instrument for poverty alleviation in the new economy. In India, Microfinance scene is dominated by Self Help Group, MFI, Grameen and co-operative, Commercial Bank Linkage Programmed as an effective mechanism for providing financial services to the “Un-reached Poor”. This has been successful not only in meeting financial needs of the rural poor women but also strengthen collective self-help capacities of the poor women, leading to their empowerment. Economic empowerment results in women’s ability to influence or make decision, increased self-confidence, better status and role in household etc. This paper attempts to Karnataka state place forward how micro finance has received extensive recognition as a strategy for economic empowerment of women. This research examined the role of Micro finance institutions with respect to economic empowerment and poverty alleviation of rural women. An effort is also made to suggest the ways to increase women empowerment.

A survey was conducted with the help of questionnaire, sample size of 200 was taken into consideration and the sampling unit was from various rural and urban women’s in Karnataka. Non probability sampling technique is used and the type of investigation taken into consideration is convenience sampling. The source of data collection was from both primary and secondary data. From the study it was found that the majority of the women are getting a various benefits form microfinance role play. It enables to strength their skills and helps to improvise the standard of living of women.

Keywords: Micro finance and scheme, concept of women empowerment, Benefits.

INTRODUCTION

The unique component of microfinance program is that it centres around women for improvement. There are more than 90% women’s customers under this program. The fundamental thought is to engage women’s by giving them financial help and permitting them to win an autonomous pay, contribute monetarily to their families and produce independent work. This monetary freedom is relied upon to create expanded dignity, confidence, self-assurance and different types of strengthening for women of the program. The procedure of strengthening of the recipients of the program isn’t programmed, however relies on numerous variables. These components might be capacities, condition, activity and status of women as gathering.

This study showcases that with the assistance of microfinance the status of a women improves in the family; she procures more prominent regard in the family than previously; she participates in the dynamic and network gatherings; and she gets opportunity to move for the advancement in the micro business. It might be because of the way that women become ready to contribute monetarily to the family. Actually, microfinance program expands monetary, social, and political strengthening. In fact, microfinance program expands monetary, social, and political strengthening. Microfinance program might be a significant program yet not a panacea to end all the issues that poor face. Consequently, the program recipients should productively utilize the budgetary help to begin independent companies that will help in elevating standard of life and strengthening of women, the current part contemplates the effect of microfinance program on women strengthening.

Further this chapter has been divided into three sections. The first section deals with the concept and schemes of micro finance and women empowerment. The second section deals with the impact of microfinance on women empowerment and the third section explains the determinants and benefits of micro finance in women empowerment. Karnataka tops the list of states disbursing microfinance, with Rs 7,903 crore in fiscal 2018, according to Inclusive 2018 by Crisil. Karnataka was also the top state in terms of loan amount disbursed at Rs 2,219 crore in Q1 FY 2018-19 as per the MFIN Micrometer. Supporting the vision of the government on Digital India, the company has also launched a completely digitized process. Explaining the company’s strategy, Bandyopadhyay said, “Easy and quick access are the cornerstones for the success of any microfinance initiative. With the country already moving towards a digitized economy, we plan to leverage technology in fulfilling our aim of reaching our customers and catering to their requirements for finance in the most effective & convenient manner.”

“It is for the first time a completely digitized loan disbursement and collection process will be implemented, including client prospecting, eKYC, tracking GPS locations, credit check, decision to disburse loan and money

transfer to bank accounts,” he added. Bandyopadhyay further pointed out that the demand for credit in the unorganized sector in the country is higher compared to the supply. The company plans to create a loan book of approximately Rs 500 crore by the end of the current fiscal, with approximately Rs 80 crore coming from Karnataka.

Concept of Empowerment: There is no consensus on the concept of empowerment. It may be because of the fact that different experts and different disciplines use this concept differently. A brief discussion will be presented here to clearly present the difference of opinion and making an understanding of the meaning of empowerment for the study in hand. The dictionary meaning of the word ‘empower’ is “to give power or authority to someone.” Thereafter, it begins to be used with an infinitive in a more general way meaning “to enable or permit.” Both of these uses survive today. The concept is extensively used in politics and psychology. Its modern use originated in the American civil rights movements during 1960 to 1980 which sought political empowerment for its followers. The concept was then taken up by the women’s movement, conservatives and social reformers.

Empowerment is an intrinsic quality of a person, which cannot be bestowed by a third party. It is considered that an empowered person’s behaviour undergoes a change. In a nutshell, empowerment is a process which enables one to gain power, authority and influence over others. In the literature published on the subject, the empowerment is considered to be matching with the following traits or capabilities:

- Having decision-making power of one’s own
- Having access to information and resources for taking proper decision
- Having a range of options from which one can make choices
- Ability to exercise assertiveness in collective decision-making
- Having positive thinking about the ability to make change
- Ability to learn skills for improving one’s personal or group power
- Ability to change others’ perceptions by democratic means
- Involving in the growth process and change that is never ending and self-initiated.

In short, empowerment is a process that allows one to gain knowledge, power, skill-sets and attitude needed to cope with the changing world and the circumstances in which one lives. Empowerment helps the person concerned to exploit the economic environment in increasing the productivity of self, family and the society on the whole

Impact of Microfinance on Women Empowerment : The role and impact of microfinance programme on the various aspects of women empowerment has been measured and the effect on factors where women are empowered is discussed below:

Economic Empowerment : Microfinance through SHGs and Grameen and co-employable has connected country poor ladies with formal credit conveyance framework, gave miniaturized scale advances and has urged them to begin microenterprises. This program has helped in expanding independent work just as pay of the members and helped them to turn out to be financially more engaged than nonparticipants. Also, MFI and induvial loaning have given different offices. It incorporates the accompanying:

- Women's Access to Employment
- Women Contribution to Household Income
- Access to and Control over Family Resources
- Role of Women in Household Financial Decision-production
- Saving in Bank Account

Socio - cultural and Familial Empowerment : Microfinance program looked for after through SHGs is a total effort of social event individuals. The people collaborate one another, oversee various people from the overall population, and meet the people from various social affairs in their joint get-together get-togethers. Along these lines, they develop a social direct. ladies are permitted an opportunity to come out of the four dividers of their homes and meet various people from the overall population, which prompts their socio-social and familial engaging.

- Women's Freedom and Confidence of Movement
- Visiting Market for Purchase of Household Goods
- Ability to Raise Voice Against Social Exploitation
- Attitude towards the Education of Daughters
- Getting Help of Other Family Members
- Participation in General Domestic Matters

Political Empowerment: Fearless and conscious women are prepared for participating in the political race system and town country. It has been seen that microfinance program has empowered the lady's socio-monetarily similarly as deliberately. They feel themselves to be in the standard of the town endeavours, from this time forward, expect a significant activity in the town republic. The impact is assessed by taking a gander at the level of political care among the program individuals and non-individuals similarly as the interest taken by them to look into the town policy driven issues. It incorporates:

- Exercising the Right to Vote
- Awareness of Local, State Level and National Polity
- Participation in Panchayat Meetings
- Leadership Qualities
- Education, Skill and Training Empowerment

Other than the money related and political fortifying of the program individuals, microfinance program in like manner develops the general character of its individuals. The social event practices lead to the improvement of major aptitudes like making their name, getting numbers, doing fundamental calculating, filling bank structures and understanding pass-book sections, etc. SHGs sway the level of comfort and assurance of its people by working up these principal capacities in them. This produces data, bravery and certainty which are the markers of their reinforcing and others as follows:

- Education and Ability to Read and Write
- Ability to have Workable Knowledge of Calculations
- Maintaining Records of Financial Transactions
- Ability to Understand the Basic Banking Process
- Reading Newspaper or Viewing Television (TV) for General Awareness.
- Training for Job.

REVIEW OF LITERATURE

In another assessment, Hashemi et al. (1996) looked into the modification in ladies fortifying as a result of participation in the microfinance program of Grameen Bank. They made a reinforcing marker which is known as a 'rundown of fortifying' considering eight measures: flexibility, money related security, ability to make pretty much nothing and colossal purchases, relationship in huge family decisions, relative open door from control by the family, political and legal care, and backing out in the open takes on and political conflicts. A lady is empowered in case she has a positive score on at any rate five, out of eight pointers.

Kumar Vipin et. al. (2015) study presumed that the SHG's and MFI's are assuming an imperative job in conveyance of microfinance administrations which drives improvement of poor and low-pay individuals in India. In any case, slow advancement of graduation of SHG individuals, low quality of gathering working, dropout of individuals from bunches and so on., have additionally been accounted for different examination discoveries in various pieces of the nation, which should be considered while structuring the guide for the following period of the SHG program.

R. Meenu Maheshwari and Shobhna p (2016)"Socio-Economic Empowerment of Women through Self Help Groups: An Empirical Analysis" in here research paper the Women strengthening and rustic improvement has been the focal point of practically all formative approaches of the Government. Ladies strengthening access to formal financial framework would go about as a key to monetary development and maintainable turn of events. SHGs are believed to introduce numerous social and monetary advantages which can be network stages for

ladies to get dynamic in town undertakings, emerge for nearby political race or make a move to address social and network issues, for example, maltreatment of ladies, liquor, settlement framework, Moreover it has made open doors for advancement of pay producing exercises provincial ladies .

Ravikumar, (2016), "Commitment of Microfinance in enabling the ladies business people in Gulbarga city" deduced in his article ladies business people have been engaged in the various areas of their business activities and economic wellbeing under the dynamic direction and backing of smaller scale account organizations and if ladies business visionary is given a legitimate direction and preparing further that will improve the gainfulness of the ventures and the future will be splendid and prosperous.

Karthik K R (2018) Smaller scale money is a significant constituent of a viable neediness easing program. Better access and productive arrangement of reserve funds, credit, and protection offices specifically can empower the poor to: balance out utilization, oversee vulnerabilities better, form resources consistently, and build up their own microenterprises. Miniaturized scale fund is just a method and not an end. A definitive objective of the microfinance is to lessen destitution. Government, NGOs and other budgetary establishments have presented different government assistance plans and exercises to decrease neediness.

METHODOLOGY

Statement of problem: This study recognizes various problems that is there has been a thrust where as Women have been the focus of most of such programs yet there is a significant mismatch between the requirements of the women belonging to the urban and rural poor sections and the current financial interventions that are available. This study aims at doing the how the microfinance can impact on women strengthening power. And it includes the challenges faced by women, lack of knowledge on various schemes and fluctuating in current financial factors.

The objectives of the study are:

- 1) To study the role of microfinance in women empowerment.
- 2) To evaluate the effectiveness of microfinance on women empowerment.

SCOPE OF THE STUDY

This study was carried out in state of Karnataka. And The respondents included are the residence of Karnataka state, especially women. The Data was collected from the women residence of Karnataka to determine the role played in providing financial services and effects of microfinance schemes on empowering women with providing various benefits to carry forward their life also strengthening the minds of women.

RESEARCH METHODOLOGY

Research method: The research method utilized in this investigation on a study is Descriptive research. An unmistakable research is a kind of research that portrays a populace, circumstance, or marvel that is being contemplated. It centres around noting the how, what, when, and where questions If an exploration issue, instead of the why.

SOURCES OF DATA COLLECTION

The data collected for the study from two sources they are:

- 1) Primary data: Data was collected by forming the questionnaire and circulating the questionnaire for the survey which is the primary data.
- 2) Secondary data: Data was collected from research papers, research reports, blogs and articles accessible on web which is the secondary data.

Tools for data collection

The tools used in this study for data collection is questionnaire. Questionnaire are formed and circulated for the survey to the women who have taken financial services from microfinance in state of Karnataka.

Sampling Procedure

- Sampling techniques: In this investigation Convenience sampling is used.
- Sample size: A sample size of 200 was taken into consideration to investigate this study.
- Sampling unit: Sampling unit is basically taken from the women's located in state of Karnataka.
- Sample area: The sample area is a various scheme of microfinance in state of Karnataka.

Tools for analysing data

- Descriptive statistics: It is a technique which help the investigate in organise, summarise and describe measures of sample. It includes graphs and charts.
- Inferential statistics: it is a technique which helps in making decisions or predictions based on sample information. It includes correlation and chi-square.

Limitations of the study

- The first is limited access to data because survey was conducted only in state of Karnataka, so other various states are having various schemes as well benefited more in women empowerment. from, that, we may lack in vital information, and this often limits the scope of analysis.
- The second limitation concerns to the sample size, the responses taken here is 350 but the number of microfinance users are comparatively low. Therefore, the study is based on smaller sample size and could have generated much accurate results on a larger one.
- The third factor limits to data collection. Here the data collection method used is questionnaire there are high chances that many respondents would have marked the answers randomly.

Objective No. 1- To study the role of microfinance in women empowerment.

Independent variable: Do you think microfinance has played major role in women empowerment.

Dependent variable: effective microfinance model in Karnataka contribute high towards the women empowerment such as creates entrepreneurship, create employment and helps in family necessities

H1: There is significance relationship between effects of micro finance schemes and women empowerment.

H0: There is no significant relationship between effects of micro finance schemes and women empowerment.

Table No. 1 Correlation

		12) The following are the reasons behind you to attend the training programme of microfinance? [Orientation]	12) The following are the reasons behind you to attend the training programme of microfinance? [Confidence building]	12) The following are the reasons behind you to attend the training programme of microfinance? [For gaining knowledge]	12) The following are the reasons behind you to attend the training programme of microfinance? [Skill development]	6) Do you think microfinance has played major role in women empowerment?
12) The following are the reasons behind you to attend the training programme of microfinance? [Orientation]	Pearson Correlation	1	-.265**	-0.117	0.074	0.061
	Sig. (2-tailed)		0	0.098	0.297	0.392
	N	200	200	200	200	200
12) The following are the reasons behind you to attend the training programme of microfinance? [Confidence building]	Pearson Correlation	-.265**	1	-.243**	0.045	0.027
	Sig. (2-tailed)	0		0.001	0.53	0.701
	N	200	200	200	200	200
12) The following are the reasons behind you to attend the training programme of microfinance? [For gaining knowledge]	Pearson Correlation	-0.117	-.243**	1	-0.131	-0.036
	Sig. (2-tailed)	0.098	0.001		0.065	0.612
	N	200	200	200	200	200
12) The following are the reasons behind you to attend the training programme of microfinance? [Skill development]	Pearson Correlation	0.074	0.045	-0.131	1	-0.039
	Sig. (2-tailed)	0.297	0.53	0.065		0.583
	N	200	200	200	200	200
6) Do you think microfinance has played major role in women empowerment?	Pearson Correlation	0.061	0.027	-0.036	-0.039	1
	Sig. (2-tailed)	0.392	0.701	0.612	0.583	
	N	200	200	200	200	200

Interpretation

The correlation table shows all pair wise correlations. The values in the correlation are standardised, and range from 0 to 1. All the variables are moderately correlated with satisfaction level. These correlations are one-to-one correlations of each variable with other.

Reliability test**Table No. 2: Reliability test**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.812	.779	11

Cronbach's alpha is the most common form of internal consistency reliability coefficient. Alpha equals zero when the true score is not measured at all and there is only an error component. Alpha equals 1.0 when all items measure only the true score and there is no error component.

Interpretation Cronbach's alpha can be interpreted as the percent of variance the observed scale would explain in the hypothetical true scale composed of all possible items in the universe. Alternatively, it can be interpreted as the correlation of the observed scale with all possible other scales measuring the same thing and using the same number of items.

Cut-off criteria. By convention, a lenient cut-off of .60 is common in exploratory research; alpha should be at least .70 or higher to retain an item in an "adequate" scale; and many researchers require a cut-off of .80 for a "good scale." To test the reliability and validity of the data collected Cronbach's alpha test was used and values of Coefficient alpha (Cronbach's Alpha) have been obtained, the minimum value of Coefficient alpha obtained was 0.812. This shows data has satisfactory internal consistency reliability

Objective 2-To evaluate the effectiveness of microfinance on women empowerment.

H1: There is significance relationship between women empowerment and micro finance schemes.

H0: There is no significant relationship between women empowerment and micro finance scheme

Independent variable: Do you think microfinance has played major role in women empowerment.

Dependent variable: Is that Microfinance plays a major role in poverty reduction.

Interpretation

The correlation table shows all pair wise correlations. The values in the correlation are standardised, and range from 0 to 1. All the variables are moderately correlated with satisfaction level. These correlations are one-to-one correlations of each variable with other.

Chi-square

Chi-squared test, additionally composed as χ^2 test, is a factual speculation test that is substantial to perform when the test measurement is chi-squared circulated under the invalid theory, explicitly Pearson's chi-squared test and variations thereof. Pearson's chi-squared test is utilized to decide if there is a measurably critical distinction between the normal frequencies and the watched frequencies in at least one classes of a possibility table.

In the standard utilizations of this test, the perceptions are arranged into fundamentally unrelated classes. In the event that the invalid theory is valid, the test measurement figured from the perceptions follows a χ^2 recurrence dispersion. The motivation behind the test is to assess how likely the watched frequencies would be accepting the invalid theory is valid.

Test insights that follow a χ^2 conveyance happen when the perceptions are free and typically dispersed, which presumptions are frequently supported under as far as possible hypothesis. There are additionally χ^2 tests for testing the invalid speculation of freedom of a couple of arbitrary factors dependent on perceptions of the sets.

Chi-squared tests regularly alludes to tests for which the conveyance of the test measurement approaches the χ^2 appropriation asymptotically, implying that the inspecting dispersion (if the invalid theory is valid for) the test measurement approximates a chi-squared dissemination increasingly more intently as test sizes increment.

Objective:1 To study the role of microfinance in women empowerment.

Independent variable: Do you think microfinance has played major role in women empowerment.

Dependent variable: Is that Microfinance plays a major role in poverty reduction.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	200.000 ^a	3	.000
Likelihood Ratio	53.897	3	.000
Linear-by-Linear Association	7.369	1	.007
N of Valid Cases	200		
a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .18.			

Symmetric Measures

		Value	Asymptotic Standard Error	Approximate T ^b	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.707			.000
Interval by Interval	Pearson's R	.192	.045	2.759	.006 ^c
Ordinal by Ordinal	Spearman Correlation	.333	.069	4.963	.000 ^c
N of Valid Cases		200			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Interpretation

Null hypothesis: Role of microfinance in women empowerment.

Alternative hypothesis: Microfinance plays a major role in poverty reduction

In a chi square test, for a 90 percent confidence level, if the significant level is greater than 0.1, it signifies that there is no association between the two variables in the cross tabulation, and if the significance level is less than 0.1, then it signifies that there is a significant relation between the selected variables.

The result of the chi square analysis

From the output tables, the chi-square test read a significance level of 0.000(which is less than 0.1) hence there is a significant relation between the variables. The contingency coefficient is 0.000, which indicates there is a moderate association between the two variables.

Objective 2 : To evaluate the effectiveness of microfinance on women empowerment.

Independent variable: Do you think microfinance has played major role in women empowerment.

Dependent variable: effective microfinance model in Karnataka contribute high towards the women empowerment such as creates entrepreneurship, create employment and helps in family necessities

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	53.659 ^a	9	.000
Likelihood Ratio	67.415	9	.000
Linear-by-Linear Association	11.645	1	.001
N of Valid Cases	200		

Symmetric Measures

		Value	Asymptotic Standard Error	Approximate T ^b	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.460			.000
Interval by Interval	Pearson's R	.242	.041	3.508	.001 ^c

Ordinal by Ordinal	Spearman Correlation	.254	.055	3.694	.000 ^c
N of Valid Cases		200			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					
c. Based on normal approximation.					

Interpretation

Null hypothesis: Role of microfinance in women empowerment.

Alternative hypothesis: effective microfinance model in Karnataka contribute high towards the women empowerment such as creates entrepreneurship, create employment and helps in family necessities.

In a chi square test, for a 90 percent confidence level, if the significant level is greater than 0.1, it signifies that there is no association between the two variables in the cross tabulation, and if the significance level is less than 0.1, then it signifies that there is a significant relation between the selected variables.

The result of the chi square analysis

From the output tables, the chi-square test read a significance level of 0.000(which is less than 0.1) hence there is a significant relation between the variables. The contingency coefficient is 0.000, which indicates there is a moderate association between the two variables

FINDINGS

The following points of findings in the study are recognized from the primary data i.e., through survey are:

Correlation analysis

- **H1:** There is significance relationship between women empowerment and micro finance schemes.
- **H0:** There is no significant relationship between women empowerment and micro finance scheme.
- **H1:** There is significance relationship between effects of micro finance schemes and women empowerment.
- **H0:** There is no significant relationship between effects of micro finance schemes and women empowerment.

Chi-square analysis

- There is a significant relationship between role of microfinance in women empowerment and poverty reduction.
- There is a significant relationship between role of microfinance in women empowerment and effective microfinance model in Karnataka contribute high towards the women empowerment such as creates entrepreneurship, create employment and helps in family necessities. The following points of findings in the study are recognized from the secondary data i.e., through survey are:
- It is noticed that all the respondents agreed that micro finance brought courage and self-confidence and improved their skill and self-worthiness.
- It is found that microfinance improved the literacy level of rural women improved awareness on children education to high level of respondents.
- Majority of women expressed that their awareness about environment improved after taking part in micro finance programs actively. Maximum number of respondents accepted that microfinance has brought economic development directly and indirectly happiness and peace in the family.
- Women are economically and socially empowered after joining SHG and getting micro finance as 92 percent reported that poverty level reduced by participating micro finance program.
- As far as the self-help group is concerned, they don't face any type of problems or compulsions from leaders or from other members in the group. Women are given full freedom to express their opinions.
- It is also noticed that most of the women are not aware of the trainings organized by the NGO. The NGO shall actively take part in various trainings sessions provided to all women members wherein they can gain more knowledge about the various income generating activities.

- There is appreciable development in coordination between groups and within group leaders and decision making among respondents. There is a significance improvement in the income of the respondents after joining SHG.
- There is a definite improvement in psychological well-being and social empowerment among rural women as a result of participating in micro finance through SHG program.

RECOMMENDATION

The interest rate must be reduced in MFI (12%-36%) because the rural women work for daily payment and spends those money earned daily needs. So, women will not be having to save a money in her day earnings to pay interest to the bank. This enables to create more problem to her.

- A government or any other microfinance institution, bank, schemes should provide more time to recover loan.
- Regional imbalances must be removed in all schemes like SHGs, MFI and individual lending.
- High authority and responsibility like risk management, accounting, repayment monitoring and financial management must be taken by experienced person in this field.
- The training must be provided to women in both rural and urban. And this training must be given often and often this encourages the women in keen of learning more.
- Should give a complete freedom for a woman to participate in all the activities in microfinance schemes as well as should allow them to give an idea, suggestion and feedback. It enables them to increase their strengthen power.

CONCLUSION

From the above discussion, it can be concluded that microfinance programme is helpful in empowering women economically, socio-culturally and politically. The education, skill and training provided by microfinance programme lead to the development of the overall personality of the programme participants. The beneficiaries of the programme have higher levels of employment, income and participation in household financial decision-making as compared to non-participants. It is also found that the beneficiaries are more confident while travelling, visiting market for the purchase of household goods, and dealing with other members of the society. Participants of the microfinance programme are able to raise their voice against various social exploitations more confidently. They are more participative in the social development activities; and have greater political awareness as compared to nonparticipants. Apart from it, group activities develop reading and writing skills, ability to do basic calculations and understanding basic banking operations. The various methods analysis shows that the variables like education of the participants, maturity of the group, employment status of the participants, household income and mobility are significant which influence the empowerment of programme participants. In this way, microfinance programme has contributed a lot in the empowerment of women. While interacting with the respondents, it is noticed that some members are expecting the NGO to come up with more training sessions in income generating activities. All they need is a way to develop their skills and talents by participating in various training programs.

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A STUDY ON MICROFINANCE IN WOMEN EMPOWERMENT

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INTRODUCTION

Micro credit and microfinance are generally new terms in the field of advancement, first coming to noticeable quality during the 1970s, as indicated by Robinson (2001) and Otero (1999). Before at that point, from the 1950s through to the 1970s, the arrangement of money related administrations by givers or governments was mostly as sponsored rustic credit programs. These regularly brought about high advance defaults, high lose and a failure to arrive at poor country family units (Robinson, 2001). The principle point of microfinance is to engage ladies. Ladies make up an enormous extent of microfinance recipients. Customarily, ladies (particularly those in immature nations) have been not able to promptly take part in financial action. Microfinance gives ladies the budgetary support they have to begin undertakings and effectively take an interest in the economy. It gives them certainty, improves their status and settles on them increasingly dynamic in dynamic, in this manner empowering sexual orientation uniformity. As indicated by CGAP, long-standing MFIs even report a decrease in brutality towards ladies since the commencement of microfinance.

Microfinance and Women Empowerment

In this study, an empowered woman is viewed as one who has improved her life by approaching and usage of assets gave by microfinance program. She likewise applies and takes part in the family needs. She shows self-assurance and further more takes an interest in the other activities of life. She has general awareness with the current social, financial and politics environment. In this study the Microfinance schemes considered is SHGS, MFI, Grameen and co-operative and Individual lending.

SHGS

The important Feature /characteristics of Self-help groups: Some Common Features of The Functioning of SHGs are as Follows:

- To produce the essential store by contributing their little hold reserves.
- Each social affair part adequately looks into the working of standard get-together.
- The strategy and records are kept up by the pioneer and pioneer is picked or picked among the social affair people.
- The propelling entirety is close to nothing and for brief period.
- Loan is approved on „trust“ with least documentation and with no security.
- The pace of interest differs from social occasion to get-together. It is normally insignificant higher than that of charged by banks.
- Generally, the repayment of advance whole is on time.

Objectives of SHGs:

To teach the reserve funds and banking propensities among individuals and to make sure about them from budgetary, specialized and moral qualities as follows:

- To engage benefitting of advance for useful purposes.
- To increment financial thriving through development/credit.
- To get from total information in orchestrating and managing their own cash and passing on the favourable circumstances among themselves.
- To hone ladies of target an area for the need of SHG and its hugeness in their reinforcing.
- To make pack feeling among ladies.
- To redesign the conviction and limits of ladies.
- To make total dynamic among ladies.
- To enable affinity for saving among ladies and energize the social affair of their own capital resource base.

- To impel ladies taking up social commitments particularly related to ladies' improvement.
- It goes about as the conversation for people to give space and sponsorship to each other.

Three models of bank linkage emerged as follows:

Model I: SHGs shaped by and connected legitimately to banks.

Model II: SHGs shaped and encouraged by offices like NGOs, government offices, or other network-based associations structure gatherings. Yet, connected legitimately to banks.

Model III: Bank-NGO-MFI-SHG-Members: NGOs act both as facilitators and microfinance middle people. To begin with, they advance gatherings, sustain them, and train them, and afterward they approach banks for mass advances for loaning to the SHGs. The third model, where SHGs were framed and sustained by the NGOs.

MFI

MFI is served a huge number of needy individuals by furnishing them simple access to credits with better reimbursements rates, and furthermore improving their wellbeing and government assistance. Dominant part of poor families increased incalculable advantages from microfinance plots all around the globe. Because of absence of fitting institutional capacities to control, an excessive number of MFIS quickly extended worldwide until 2019. MFI incorporate non-legislative associations (NGOs), credit associations, non-bank money related mediators, and business banks. characterization of MFI is:

- Institutions that gave microfinance items and administrations.
- Non-benefit associations
- Non-administrative authoritative (NGOs)
- Commercial banks.
- Rural cooperatives-Member possessed
- Receiving assets through givers, awards, advances and financing exercises.
- Have gave help to an expected 500 million individuals around the world.

Types of MFIs

a) Banks

- Commercial Banks.
- Agricultural Credit Banks.

b) Project/State funds

- International aid Programs.
- Para-public organizations.

c) Informal Resources

- Family
- Traditional Savings
- Tontines
- Money Lenders

d) Microfinance

- Credit & Savings.

Grameen and co-operative

The Grameen model has been an instance of remarkable accomplishment in Bangladesh. It turns out that numerous associations in India have embraced the Grameen Bank model with little varieties. A portion of the eminent models are SHARE Microfinance Limited, Activists for Social Alternatives (ASA) and CASHPOR Financial and Technical Services Limited.

A portion of the huge highlights of Grameen bank model are low exchange costs, no guarantee (peer pressure is adequate), reimbursement of advances in little and short interim and brisk advance authorizations with next to zero paper works and no conventions. Reimbursement of credits in little lump is one of the significant reasons of high advance recuperation pace of a Grameen Bank. Moreover, credits are accommodated all reasons like lodging advances, sanitation credits, valuable advances and so forth. Likewise, the loan fees are ostensible making it simple for the destitute individuals to reimburse their advances convenient.

Some of the salient features of Grameen model are mentioned below:

- Homogenous gatherings of five individuals are shaped at neighbourhood level.
- All the gathering individuals got a 7-day obligatory preparing
- Some gatherings experience the Group Recognition Test for screening genuine and non-genuine gatherings.
- Those who passed the GRT she ought to become individuals from bank by paying a once enrolment expenses.
- Eight Groups associate together to shape a middle.
- Centre meets each week, at a characterized time. A staff of the bank joins in the gathering.
- Group discipline is upheld through friend pressure
- The reserve funds are necessary for the individuals. Each part spares Rs. 10 consistently.
- The size of the credit by and large ranges from Rs 4000 to Rs 10000 for general yearly credits. The principal year size is Rs 4000 and there is a yearly increment of Rs. 1000 in credit size, for consistently from there on. All advances including horticulture credits are repayable inside a year, equivalent portions spread more than 52 weeks.
- The arrangement of 5% expense of every single beneficial credit dispensed to a part is one of the most significant procedures to expand bunch subsidize. This store stays with the gathering.
- The gathering chief gathers the advance reimbursements and investment funds preceding the gathering what's more, hands it over to the middle chief who thusly during the gathering offers it to the field specialist.
- The financing costs differ from 15-24%.
- Collateral is supplanted by peer pressure. The motivating force to convenient reimbursement is rehash advances and proceeds with access to expanding credit from Bank. The most wonderful part of the Grameen model is low default, reimbursement rate is in the scope of 98% or more. It has prompted minimal effort of credit and pulled in minimal effort assets from the legislature and universal contributors. While the Grameen model is constrained to not exactly twelve significant NGO-MFIs or NBFCs, it is a significant elective credit conveyance framework to standard fund.

Individual lending

In smaller scale money, Individual Lending is characterized as a credit to one person. Singular Lending is the progression above gathering loaning. There are five primary determinates that separate individual loaning from bunch loaning, including:

- Lending to a solitary individual
- Larger advances
- More security/guarantee required
- More careful examination process utilizing capital
- Monitoring of the business after advance disbursal.

Procedure and technique followed in individual learning they are as per the following:

- Step-by-Step: the development methodology: These gathering encounters the quick and dirty advances the Credit Officer must perform to complete the development examination, get the development avowed and assemble and screen the development.

- Marketing and Customer Service: This gathering explains in detail how Credit Officers can improve their advancing procedures and customer care through plans and showed methods for working with particular development clients.
- Credit Analysis: Explains the system whereby the Credit Officer surveys the client using the screening, application and advance assessment mechanical assemblies.
- Cashflow Analysis: Teaches the Credit Officer how to use the pay instrument to choose the client's repayment limit. It is the most critical bit of separating a client's business.
- Financial Statement Analysis: Briefly reviews the compensation decree and why it isn't used in this framework. This gathering in like manner reviews the fiscal record and how to effectively use it to separate a client's present asset, hazard and worth situation.
- Collateral: Reviews the security essentials for the individual credit and nuances cases of various types of assurance, mixes and unequivocal certified models.
- Loan Structuring: Instructs the individuals, ensuing to evaluating as far as possible, on the most ideal approach to fittingly survey the endeavour needs and characterize an authentic credit total, repayment course of action, and instalment conditions.
- Loan Approval and Documentation: Takes the Credit Officer through a movement of convenient advances, which will be crucial for getting support of the development and apportioning the development.
- Collection and Monitoring and Problem Asset Management from a Loan Officer's perspective: Reviews the fundamental, anyway consistently disregarded, procedures the Credit Officer must path a development is apportioned to keep up a strong development portfolio and assemble on terrible advances. Benefits of micro finance in women empowerment.
- Poor-access to banking credit, administrations
- Loans to begin business
- Employment
- Alternative to cash moneylenders
- Offers decisions
- Stability
- Manage chance.
- Improved day to day environments.
- Confidence reinforcing
- Skill improvement
- Health and instruction of their youngsters.
- Save and put resources into future
- Increase in Income and financial movement. Poverty decrease.

REVIEW OF LITERATURE

Parker (2013) "Engaging Women through Microfinance in India: in his paper delineated that over the globe, where the provincial populace thickness is reasonably high. The Microfinance can likewise incredibly successful destitution decrease apparatus in provincial poor. Microfinance and ladies' ventures can likewise possibly be available exceedingly beneficial endeavours abundance of urban capital is diverted to credit starving country regions.

Dr. Ritu Srivastava (Feb 2014), "Smaller scale fund: Special Reference to Self-assist Group With banking Linkage Program": in his examination he found the self-improvement gathering – bank linkage program. has been effective before and with section of time has picked up notoriety. There are a few issues, for example, misrepresented procedure, absence of demonstrable skill, issues in showcasing, dishonest conduct of authorities and so forth. There is have to achieve straightforwardness, reasonable loaning rehearses, evasion of over in debtness to guarantee reimbursement and keep up of high moral measures.

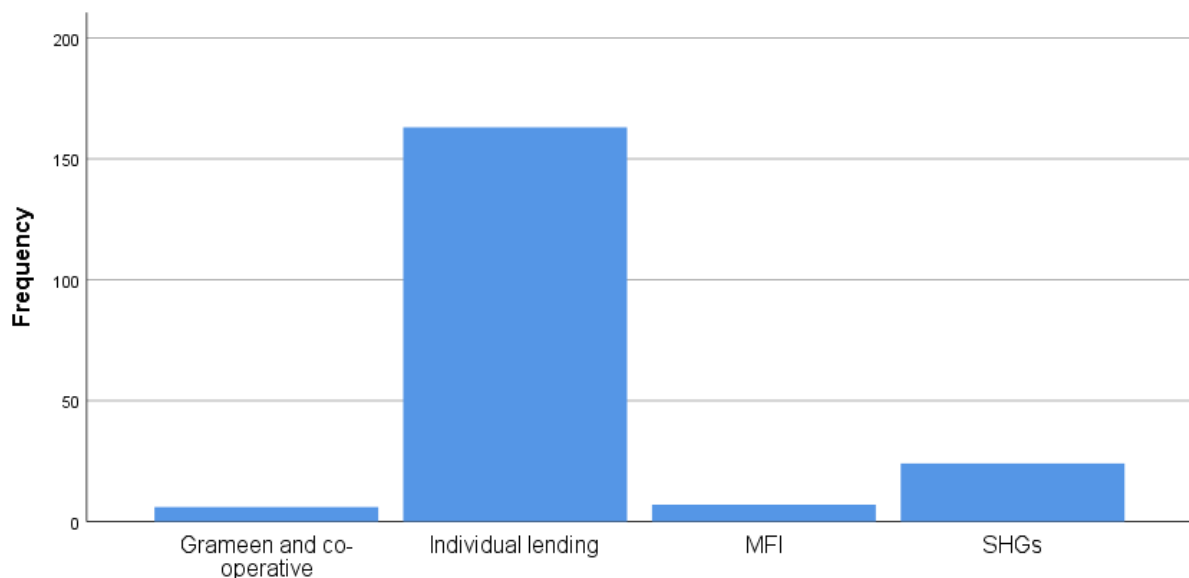
Harish (2014) in his article "Small scale Finance And Empowerment of Women" delineated so as to additionally expand its perspectives and get most extreme advantages to individuals general and nation specifically, there is still need to have more waste of assets to the dry goal of the general public, no nation can stand to disregard considerable populace experiencing neediness as it very well may be expensive for development of any economy. Miniaturized scale account on provincial turn of events and neediness decrease has been estimated as far as a few measurements, for example, improved salary, business Activates and family consumption and diminished weakness to financial and social emergencies.

Dr. Perways Alam and Mohammed Nizamuddin (2014) "Job of SHGs-Bank Linkage Program in Women Empowerment: A Block Level Study of Mewat Haryana" in his paper Self Help Group ladies strengthening have constantly set a truly decent situation in the general public. senior ladies ought to likewise be urged to partake in the program as they have great experience of making diverse kind of things. What's more, Self-Help Groups ought to broaden the zone of their business and attempt to reach to neighbourhood markets to their home creation items. The self-improvement gathering is answerable for enabling ladies with the assistance of advancing confidence, self-reliant, fearless, and teaching them to comprehend their crucial rights. It must act naturally created with the end goal that it empowers them to assume responsibility for their lives and take choices freely

Table No. 1: Obtained financial services from the following microfinance schemes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Grameen and co-operative	6	3.0	3.0	3.0
	Individual lending	163	81.5	81.5	84.5
	MFI	7	3.5	3.5	88.0
	SHGs	24	12.0	12.0	100.0
	Total	200	100.0	100.0	

Chart No. 1: Obtained financial services from the following microfinance schemes.



INTERPRETATION:

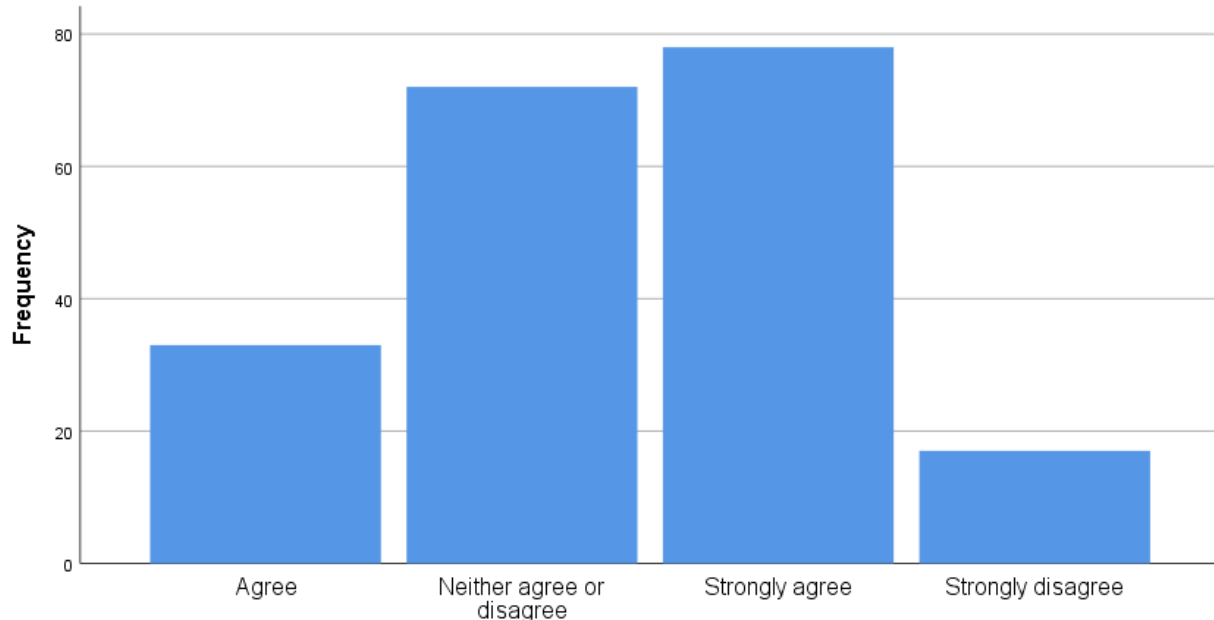
The above table and graph states that out of 200 respondents 3.0% of respondents haven taken financial services from Grameen and co- operative, 81.5% of respondents have taken financial services from individual lending, 3.5% of respondents have taken financial services from MFI and 12.0% of respondents have taken services from SHGS.

Table No. 2: The main purpose to borrow loan in microfinance [Household]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	33	16.5	16.5	16.5

	Neither agree or disagree	72	36.0	36.0	52.5
	Strongly agree	78	39.0	39.0	91.5
	Strongly disagree	17	8.5	8.5	100.0
	Total	200	100.0	100.0	

Chart 4.8.1: The main purpose to borrow loan in microfinance [Household]



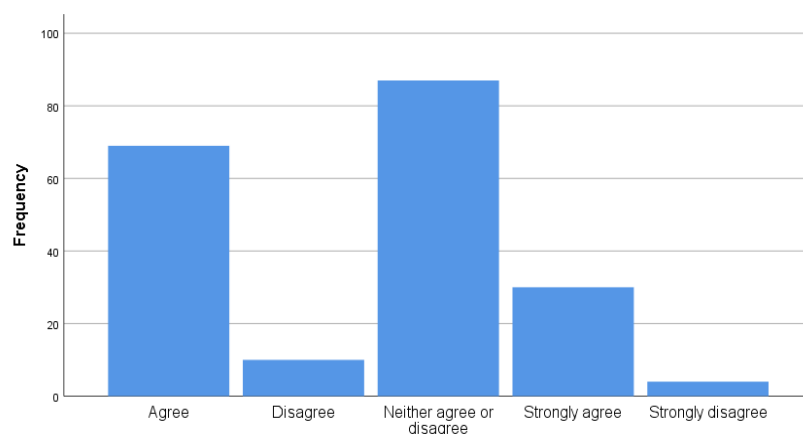
INTERPRETATION:

From the above table and chart, it is clearly understood that out of 200 respondents, 16.5% of respondents are agreed, 36.0% of respondents stated they are neither agreed or disagreed, 39.0% of respondents are strongly agreed, 8.5% of respondents are strongly disagreed, 0% percent of response for disagree for borrowing in loan in microfinance for household purpose.

Table 4.8.2: The main purpose to borrow loan in microfinance [Business]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	69	34.5	34.5	34.5
	Disagree	10	5.0	5.0	39.5
	Neither agree or disagree	87	43.5	43.5	83.0
	Strongly agree	30	15.0	15.0	98.0
	Strongly disagree	4	2.0	2.0	100.0
	Total	200	100.0	100.0	

Chart 4.8.2: The main purpose to borrow loan in microfinance [Business]

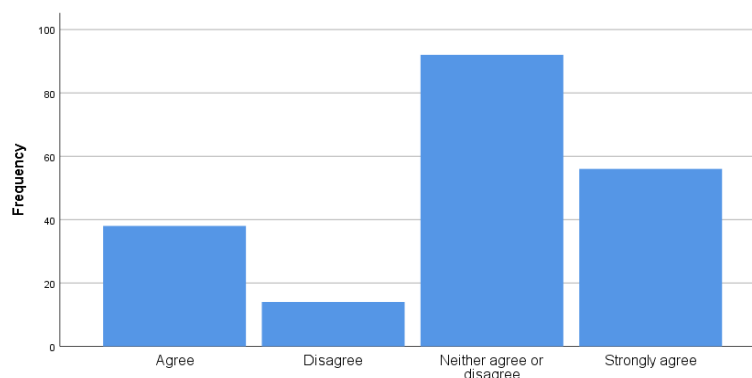


INTERPRETATION

From the above table and chart, it is clearly understood that out of 200 respondents, 34.5% of respondents are agreed, 5.0% of respondents are disagreed, 43.5% of respondents stated they are neither agreed or disagreed, 15.0% of respondents are strongly agreed, 2.0% of respondents are strongly disagreed agreed that borrowing loan in microfinance for Business purpose.

Table 4.8.3: The main purpose to borrow loan in microfinance [Education]

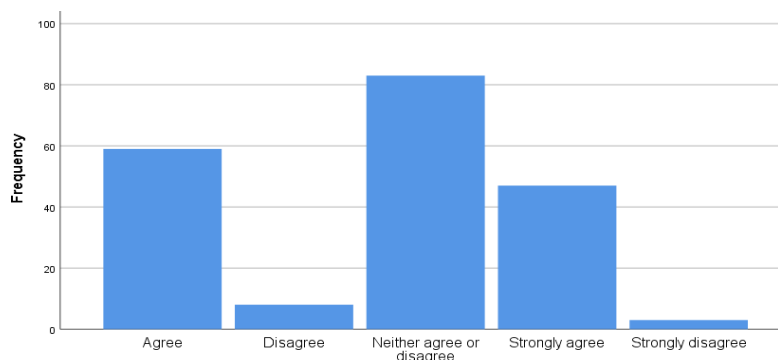
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	38	19.0	19.0	19.0
	Disagree	14	7.0	7.0	26.0
	Neither agree or disagree	92	46.0	46.0	72.0
	Strongly agree	56	28.0	28.0	100.0
	Total	200	100.0	100.0	

Chart 4.8.3: The main purpose to borrow loan in microfinance [Education]**INTERPRETATION:**

From the above table and chart, it is clearly understood that out of 200 respondents, 19.0% of respondents are agreed, 46.0% of respondents stated they are neither agreed or disagreed, 28.0% of respondents are strongly agreed, 7.0% of respondents are neither agree or disagreed, 0% of response for Strongly disagree for borrowing in loan in microfinance for Education purpose.

Table 4.8.4: The main purpose to borrow loan in microfinance [other]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	59	29.5	29.5	29.5
	Disagree	8	4.0	4.0	33.5
	Neither agree or disagree	83	41.5	41.5	75.0
	Strongly agree	47	23.5	23.5	98.5
	Strongly disagree	3	1.5	1.5	100.0
	Total	200	100.0	100.0	

Chart 4.8.4: The main purpose to borrow loan in microfinance is? [other]

INTERPRETATION

From the above table and chart, it is clearly understood that out of 200 respondents, 29.5% of respondents are agreed, 4.0% of respondents are disagreed, 41.5% of respondents are neither agreed or disagreed, 23.5% of respondents are strongly agreed, 1.5% of respondents are strongly disagreed that borrowing loan in microfinance for other purpose.

FINDINGS

The following points of findings in the study are recognized from the primary data i.e., through survey are:

- The above table and graph states that out of 200 respondents 3.0% of respondents haven taken financial services from Grameen and co- operative, 81.5% of respondents have taken financial services from individual lending, 3.5% of respondents have taken financial services from MFI and 12.0% of respondents have taken services from SHGS.
- In the study it is found that 16.5% of respondents are agreed, 36.0% of respondents stated they are neither agreed or disagreed, 39.0% of respondents are strongly agreed, 8.5% of respondents are strongly disagreed, 0% percent of response for disagree for borrowing in loan in microfinance for **household purpose** 34.5% of respondents are agreed, 5.0% of respondents are disagreed, 43.5% of respondents stated they are neither agreed or disagreed, 15.0% of respondents are strongly agreed, 2.0% of respondents are strongly disagreed agreed that borrowing loan in microfinance for **Business purpose**. 19.0% of respondents are agreed, 46.0% of respondents stated they are neither agreed or disagreed, 28.0% of respondents are strongly agreed, 7.0% of respondents are neither agree or disagreed, 0% of response for Strongly disagree for borrowing in loan in microfinance for **Education purpose**. 29.5% of respondents are agreed, 4.0% of respondents are disagreed, 41.5% of respondents are neither agreed or disagreed, 23.5% of respondents are strongly agreed, 1.5% of respondents are strongly disagreed that borrowing loan in microfinance for other purpose.
- From the above table and chart, it is clearly understood that out of 200 respondents, 20.5% of respondents are agreed, 41.0% of respondents are disagreed, 10.5% of respondents stated they are neither agreed or disagreed, 19.5% of respondents are strongly agreed, 9.0% of respondents are strongly disagreed that the most common savings accounts they use in my microfinance is **occasional savings account**, And 26% of respondents are agreed, 43.0% of respondents are disagreed, 5.0% of respondents stated they are neither agreed or disagreed, 32.0% of respondents are strongly agreed, 7.0% of respondents are strongly disagreed that the most common savings accounts they use in my microfinance is **regular savings account**. From the above table and chart, it is clearly understood that out of 200 respondents, 19.0% of respondents are agreed, 54.0% of respondents are disagreed, 3.5% of respondents are neither agreed or disagreed, 16.5% of respondents are strongly agreed, 7.0% of respondents are strongly disagreed that the most common savings accounts they use in my microfinance is **no savings account**. It means they don't maintain any savings account they take services in microfinance and for emergency purpose only. And they return it back in shorter period. This are the elements microfinance had considered more to contribute effectively.
- From the above table and chart out of 200 respondents, 14.5% of respondents agreed, 6.0% of respondents disagreed, 42.5% of respondents are neither agree or disagree, 28.5% of respondents are strongly agreed and 8.5% of respondents are strongly disagreed the training on microfinance schemes are provided by **NGO activist**. And 18.0% of respondents agreed, 11.5% of respondents disagreed, 51.0% of respondents are neither agree or disagree, 19.5% of respondents are strongly agreed and 0% of respondents are strongly disagreed the training on microfinance schemes are provided by **Govt officials**, and 29.5% of respondents agreed, 9.5% of respondents disagreed, 49.0% of respondents are neither agree or disagree, 12.0% of respondents are strongly agreed and 0% of respondents are strongly disagreed the training on microfinance schemes are provided by **Resource person**. And 26.5% of respondents agreed, 7.5% of respondents disagreed, 42.0% of respondents are neither agree or disagree, 22.0% of respondents are strongly agreed and 2% of respondents are strongly disagreed the training on microfinance schemes are provided by **Particular person belong to a scheme**.
- From the above table and chart out of 200 respondents, 14.0% of respondents agreed, 3.5% of respondents disagreed, 44.5% of respondents are neither agree or disagree, 27.5% of respondents are strongly agreed and 10.5% of respondents are strongly disagreed that the risk bearing channel in microfinance scheme is **SHGS**. And 23.5% of respondents agreed, 5.7% of respondents disagreed, 12.5% of respondents are neither agree or disagree, 7.0% of respondents are strongly agreed and 0% of respondents are strongly disagreed that the risk bearing channel in microfinance scheme is **MFI**. and 19.5% of respondents agreed,

3.0% of respondents disagreed, 51.5% of respondents are neither agree or disagree, 19.0% of respondents are strongly agreed and 7.0% of respondents are strongly disagreed that the risk bearing channel in microfinance scheme is **Grameen and co-operative**. And 20.5% of respondents agreed, 3.5% of respondents disagreed, 52.5% of respondents are neither agree or disagree, 15.0% of respondents are strongly agreed and 8.5% of respondents are strongly disagreed that the risk bearing channel in microfinance scheme is **Individual learning**.

- From the above table and chart out of 200 respondents, 20.0% of respondents agreed, 4.5% of respondents disagreed, 42.0% of respondents are neither agree or disagree, 21.5% of respondents are strongly agreed and 12.0% of respondents are strongly disagreed that **Micro credit** is benefited from Microfinance institution and 20.0% of respondents agreed, 12.5% of respondents disagreed, 52.5% of respondents are neither agree or disagree, 9.0% of respondents are strongly agreed and 6.0% of respondents are strongly disagreed that **Micro savings** is benefited from Microfinance institution. And 11.5% of respondents agreed, 11.0% of respondents disagreed, 52.0% of respondents are neither agree or disagree, 21.5% of respondents are strongly agreed and 4.0% of respondents are strongly disagreed that **Micro insurance** is benefited from Microfinance institution. And 22.0% of respondents agreed, 3.0% of respondents disagreed, 48.0% of respondents are neither agree or disagree, 17.0% of respondents are strongly agreed and 9.5% of respondents are strongly disagreed that **micro finance training** is benefited from Microfinance institution.
- From the above table and chart out of 200 respondents, 6.0% of respondents agreed, 0% of respondents disagreed, 45.0% of respondents are neither agree or disagree, 42.5% of respondents are strongly agreed and 6.5% of respondents are strongly disagreed the above statement i.e., is that microfinance removes **gender in equality** and **promotes women networking**.

RECOMMENDATION

The interest rate must be reduced in MFI (12%-36%) because the rural women work for daily payment and spends those money earned daily needs. So, women will not be having to save a money in her day earnings to pay interest to the bank. This enables to create more problem to her.

- A government or any other microfinance institution, bank, schemes should provide more time to recover loan.
- Regional imbalances must be removed in all schemes like SHGs, MFI and individual lending.
- High authority and responsibility like risk management, accounting, repayment monitoring and financial management must be taken by experienced person in this field.
- The training must be provided to women in both rural and urban. And this training must be given often and often this encourages the women in keen of learning more.
- Should give a complete freedom for a woman to participate in all the activities in microfinance schemes as well as should allow them to give an idea, suggestion and feedback. It enables them to increase their strengthen power.

CONCLUSION

From the above discussion, it can be concluded that microfinance programme is helpful in empowering women economically, socio-culturally and politically. The education, skill and training provided by microfinance programme lead to the development of the overall personality of the programme participants. The beneficiaries of the programme have higher levels of employment, income and participation in household financial decision-making as compared to non-participants. It is also found that the beneficiaries are more confident while travelling, visiting market for the purchase of household goods, and dealing with other members of the society. Participants of the microfinance programme are able to raise their voice against various social exploitations more confidently. They are more participative in the social development activities; and have greater political awareness as compared to nonparticipants. Apart from it, group activities develop reading and writing skills, ability to do basic calculations and understanding basic banking operations. The various methods analysis shows that the variables like education of the participants, maturity of the group, employment status of the participants, household income and mobility are significant which influence the empowerment of programme participants. In this way, microfinance programme has contributed a lot in the empowerment of women. While interacting with the respondents, it is noticed that some members are expecting the NGO to come up with more training sessions in income generating activities. All they need is a way to develop their skills and talents by participating in various training programs.

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6. Kumar Vipin et. al. (2015) study presumed that the SHG's and MFI's.
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8. Amin et al. (1998) split the possibility of ladies fortifying into three sections each intentional autonomously:
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13. <https://www.findevgateway.org/sites/default/files/mfg-en-case-study-the-role-of-microfinance-in-women-empowerment>
14. <https://core.ac.uk/download/pdf/80987938.pdf>
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THE UNTOLD STORY OF LANGUAGE

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ABSTRACT

A brief but precise statement of Language. The result of this research would be a way of resolving the confusion that exists among the people learning languages. Learning another language is not only learning different words for the same things, but learning another way to think about things. This research will be answerable to all confusions there in the society about learning other languages. Language is not a genetic gift, it is a social gift. Learning a new language is becoming a member of the club, the community of speakers of that language.

INTRODUCTION

Language is an extremely important way of interacting with the people around us. We use language to let others know How we feel, What we need and to ask questions. We can modify our language to each situation. Language is a Beautiful sign of connecting with people. A different language is a different vision of life. Language will be a useful tool for people to uplift their career life. By learning new languages will groom a self confidence in them. Learning a new language precludes them as a Unique and Shiny person. In various life situations the linguistic competence necessarily required. The more you use your brain to learn new skills, the more your brain's functions work. Learning a new language pushes your brain to get familiar with new grammar and vocabulary rules. It allows you to train your memory to remember new words, make connections between them and use them in contextual situations.

METHODOLOGY

Exploratory research will be used in this study. Through **secondary data** like text books, journals, academic reports, company websites and unpublished conference papers.

Objectives

To demonstrate a high level of communicative proficiency in learning foreign languages.

To Interpret a variety of cultural products in target language. To apply wide ranging knowledge in languages.

To use sources of information appropriately in the target language.

To recognize and summarize the impact and intersections of learning languages.

Identification of research problem

- A common discussion about learning a new language are as follows
- What is your opinion on learning a second language
- How would you benefit?
- If it was compulsory, Which language would you choose for your second one and why?
- Would you consider learning a third language?

Benefits of learning foreign language

Speaking a foreign language improves the functionality of your brain by challenging it to recognise, negotiate meaning and communicate in different language systems.

This skill boosts your ability to negotiate meaning in other problem solving tasks as well. If your partner, in-laws, relatives or friends speak a different language, learning that language will help you to communicate with them.

It can also give you a better understanding of their culture and way of thinking.

Perhaps you just like the sound of a particular language when it's spoken or sung or you find the written form of a language attractive.

If you like singing, learning songs in other languages can be interesting, challenging and enjoyable.

If your C.V shows that you can speak more than one language you will be chosen over other prospective employees that speak only one language.

To learn a foreign language is to see the world as “you are as many people as the language you speak”.

Learning another language opens up new opportunities and gives you perspective that you might never have encountered otherwise.

Occupations that involve language

- Computer programmer.
- Customer support adviser.
- Interpreter.
- Teacher.
- Language trainer.
- Translator.
- Engineering.
- Banking.
- Civil service.
- Travel and Tourism.
- Secretary IPA.
- Marketing.
- Public relations.
- Pharmaceutical work.
- Journalism and Media.
- Transport and distributions.
- Website localiser.
- Also any job you could possibly want to do, you can do it abroad if you want to stay in a country when you can move to.

METHODS TO HELP YOU LEARN LANGUAGES

Revise for at least ten minutes everyday, this way you revise words learned the way before and a few additional words.

Listen to foreign music, you won't understand all the words at first, but you will become more familiar with them even if you only listen to one song a day.

Use youtube for videos and songs to get you started.

Put your phone into a different language, you are all probably familiar with how to work it anyway so changing the language won't make a difference and you will be able to pick up lots of vocabulary easily.

Put your facebook into a different language and in a few weeks you will have learned a long list of vocabulary.

Read books in different languages.

Watch movies in another language and put english subtitles on. Listening to native speakers will help you with your pronunciation. When you go on holiday, talk to the locals. It may seem a bit random at first but when you get the hang of it you will be having a proper conversation in a completely different language, instead of relying on them to speak english and they will be impressed. Use applications on your phone and websites to play language games and test what you already know.

Some useful websites and applications

Quizlet Linguascope Language perfectMind snacks Babble

Duolingo Memrise

Jam tok Busuu



How will studying language help you?

- It will increase your job opportunities.
- With the growth of the European Union, there is a much greater need for people who have a foreign language.
- Sixty percent of all UK trade is with non-English speaking countries.

It will boost your brain power

Researchers from university college London studied the brains of 105 people 80 of them spoke a foreign language.

They found that learning another language improved the brain in the same way that exercise builds muscle.

It will give you more money

Learning a language can boost an average worker's earnings by up to 20 percent.

For a person earning the average national salary, that would mean an extra £ 200,000 over a working life.

It can even improve your love life

A survey of 270 dating agencies found that people who speak a foreign language are more attractive to the opposite sex.

Experts opinion about their experience on learning languages

Feclerico Fellini (Italian film director)
A different language is a different vision of life.

Lucy Liu (Actor)

I'd love to do a French movie or a Spanish movie, in that language. When you speak a different language, whether or not you're fluent in it, you immerse yourself into a completely different person.

Paula Radcliffe (Athlete)

Although I'm known first and foremost as an athlete, my foreign language skills have given me another dimension to my career. I regularly use French and German when I travel to compete in Europe.

Sir Trevor McDonald (Entrepreneur)

Language learning at its best can be one of the most enjoyable and rewarding experiences that life can offer.

Jessica Brody (Author)

New languages are not something you can pick up overnight, they take time and patience. The willingness to change the way you think about what you already know.

Strategies help You to Learn a Language

Set a short-term language learning goal and stick to it!

For successful language learning, it is essential to choose a well-defined and short-term deadline. Make a goal based on S.M.A.R.T. Specific, Measurable, Attainable, Relevant, and Time-bound.

Learning a language by using the Pareto Principle — The 80/20 Rule

The Pareto principle, also known as the 80/20 theory, is a rule that suggests that 20 percent of your activities will account for 80 percent of your results. Or 80% of our efforts yield only 20% of the results. Time is of the

essence when it comes to language learning, and without creating adequate time, no other language learning techniques will work for you.

Breakdown your learning materials into smaller pieces.

You can make reasonable use of your time by dividing your language learning materials into smaller parts.

See this example:

- Ten short stories of 100 words each
- A story of 1000 words.

Now, which of these would be easier to memorize? Of course, it's number one, if you guess correctly. One of the best language learning methods of learning anything is to take in little snippets of information.

Learn to think in the foreign language

First-time language learners usually believe that they have to be fluent to start thinking in a language. If you want to speak fluently, you have to start thinking in the language concerned. Once you master this excellent and time-tested and trusted language learning technique, you'll surely notice considerable improvements in your foreign language acquisition. It helps, but your thoughts are uniquely yours, and when you feel in your new language, you are learning what YOU need to know.

Don't forget listening and Speaking

Learning a new language involves listening, speaking, reading, and writing. In the area of language learning, these four skills are critically important. The speaking and listening parts tend to be more difficult and complicated than the acquisition of reading and writing skills.

Incorporate both the natural and systematic language approaches

The quickest way to learn a language is by moving to a particular country that speaks the language. You can also practice through multimedia files and methodically by registering with a language class or finding a foreign language teacher and following the guideline and books.

Language learning with Spaced repetition method

Spaced repetition is a scientifically proven technique that incorporates increasing intervals between previously learned and acquired material to retain the maximum information.

What about Reading and Writing Skills?

You should be reading and writing a lot. Due to the rapid development of communication and digitization, you can find plenty of reading material on the Internet. You can read newspapers, blogs, news, research in your target language.

Get married to a Dictionary

Now, this can be somewhat inconvenient, but it's critical, as well. As much as language learning is concerned, a dictionary should always be by your side all the time. It doesn't have to be huge. A pocket or even a phrasebook or mobile device dictionary will do just fine. When you are on the road and come across a word you don't understand, bring out your dictionary and look up the term. Learn to use the dictionary. Whether you are writing, reading, or merely listening will serve you well to study the dictionary. It will help you widen your vocabulary and increase your confidence in choosing the correct words for particular situations.

Watch Movies and listen to Music to improve communication skill

Language is a culture, and cultures are best displayed in movies.

TV-shows and Movies can help you improve your language if done in the right way.

When you watch videos of the particular language you are learning, it will improve your pronunciation and harness your syntax and vocabulary. When you are watching language videos, make sure you don't focus too much on the subtitles.

Why language is Important**Language Is Important To Culture And Society**

Language helps us express our feelings and thoughts. This is unique to our species because it is a way to express unique ideas and customs within different cultures and societies. By learning a foreign language, you can understand ideas and thoughts that may be different from your own culture. You can learn customs and how people interact in a given society. Language helps preserve cultures, but it also allows us to learn about others and spread ideas quickly.

Language Is Important To Business

The importance of language in business is unmatched. Without language here, we can't share ideas and grow them into something more. Whether this means learning a foreign language so you can share ideas with people who come from a different country, or simply learning how to use language to master an interview, demand presence in a room, or network with others, language is vital.

Language Is Important For Individuals And Development

Humans all learn to talk at slightly different times, and observing when a child starts to use language can be indicative of how well they are developing. But this does not just apply to babies. It also applies to young children learning a second language in school that's different from the language they speak at home, adults learning a second language, or even those who may have lost language due to some type of accident, and are working on regaining it.

Language Is Important For Personal Communication

Though much of human communication is non-verbal we can demonstrate our thoughts, feelings and ideas by our gestures, expressions, tones, and emotion. Language is important for personal communication. Whether it's being able to talk to your friends, your partner, or your family, having a shared language is necessary for these types of interactions.

The Basic Functions Of Language

The main function of language is the usefulness of language. It gives us the ability to communicate thoughts, ideas, and feelings with others as quickly as possible. But, within that, we can understand language more by looking at its basic functions.

Informative Function

The informative function of language is when we use language to communicate any information. Essentially, its function is to inform others by being able to state facts clearly.

Expressive Function

Another basic function of language is the expressive function. As it sounds, it is used to express oneself by giving us ways to convey our feelings, emotions, and attitudes to another person and to yourself.

Directive Function

The directive function of language is a basic function that helps us to direct or command. For example, it gives us the ability to tell ourselves or someone else what to do in any given situation.

Different Types Of Language

In addition to language functions, there are also different types of language and ways to understand language overall. Being able to differentiate these can help you understand other reasons why language is so important.

Oral Vs. Written Language

In general, oral communication is a spoken language meant for conversing with others. Written language is about expressing ideas through writing words down. Oral communication is usually more informal and faster, while written language is more formal and slow.

Denotative Meaning Vs. Connotative Meaning

Words have a lot of meaning to them, and the meaning depends on the context surrounding the word. This is why there is denotative meaning and connotative meaning. Denotative meaning is the literal definition/intention of the word, whereas connotative meaning is when words carry positive or negative meanings/connotations. An example of this could be "home" versus "house." "House" is denotative, being the literal term for this type of structure where someone may live, whereas "home" is connotative and represents a shelter, family, security, etc.

Understanding the difference can help you understand the intention of language.

Six Elements Of Language Clarity

Using language in a way that ensures the intended audience fully understands your ideas; that your ideas are clear.

Economy

Being 'economic' about how you speak by avoiding any unnecessary language. This means using only the necessary and appropriate words to express yourself while avoiding using language your audience won't understand. Essentially, this means avoiding fluff or complicated vocabulary.

Obscenity

This refers to 'indecent language', including, but not limited to, curse words and hateful remarks.

Obscure Language

This is a very specific language that your audience will not understand because they are not familiar with what you are talking about. This could be when your car mechanic explains to you what's wrong with your car, but you are not a car mechanic, so you are unclear of what they're talking about.

Power

This is when someone uses language to exert power over someone to manipulate them, command them, or to get them to do something they want. It could also be to demonstrate yourself as an authority in the room.

Variety

This is a speaker's ability to use a combination of all the different types of language aforementioned to successfully and creatively get ideas across.

Different Language Styles

Within language, there are many different styles to fit what the speaker wants to communicate. While some are unique to a person's personality, some speakers may adapt certain styles depending on the situation, even if it's different from how they normally speak.

Direct And Indirect Styles

Direct is a way to use language to indicate to a person exactly what you want to say and/or how you're feeling. Indirect language means using other words or types of communication to demonstrate you may be feeling a certain way, but without directly saying why or what, in other words, being indirect. If you've ever been in an argument with a significant other, you probably have experienced both of these language styles.

Personal And Contextual Styles

These two language styles are a bit more complex. In general, personal style refers to an individual's personal way of speaking, is informal, and focuses on that individual. Contextual styles means changing language depending on the context of a situation. For instance, a professor may use their personal style of speaking with friends and colleagues, and a contextual style when lecturing their students.

Untranslatable Words

Untranslatable words are words or phrases that we have to adapt from other languages because we do not have a word that means the same thing in our own language. A good example is how we say "Bon Appetit!", because we don't have a good translation.

Language Is Changing Along With The Culture

When discussing topics like inclusive language, it's easy to recognize that language, today, is changing alongside culture. With technology comes trends or different ways of speaking, like how many teenagers or young people use slang when they speak. When societies become more open-minded and progressive, we start accepting that there are many other ways of speaking language. Many of us know the answer to why language is important, but we often take language for granted or actually don't think about it. Language is an important life skill, particularly in school and in the workplace.

CONCLUSION

Creating time is the most critical strategy for learning a new language. Your success will largely depend on the amount of time you dedicated to learning that language. Once you have the time, any other method and strategy can work for you. You need to apply proven language learning methods and techniques. There are several language learning methods you can apply. These ten are time-tested, tried, and trusted language learning techniques, approaches, and strategies. **There are so many different languages out there, Just find one that you are interested in and start to learn it.**

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EFFECT OF CONSTRUCTIVIST BLENDED INSTRUCTIONAL PARADIGM ON TEACHING EFFECTIVENESS OF STUDENT TEACHERS IN TEACHER PREPARATION

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ABSTRACT

The Constructivist Blended Instructional Paradigm (CBIP) is a harmonious blend of various pedagogical approaches, learning theories and technology in a balanced and pragmatic manner. In CBIP, knowledge creation is situational, keeping in view the readily available resources (both offline and online) with emphasis to draw the best from all these approaches as per the Indian context and circumstances. Self-developed Teaching Effectiveness Scale (TES) suitable for blended paradigm was used to collect data. The quasi-experimental method with pre-posttest research design was employed to ascertain the efficacy of CBIP on teaching effectiveness of 37 B.Ed. student teachers in five subjects selected through convenience sampling technique. It is found that the practice of teaching through CBIP increases the level of teaching effectiveness of student teachers in teacher preparation and they have grown in to competent professionals. The findings of the study recommends proper training in using blended strategies for everyone involved in the process of instruction and various funds, efforts at local and national level need to be directed towards procuring resources for schools for better quality management of educational practices. As CBIP intervention improved the teaching effectiveness of student teachers, their chances of getting employment also get enhanced.

Key terms: Constructivism, Technology, Blended learning, Instructional paradigm, Teaching effectiveness, Competencies, Student teacher.

INTRODUCTION

There are different views about teaching effectiveness as researchers defined it in the way it is conceived and measured. Traditionally, in general consensus, highly qualified teachers were considered highly effective. As a professional requirement most teachers have adequate qualification but it does not necessarily predict effective teaching i.e. improved learning in students. So, it is often viewed as teacher's ability to improve student's learning. This is again a narrow conception as it is one of the important factors of teaching effectiveness but it does not present comprehensive view of teaching effectiveness. Hunt (2009) opined that effective teachers enable their students to think critically, work collaboratively, solve problems, and become effective citizens. Goe, Little and Bell (2009) conceptualized five point comprehensive definition of an effective teacher. They opined that effective teachers are having high expectations for all learners; contribute to positive academic, attitudinal and social outcomes; use diverse resources in planning and engagement; contribute to the development of classroom and school; and are collaborative with all stakeholders. Darling- Hammond (2010) concluded that effective teachers are intellectually challenging, motivating, set high standards and encourage self-learning. Okwilagwe and Samual (2011) argued that good teaching practices like ability to create and adapt to instructional strategy, clarity of expressions, task orientation, creating opportunities for learning leads to teaching effectiveness. Calaguas (2012) listed 6 dimensions of teaching effectiveness viz. professional competence, teaching style, and personality, relational competence with students, classroom management style and subject matter expertise.

The recent advancements in Information & Communication Technology (ICT) applications in education have shifted the focus towards technological competence of teachers. Most of the studies conducted in recent past are on measuring Technological Pedagogical Content knowledge of teachers (TPACK) but the TPACK alone cannot predict the overall teaching effectiveness of the teachers. The technological competence as a tool is an important dimension of teaching effectiveness which impact the pedagogy but the pedagogical content knowledge still holds the central position in teaching learning process. It is the pedagogy which decides the type of technology to be used in the process. Nagpal (2000, 2005, and 2015) focused on total quality management of teacher education specifically on pre-service teacher education in India. She opined that practice teaching or School Experience Programme (SEP) is the most powerful intervention in the teachers' professional preparation but SEP has also invited certain criticism. Gaps between theory and practice, no clear cut objectives, insufficient input before the internship, indifferent attitude of supervisors towards the supervision of lessons, and lack of co-operation from collaborating schools are a few defects pointed by her. A few suggestions have also been given which are based on research evidences as remarked by the author. Instructional strategies for teaching practice should be made integral parts of the courses, planning of need based clear cut lessons, duration of teacher

education programmes should be increased, collaborating schools should become a part of the teacher education institutes, duration of field experience shall be increased, and supervision during the field experience should be done by both the school authorities and teacher educators, were the suggestions and if they are seen in today's scenario a few of them have been fulfilled and some need attention till date. Chennat (2014) analyzed the pre-service teacher education system specifically the component of practicum or school experience programme of India, Canada and Finland with the aim of bringing improvement in teacher education in India. She pointed that there is a mismatch between the perspective and philosophy of schools and TE institutions about the role of the teacher as taught in TEI and as required in schools. Supervision/assessment is also an area of concern during teaching practice. Dearth of time has been found with the supervisor or the teacher educators to guide student-teachers in preparing lesson plans or in supervising their lessons as the number of student-teachers is more. The other concern is the subject expertise of the concerned supervisor as it the basic requirement in teacher preparation. Pedagogy supports and complements the content delivered, so a supervisor is required to be a subject specialist as well as a pedagogue, a combination not readily available. Another challenge is related to the cooperative teachers or the host teachers in schools. There is a need to involve senior teachers in grooming the student-teachers with their experience. This poses yet another challenge that these teachers see this teaching practice phase as their free time. One major constraint observed was unavailability of the time in schools - forcing the student-teachers to get directly into the teaching rather than getting accustomed to the school ethos and observation of real classrooms. Similarly, in India, the visible trend is that theory is given more weightage than practice; the same applies to teaching practice. Nagpal (2015) studied the effect of using mobile phones video recording, image capturing and SMS facility on teaching proficiency of student-teachers during School Experience Programme of an Elementary Teacher Education Institute in Delhi. Student-teachers lessons were video recorded by their peers and were shown to the respective student-teacher and feedback was shared through SMS alongside. The findings showed the availability and familiarity of student-teachers with mobile phones having video recording and SMS facility. The results of this study were found positive and teaching proficiency of treatment group increased in comparison to the Control Group. The study indicated that watching one's own performance and feedback helps in identifying the problem areas and improving upon them. In pre service teacher education, the student teachers are trained in simulated conditions. Every student teacher acts as a teacher, student and observer. All the three roles of a student teacher are closely observed by a supervisor and video recorded. So the teaching can be observed by peer, supervisor and through technological support. For making the observation process more objective, teacher education institutions use evaluation performance. The same practice applies to the real teaching practice in schools but for certain number of lessons and also without the technological support. Student teachers' self-analysis of teaching through videos when supported with peer evaluation and supervisor evaluation serves as an effective source of measuring teaching effectiveness. In some practices, the school subject teachers are also involved as mentors in the process. In pre service teacher education, although the informal group perceptions of school students are recorded occasionally but not considered as a potential source of teaching effectiveness. The achievements of school students are also not given preference in evaluating teaching of a student teacher. These two potential sources of evaluation need to be considered along with other sources like peer and supervisor evaluation.

One of the frequently used quantitative measures to assess the teaching effectiveness of teachers is the use of rating scales. The rating scales mostly used by the researcher in India are General Teaching Competency Scale by Passi & Lalitha (1994) and Teaching Effectiveness Scale by Kulsum (2001). These scales do not give importance to the technological competence of the teachers. Mishra and Koehler (2006) developed TPACK measurement model to measure the technological competence of the teachers. TPACK and its modifications (Angeli & Valanides, 2007 & 2009; Tondeur et al. 2019) cannot measure the teaching effectiveness alone.

Nagpal & Kumar (2020) developed Constructivist Blended Instructional Paradigm (CBIP). It was a balanced & harmonious blend of different pedagogical approaches, learning theories and technologies. It was blending of traditionalism and modernism, a harmonious practical combination of East & West. The best elements of different theories (Piagetian constructivism, Blooms models, socio-cultural theory, situated learning theory, Cognitive Apprenticeship Model, Merrill principles, Gagne's Nine events, Dick and Carrey Model, and Successive Approximation Model) were integrated with best elements of technology (as per TPACK and blended learning models). This paradigm has vast potential to solve the problems of Indian Education System. It improved the pedagogical richness in prospective teachers, ensured equality in educational opportunities for all learners, improved the academic performance of learners, provided universal access and equality in educational opportunities, and reduced the cost of education thereby, found solution to the problem of high investments and low returns. In this sense this model was of immense importance for educational institutions and school education and has greatly influenced the training and instructional procedures.

OBJECTIVE

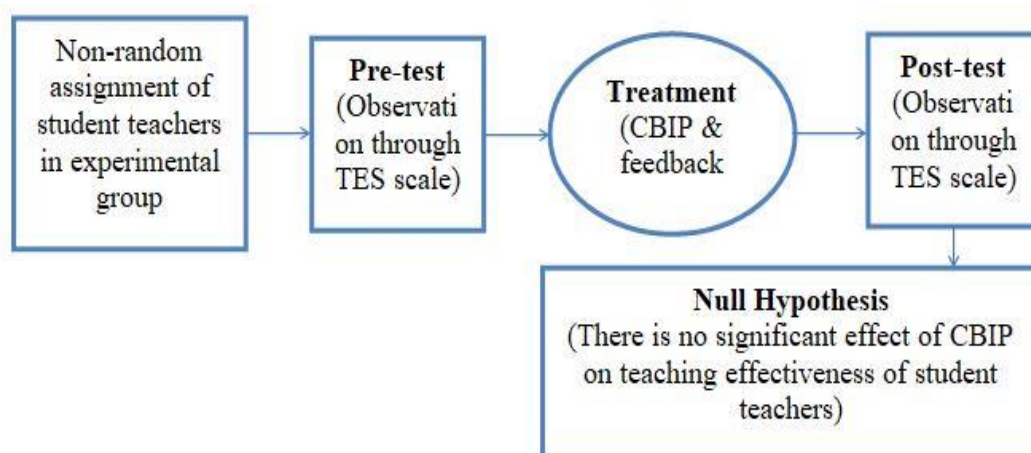
The main objective of the study was to explore the effect of Constructivist Blended Instructional Paradigm on teaching effectiveness of student teachers in teacher preparation in all the five subjects under experimentation.

RESEARCH METHOD AND PROCEDURE

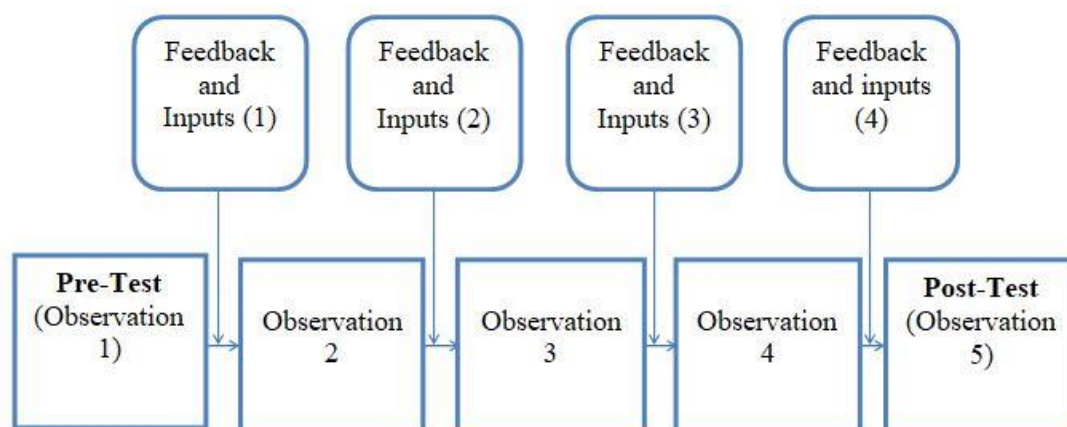
The research involved mixed method research approach where quantitative data were collected through rating scale (TES) and experimentation and qualitative data were collected through interviews and technological support (pictures and videos). In experiments, involving humans as subjects, the process always influences the perspectives of the subjects. So, interviews were used to understand the socio-cultural contexts for accurate interpretations. Therefore, it also used hermeneutics approach of qualitative research. In conclusive interpretation, the research illustrated the quantitative outcomes with qualitative findings and synthesizes a complete understanding about the effectiveness of CBIP, using a convergent parallel research design (also called as concurrent triangulation). The sample was multi-dimensional involving 37 B.Ed. student teachers (from Science, Mathematics, English, Social science and Hindi subjects), 25 cooperative school teachers/principals and 796 learners of 6th to 10th grades from 18 Senior Secondary Schools. It was extremely difficult proposition to experiment at schools due to the definite instructional goals set down by school boards. It was also difficult to convince school authorities that established goals should be altered merely for the sake of testing new ideas when there was no guarantee that the results would not be calamitous. Keeping in view the above considerations, the convenience sampling technique was used. The self-constructed tools were used to collect the data. CBIP based lesson plans were developed and used for five school subjects i.e. Science, Mathematics, English, Social science and Hindi and used as tools to teach learners of experimental groups during treatment phase in the schools. Teaching Effectiveness Scale (TES) was standardized on sample of 875 student teachers from three different institutions. TES scale was a 7-point Likert Scale consisting of 61 statements in five factors viz. Lesson Planning Competence, Knowledge Construction and Facilitation Competence, Technological Competence, Professional Competence and Evaluation Competence.

The study was divided in to three phases viz. pre-treatment, treatment and post treatment phase. In pre-treatment phase orientation was given to student teachers, cooperative school teachers/principals and learners. Student teachers were oriented to develop lesson plans as per CBIP using blended learning strategies and trained in teaching through CBIP in simulated teaching. One to one orientation session on CBIP and blended learning strategies was given to Cooperative school teachers/principals. Before treatment phase, learners were oriented with in groups of 15-20 about the effective constructivist teaching & learning processes, learning objectives, introduction of topic, knowledge construction, online & offline resources, professional ethics of teaching, rubrics, blogs, portfolios, and characteristics of good power point presentation. The data was collected in treatment phase. The quasi-experimental method with pre-posttest research design was used to collect quantitative data to ascertain the effectiveness of CBIP on teaching effectiveness of student teachers (see figure 1.1).

Figure 1.1 Pre-Post Research Design (Teaching Effectiveness)



In addition to pre and post observations of student teachers, three additional observations were recorded. All the five observations were in periodic manner to determine the role of feedback, exercise and experience with respect to time on the teaching of student teachers. After each observation, remedial feedback in the form of specific inputs were given to student teachers (figure 1.2)

Figure 1.2: Pre-Post Research Design (with Periodic Observations)

The experimentation phase consisted of 50 working days equivalent to 300 hours in 18 schools. Total 712 hours & 15 minutes of treatment was given to learners, 1221 lessons were delivered in the classes through CBIP out of which 175 lessons were observed by using TES scale. So, the student teachers were observed for 107 hours & 55 minutes through self or technology support which corresponds to 18 days (6 hours a day). Personal feedback sessions were organized for student teachers. Total 25 informal interviews with five school principals and 20 school teachers were conducted.

RESULTS AND DISCUSSIONS

The pre-post research design was used to test the null hypothesis i.e. there is no significant effect of CBIP on teaching effectiveness of student teachers in all five subjects; English, Hindi, Mathematics, Social Science and Science. The data were examined for normality and presence of outliers. As the data was found normal and without outliers, a paired-samples *t'* test was performed to determine the effect of CBIP treatment on the teaching effectiveness of student teachers of experimental group. The results; thus, obtained are shown in table 1.1 and 1.2

Table 1.1 Difference in Mean Teaching Effectiveness Scores of Student Teachers in Experimental Group

Pair	Observation	N	Mean	SD	SE _D	t' value	p-value
Pair 1	Observation 1	37	246.19	40.45	6	1.01	0.31
	Observation 2	37	240.11	41.14			
Pair 2	Observation 2	37	240.11	41.14	3.22	10.67*	0.00
	Observation 3	37	274.49	41.19			
Pair 3	Observation 3	37	274.49	41.19	3.75	8.05*	0.00
	Observation 4	37	304.65	33.55			
Pair 4	Observation 4	37	304.65	33.55	4.31	4.18*	0.00
	Observation 5	37	322.70	36.90			
Pair 5	Observation 1	37	246.19	40.45	6.75	11.34*	0.00
	Observation 5	37	322.70	36.90			

*significant at 0.01 level of significance

In the table 1.1, the *t'*-values shows that there is no significant difference between observation 1 & 2 (i.e. pair 1). But in all others pairs (pairs 2, 3, 4 & 5) there exists a significant difference. As per the design of the study, the difference between observation 1 & 5 (pre-post-test) was of significance to explain the impact of paradigm on teaching competencies of student teachers. Table 1.1 shows that there is a significant difference between observation 1 ($M=246.19$; $SD=40.45$) and observation 5 ($M=322.70$; $SD=36.90$), t ($DF=36$) = 11.34, p -value = 0.00. So, the null hypothesis that there is no significant effect of CBIP on teaching effectiveness of student teachers was rejected.

The positive incremental change in the teaching behaviour of student teachers (from observation 2 to observation 5) further reveals that developed paradigm develops teaching competencies among student teachers. The decrease in the teaching effectiveness of student teachers from observation 1 to 2 is because of new or less familiar conditions, new real learners and other anxieties of the real classrooms. It is concluded that there is significant effect of constructivist blended instructional paradigm on teaching effectiveness of student teachers in teacher preparation.

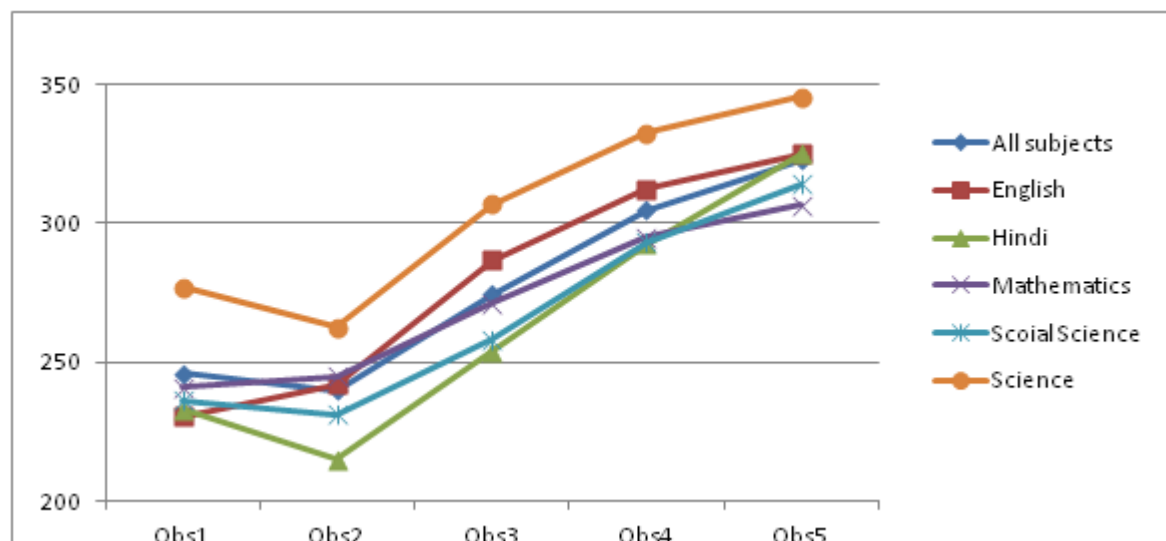
Table 1.2 Difference in Mean Teaching Effectiveness Scores of Student Teachers

Subject	Observation	N	Mean	SD	SE _D	t' value	p-value
English	Observation 1	3	230.67	32.52	4.81	19.62*	0.00
	Observation 5	3	325	40.15			
Hindi	Observation 1	6	233.17	47.40	13.84	6.62*	0.00
	Observation 5	6	324.83	32.28			
Maths	Observation 1	8	240.87	40.20	12.84	5.12*	0.00
	Observation 5	8	306.62	36.50			
Social Sciences	Observation 1	11	236.27	44.44	15.60	4.98*	0.00
	Observation 5	11	314	33.74			
Science	Observation 1	9	276.89	19.28	14.39	4.76*	0.00
	Observation 5	9	345.44	39.19			
Overall	Observation 1	37	246.19	40.45	6.75	11.34*	0.00
	Observation 5	37	322.70	36.90			

*significant at 0.01 level of significance

To draw deep and specific conclusions, the effectiveness of paradigm on teaching effectiveness of student teachers teaching individual subjects was also studied separately (table 1.2). The paired-samples t' test results reveals that there is a significant difference in mean teaching effectiveness scores of student teachers teaching English, Hindi, Mathematics, Social Science and Science. The figure 1.3 given below shows the trend of means teaching effectiveness scores of student teachers in all 5 subjects with respect to different observations.

The psychological rationale behind the significance difference may be attributed to the laws of learning. With the increase in time, there is increase in practice. The law of exercise (use & disuse), law of effect has played important role in the experimentation. Besides these, the law of reinforcement also occurred in some cases. So the role of supervisory feedback is important. The significant difference between observation 1 and 5 shows that there is significant effect of constructivist blended instructional paradigm on teaching effectiveness of student teachers. Similar to these results, Gulbahar (2008) found improvement in technology integration skills of prospective teachers through practice in Mathematics, Biology and Chemistry. Singer & Stoicescu (2010) found significant impact of blended learning as a tool to strengthen teaching competencies in master level teacher training programme.

Figure 1.3 Means Teaching Effectiveness Scores with respect to Different Observations

Isman, Abanmy, Hussain & Al Saadany (2012) found effectiveness of blended learning approach in developing teaching skills among student teachers in Mathematics, Science. Albhnsawy & Aliweh (2016) also found that the blended learning activities promote teaching skills among student teachers. The different synchronous and asynchronous activities provide opportunities for student teachers to exchange views and feedback. They strongly recommended the incorporation of synchronous and asynchronous activities into pre-service teacher preparation programs for preparing students to face challenges in this digital era. Similarly, Ali and Mishra (2014) & Nasrin and Varshney (2014) have also found that tools like Wikis, blogs and other social media has

potential to provide constructive learning opportunities for learners which can support inquiry, creativity, critical reflection and dialogue. With technology (synchronous and asynchronous) integration in constructivism, a teacher can develop Higher Order Thinking skills like critical thinking, problem solving, decision making, argumentation, reasoning skills and creativity, among learners. Hernandez-Ramos (2005) found that in addition to technological factors, contextual and personality factors also play very important role in technology integration decisions and applications.

In contrast to these findings, Bielefeldt, 2001; Willis & Montes, 2002; Doering, Hughes & Huffman, 2003; Wang, Ertmer & Newby, 2004 found that pre-service teachers are not ready to integrate technology into teaching practice or learning processes and the vision, skills, knowledge, and departmental culture are the barriers in integration of technology into teachers' education courses (Finley and Hartman, 2004). Similar to these findings, Koh, Chai and Tsai (2010), found in actual implementation in classes prospective teachers faced issues like lack of time and reserving technology for their classes.

The interview analysis of school teachers also concluded that CBIP is effective in developing the teaching effectiveness among student teachers. It was found that student teachers were interacting with school teachers regularly, preparing lesson plans, and meeting the expectations of the schools, encouraging learners to do activities, discussions, ask questions and relate learning to the real life. The 100% of the school teachers were supporting constructivist blended learning strategies as these strategies resulted in the higher attainments in the learners.

This summarization led to conclude that the student teachers has developed and increased their skills in lesson planning, pedagogical knowledge, technology uses, classroom management and evaluation. With the passage of time and effective practice with relevant feedback they have grown in to competent professionals. Further the mean analysis of ratings of 5th observation on TES scales indicated that students teachers has improved in the indicators like giving freedom to students to work at their own, developing objectives for all the three domains of development, designing objectives as per need of students & subject, establishing the climate of open mindedness & mutual trust, encouraging students to ask questions, distributing relevant reading material to students, encourages students to use their personal devices (cell phone, mp3 player, audio) in learning, creating situations that encourage students to assume responsibility, handling students' disruptive behavior appropriately, planning relevant educational activities as per level of students. So, hierarchically a descending order of teaching competence development was observed in lesson planning competence, knowledge construction & facilitation competence, technological competence, professional competence and evaluation competence. The technological analysis also depicted that student teachers were using videos to introduce the lesson, Wikipedia, animations, white board, Facebook, video lecture of experts to explain and elaborate the content and blogs, online tests, rubrics in evaluation. They involved students in hypothesis formulation and justification, explanations, elaborations and evaluations. They gave remedial sessions and appropriate home work to the students.

Further analysis of the periodic observations revealed an incremental increase in teaching effectiveness of student teachers except from observation 1 to 2 in all subjects i.e. English, Hindi, mathematics, Social sciences and Sciences. It was found that, school subject teachers has given clear instructions to student teachers to maintain discipline, cover book content only, not giving freedom to learners, exposure to new technologies etc. After exploring causes of decrease in teaching competencies in 2nd observation & discussions with subject teachers it was found that they were governed by traditional norms. All these are due to their traditional mental set up like do switch off mobiles & authoritarian attitude of teachers for maintaining pin drop silence etc. in the classroom. Although, some of the school teachers verbally supported the experimentation the fixed behaviour of others towards various school practices was a challenge to the experimentation. Moreover, sudden changes cannot come overnight in the traditional set up-norms in the traditional classroom.

CONCLUSION AND RECOMMENDATIONS

The findings of the study revealed a significant effect of the Constructivist Blended Instructional Paradigm on the teaching effectiveness of student teachers in teacher preparation. Student teachers teaching science showed the highest teaching effectiveness and those in mathematics showed the lowest. Student teachers showed maximum development in Lesson planning competence and least in Evaluation Competence. The student teachers teaching Hindi and Social science showed maximum development in Technological Competence, those teaching English and Maths showed maximum development in Knowledge Construction & Facilitation Competence whereas those teaching Science have shown maximum development in Lesson Planning Competence.

The study recommends proper training in using blended strategies for everyone involved in the process of instruction and various funds, efforts at local and national level need to be directed towards procuring resources for schools for better quality management of educational practices. The CBIP should be used to train teachers in teacher education. As CBIP intervention improved the teaching effectiveness of student teachers, their chances of getting employment also get enhanced. Every Teacher Education Institution should focus on developing effective skills among student teachers. The experience and the constant reflection is the key for effective teacher preparation. The ability to reflect should be developed in teacher preparation phase. An interconnected cycle of theory and practice ‘Theory-Practice-Theory’ need to be practiced. Further studies should be conducted for more substantial and sustained empirical evidences in this direction. However, there is no gain in saying that it opens up a promising avenue for effective teacher preparation.

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WASTE MANAGEMENT: CREATING A CULTURE FOR SUSTAINABLE DEVELOPMENT A CASE STUDY OF ST. XAVIER'S INSTITUTE OF EDUCATION, MUMBAI

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ABSTRACT

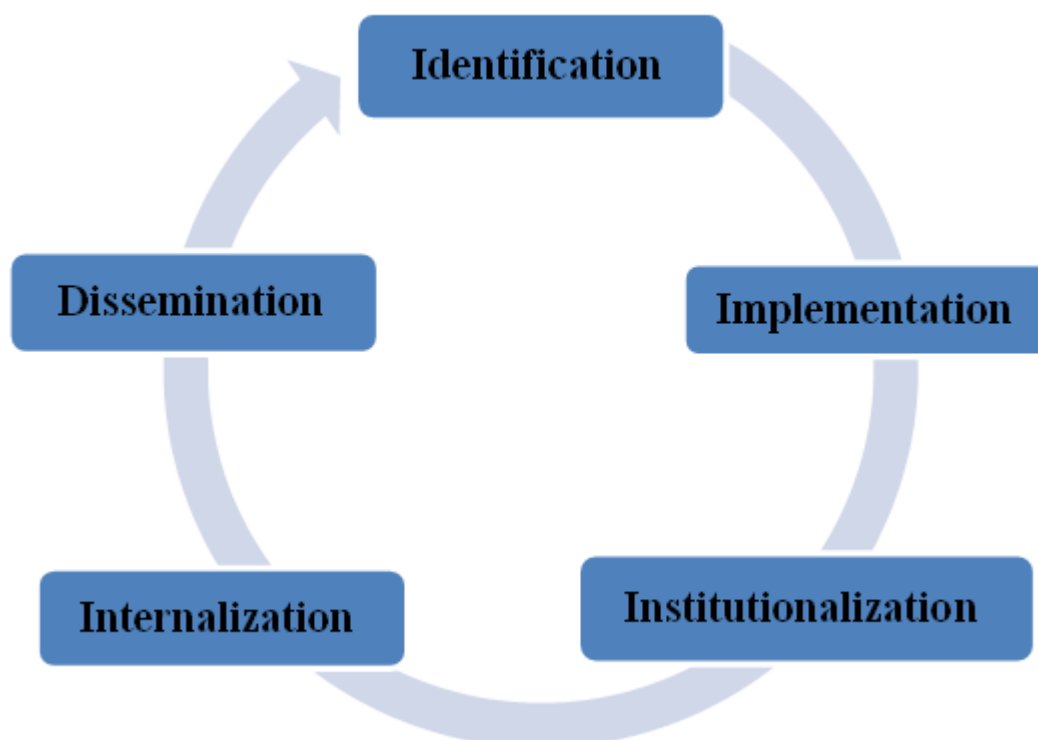
The issue of waste management is at the core of many environmental issues that we are facing today locally, nationally and globally. Waste which is not managed properly is causing serious environmental and health issues all over. The issue of waste management need to address at all levels rather irrespective of social, educational, and financial status citizens should to made aware about why waste management is directly related to the survival of the mother earth.

The paper presents a case study of St. Xavier's Institute of Education which took an initiative of adopting Waste Management as a best practice of the institution and worked not just at the institutional level but in schools to create awareness about the need to encourage waste management culture among the young learners. The institute took various initiatives to create a culture of responsible citizenship and inculcate the value of care for our common home – our earth.

Our common home - the earth and its environment is in deep crisis today mainly because it is being abused beyond its capacity by human beings. Human beings, who are born from the earth, will return to the earth and will be sustained by the earth. When we look around as we try to understand the signals that our environment is giving us we know there is an urgent need to work towards building a culture of Sustainable Development.

St. Xavier's Institute of Education (SXIE) is a premier Government aided, Christian minority Teacher Education College. It is affiliated to the University of Mumbai and recognized by the National Council for Teacher Education (N.C.T.E.). The Institute was established in 1953 and has been imparting joyous and creative teacher education for past 68 years. It is committed to building a just and humane society for a Hope-filled future through its B.Ed., Ph.D. Program, certificate courses, consultancy and community engagement programs. The Institute contributes to quality knowledge generation and dissemination in the field of Teacher Education.

The journey of creating awareness about Waste Management at St. Xavier's Institute of Education started by announcing Waste Management as a IQAC Best Practice.

**Identification**

Government of India has revamped the Municipal Solid Wastes (Management and Handling) Rules 2000 and notified the new Solid Waste Management Rules, 2016 on April 8, 2016. All of us are aware waste management

which has become a global issue if not handled properly can have harmful impact on health, environment, Water Bodies etc. It is said that, the first step towards change is awareness. The best way to prepare people especially the young learners who are the future of our nation to tackle the issue is to create awareness. By keeping in mind the necessity to make the young learners aware about the urgency to look at managing waste as not just the responsibility of the government but each individual citizen should develop the accountability towards doing their bit in the mission of managing waste and saving our mother earth. The objectives were as follows:

- To address the significant issues of waste management through the promotion of safe practices.
- To stimulate the interest of student teachers about the latest developments in the field of waste management.
- To create a forum for the exchange of the most recent ideas, techniques & experiences in all areas of solid waste management
- To work towards spreading awareness about Reduce, Reuse, and Recycle
- To share sustainable strategies of waste management
- To deliberate on different disposal methods with particular reference to new advances and long term solutions.
- To give baseline information about waste management practices among the school children
- To bridge the gap between awareness and practices about waste management
- To create an awareness about disposal of e-waste

The Waste Management – Best Practice was undertaken by keeping in mind the following outcomes:

- Will create a culture of buying eco-friendly things
- Future teachers will get into the habit of buying only what they require thereby reducing the household waste they produce.
- Maximizing the level of recycling hence while discarding waste, they will consider ways of recycling or reusing
- Deliberations on how waste can be used to produce both materials and energy
- Making garbage disposal more manageable and efficient
- More concern about environment among the young learners.

Implementation

Waste management is a great challenge worldwide. From the perspective of the social structure and background of waste generation, it should be the mission of all the educational institutions to promote proper waste management strategies and spread the concept of the 3R principle -Reduce, Reuse, and Recycle in our societies. SXIE was not just keen on making future teachers aware about need to know about waste management but also wanted to take the initiative to the Secondary Schools across Mumbai City through the Internship program. Hence in order to train the student teachers for the mission a two day workshop on theme, 'Train the Trainer' was conducted in collaboration with Idobro- a social enterprise. In all during two days four sessions were conducted on RISE Values - Responsible Inclusive Sustainable and Eco- friendly. The workshop was an enriching experience to the student teachers where they learned through numerous student-centric activities how to impart the knowledge about sustainable development and waste management in a classroom setting. How we must be aware of world environmental issues and develop a sense of responsibility and take an initiative towards maintaining our environment and how each one of us can make a difference to the world by changing and correcting ourselves first. The student teachers were informed about zero waste practices and how this can be achieved by giving examples of people who have achieved zero waste practised in different parts of the country. An activity showed how awareness about organic and inorganic substances consumed daily can lead us to better manage the waste created by consciously purchasing eco-friendly products. The concept of "circle of influence" was then spoken about.

Institutionalization

The 'Train the Trainer' workshop gave a meaningful insight to the student teachers. The student teachers very meaningfully incorporated the RISE values with the theme of the institution "**Action for Harmony**" to promote and propagate waste management techniques not just on the college campus but also in their respective internship schools across the city. At the institution level it was decided to cut down on its paper usage in any form and switched to sustainable practices. Some of the initiatives taken by the institution in collaboration with students were using ceramic cups instead of paper and plastic cups for having tea. As an initiative to promote zero waste the students put on their creative caps and made use of old newspapers and paper cups to make decorations for festival celebrations in the college. As a part of their assignment the student teachers of EVS Course visited The Orchid Ecotel hotel to get to know how the place functions in an eco-friendly manner. Also undertook a clean-up drive where student teachers worked as a team to clean up the Danapani beach at Madh Island. The invitations and Flyers for all the college activities were only in the form of E-Flyers and E-invites

Internalization

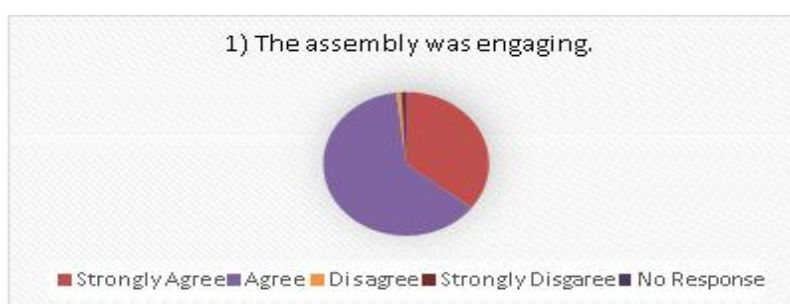
Internalization of best practices means making excellence an integral part of one's habit and nature. To achieve the excellence the institution decided to take the best practice to the internship schools across Mumbai. The student teachers conducted assemblies on waste management in their respective internship schools. The assemblies played a significant role in sensitizing the teachers and the young learners about the need for proper waste management strategies. Also it helped the teachers and the students to become aware about the harmful impact of waste on health and overall life. Assemblies were also influential in informing students about 5R's for a better future and even the different scientific approaches to waste management that they could use at homes and in school.

The SXIE student teachers put in all their efforts to make the assemblies creative and effective like the various aspects of waste management were explained in the form of a story, PPT Presentations, Role Plays and through charts where slogans were put. In one of the internship schools the student teachers also demonstrated the method to build a vermicomposting pit and how to recycle and reuse plastic and old clothes. The assembly input was also about developing gratitude towards rag pickers and sweepers who work and contribute towards keeping the environment clean. In all the student teachers of SXIE put in their best foot forward to train the young generation by making them responsible and inculcating positive attitude towards waste management.

Once the assemblies were conducted, the teachers of the internship schools were given a rating scale questionnaire to fill so as to better understand the impact and effectiveness of the assemblies conducted.

The results are as follows:

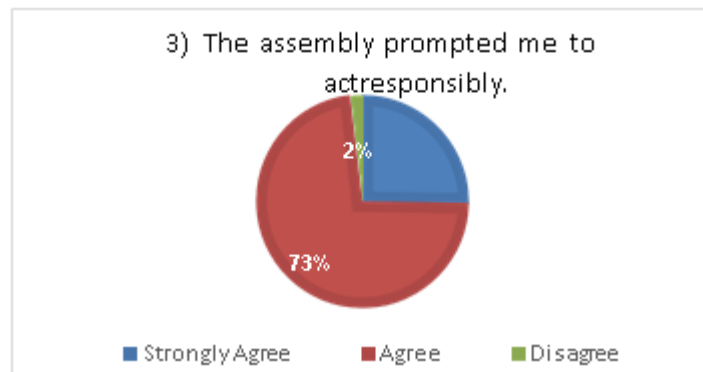
It was observed that majority of the Teachers were of the opinion that assembly conducted were engaging.



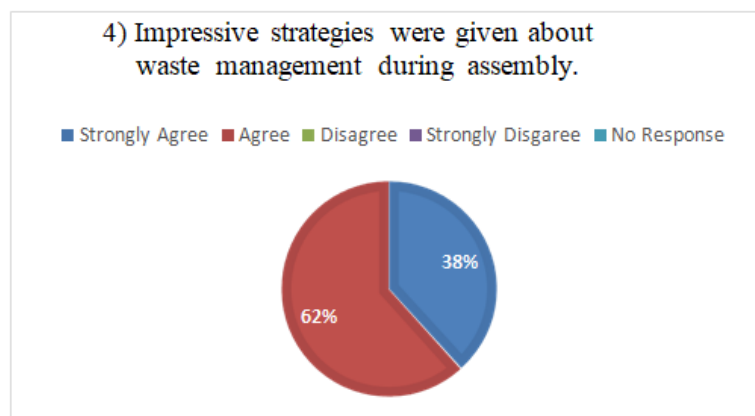
60% of the teachers agree and 40% strongly agree that the assemblies conducted were helpful in enhancing the understanding about waste management



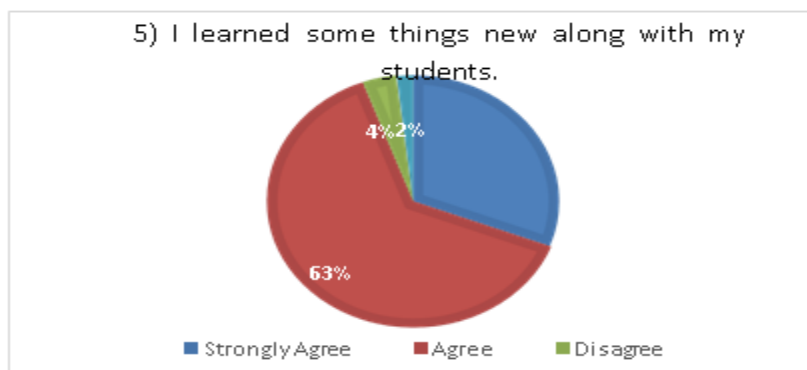
73% Teachers were of the opinion that the assembly prompted them to act responsibly with respect to waste management.



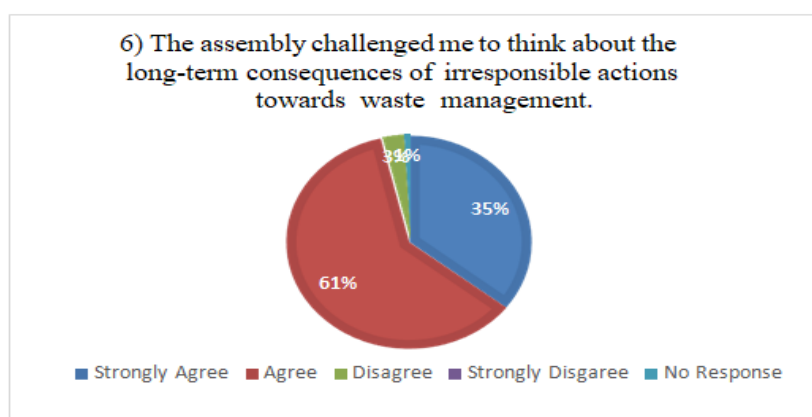
62% Teachers agree and 38% teachers strongly agree that the impressive strategies were given about waste management during assembly.



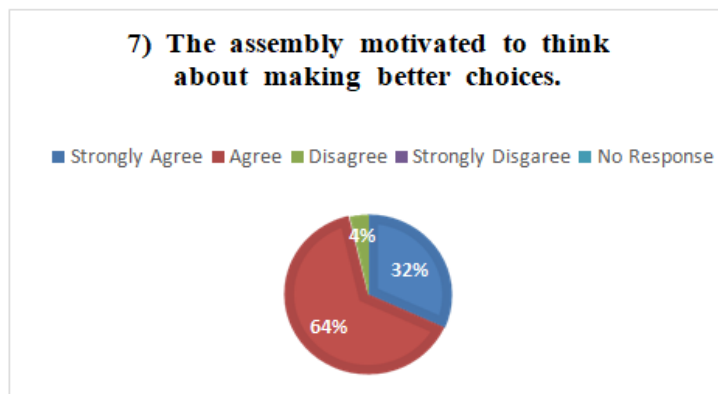
63% teachers agree and 31% teachers strongly agree that they learned something new along with their students



61% teachers were of the opinion that the assemblies conducted on waste management challenged them to think about the long-term consequences of irresponsible actions towards waste management



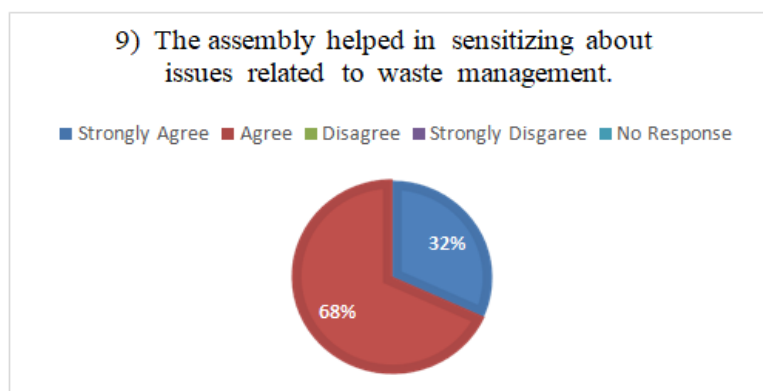
64% teachers agree that the assemblies on Waste Management motivated them to think about making better choices.



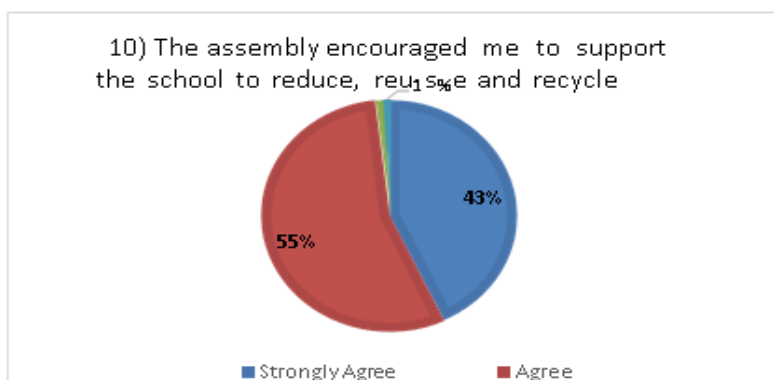
Majority of the teachers appreciated the hard work put in by the student teachers of SXIE to prepare the informative assemblies and the presentations



68% teachers were of the opinion that the assemblies helped in sensitizing about issues related to waste management



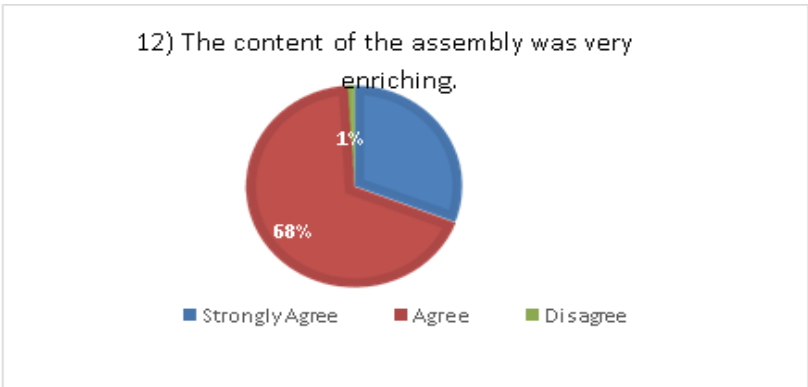
55% teachers felt that the assemblies encouraged them to support the school to reduce, reuse and recycle waste



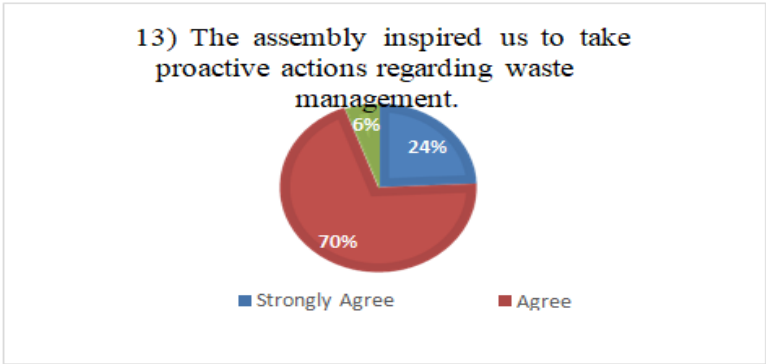
71% said that they transferred the knowledge gained through assemblies to achieve sustainable waste management at home



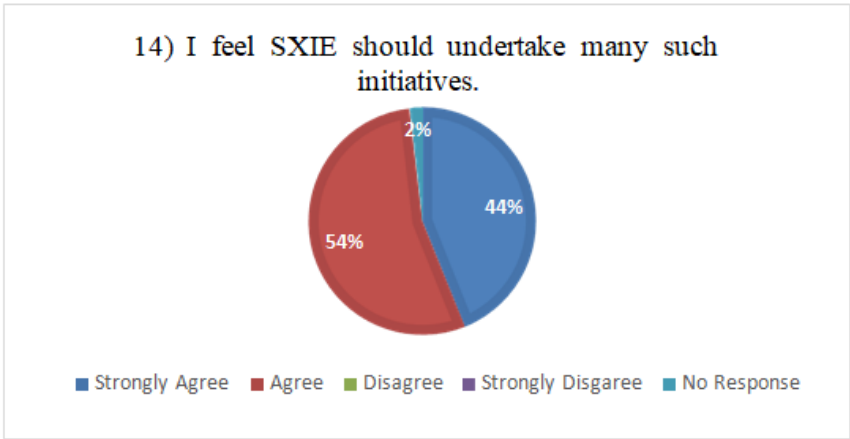
Majority of the teachers were of the opinion that the content of the assemblies was very enriching



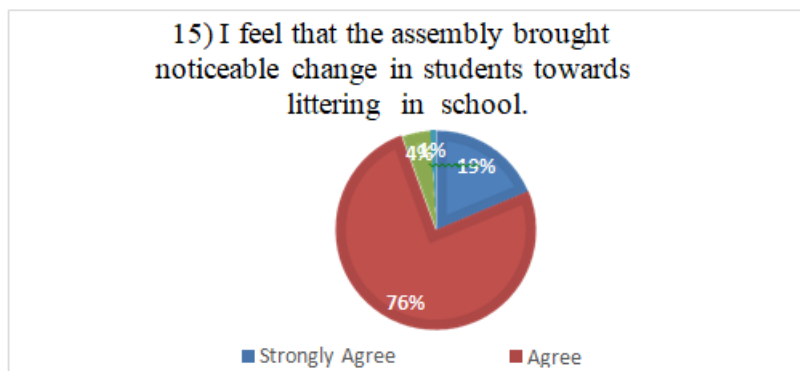
70% teachers were of the opinion that the assemblies inspired them to take proactive actions regarding waste management



54% teachers agree and 44% teachers strongly agree that SXIE should undertake many such initiatives.



Majority of the teachers were of the opinion that the assembly brought noticeable change in students towards littering in school



Major Findings:

The educational institutions or schools are the best places for promoting waste management education. Educating young people about various environmental issues has become extremely essential; instilling the right behaviour in school children is also beneficial to the behaviour of their families. Hence majority of the teachers were appreciative about the initiative and the efforts taken by the SXIE student teachers. Also it is observed that teachers were motivated to initiate the action in their respective schools as well as at their home. Majority of the teachers felt that the assemblies were impactful and were the need of the hour.

DISSEMINATION

After implementing Waste Management as a best practice almost for a year on 30th March 2019 St. Xavier's Institute of Education, Mumbai (SXIE) in collaboration with IDOBRO- a social enterprise played host to educators from across Mumbai for the "RISE Citizenship Program."

The program was conducted with the objective:

OBJECTIVES

1. Sensitise Leaders of institutions to adopt Citizenship as part of core curriculum
2. Help Institutions become a role model and catalyst for achieving the Sustainable Development Goals (SDGs)
3. To encourage Teachers and Students to be a part of a life- skill, value based experiential program
4. Find solutions to problems in your neighbourhood or the boundaries set by you

The program was inaugurated by Kamal Sing- Executive Director, UN Global Compact Network India and the Key note Address was delivered by Anirban Ghosh Chief Sustainability Officer, Mahindra Group

The speakers shared key information about how far India has progressed towards achieving the Sustainable Development Goals; need to develop skills among students that will be vital towards achieving sustainability and how we all need to become environment crusaders to save the planet. Also how educational institutions can take two initiatives namely energy efficient lighting and garbage segregation solutions to create a culture of waste management. The main take away from the sessions was it is important to **"Think Different but Act together"** to build **"A Future we want"**.

The SXIE student teachers presented a case study of St. Xavier's Institute of Education in the area of waste management. The various initiatives taken at the college level and at the internship schools we presented before the audience.

CONCLUSION

The journey that started in 2018 is still not over and SXIE has taken new initiatives in the area of waste management over last 2 two years where the institution has collaborated with Safai Bank of India- a project by Mumbai Sustainability Centre and a platform to use for everybody who is committed towards a clean India. It is a simple and effective mechanism to divert millions of waste items from reaching city dumping grounds.

**STUDY ON TOXIC HEAVY METALS IN GROUNDWATER OF HARDIBAZAR AREA,
CHHATTISGARH**

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ABSTRACT

During the monsoon, winter, and summer seasons, eight groundwater samples were collected in and around Hardibazar and analyzed to determine pollution effects. The water samples were subjected to heavy metal analyses for Fe, Pd, As, and Zn. This research aims to recognize the potential for groundwater quality depletion as a result of excessive solid waste disposal, with an emphasis on heavy metal emissions. The data shows that, except for Pb, all other heavy metals are below the permissible limit. It is common knowledge that heavy metal ions are potentially dangerous to human wellbeing and may have serious consequences for human life. Our research recommends mitigation steps to take to monitor the pollution of groundwater in this area due to excess Pb. The following order was observed as a result of ion analysis for different metal ions in partly treated industrial effluent: $Zn^{2+} > Pb^{2+} > Fe^{2+} > As^{3+}$. As a result, now is the time to conserve and protect this valuable resource.

Keywords: Pollution effects, Heavy metal, Groundwater, water quality, Hardibazar.

INTRODUCTION

In most parts of the world, groundwater is used for residential, farming, and commercial purposes. Agriculture and domestic practices spill a substantial amount of toxins into bodies of water. Ponds, reservoirs, and groundwater are both used for domestic and agricultural purposes in India. Rainfall, surface water such as rivers and lakes, and groundwater such as wells and bore wells are the main sources of water ^[1]. Industry, technology, population, and water use have all increased the strain on our land and water resources in recent years. The quality of groundwater in the area has deteriorated. Municipal and industrial wastes, chemical fertilizers, herbicides, and pesticides have all gotten into the soil, infiltrated some aquifers, and lowered the quality of the groundwater ^[2]. Sewer leakage, faulty septic-tank operation, and landfill leachates are among the other pollution issues. Saltwater has intruded into fresh-water aquifers in some coastal areas due to intensive pumping of fresh groundwater ^[3].

Rainfall and the subsequent percolation of water through the soil are the main sources of groundwater production. Another critical aspect is soil consistency. Heavy metals are essential to the human body's natural functioning ^[4]. The natural functions of humans would be affected if all of the heavy components were out of control. Both natural and man-made forms of heavy metals are introduced into the water supply ^[5]. Heavy metals in water are heavy, compact metallic elements that exist in trace concentrations but are extremely toxic and appear to accumulate, thus the word "trace metals." Residential stormwater and road drainage, as well as industrial waste from mines, mills, and metal finishing facilities, are the primary anthropogenic sources of heavy metals ^[6]. Many of these trace metals, such as Hg, Pb, Cd, Ni, As, and Sn, are extremely poisonous to humans. Their presence in surface and underground water at concentrations above background levels is unwanted. Some heavy metals such as Hg, As, Pd, Cd, Fe, Cr, Mn, Co, Cu etc., have been discovered to be detrimental to both the marine environment and human wellbeing ^[7].

MATERIALS AND METHODOLOGY

Study Area: Korba district is located in Chhattisgarh's northern part, at the confluence of the rivers Hasdeo and Ahiran. The latitude and longitude are 22° 01' north and 82° 08' to 83° 09' east, respectively. The research area is both flat and hilly, with a height of 304.8 meters above mean sea level. The district's geomorphological status is lower Gondwana group. The soils are red-yellow, with ample ferric oxide deposits and laterite hard soil, which is the best source of Fe and Al. The annual rainfall in the inquiry area was 1506.7mm. In the winter, the minimum temperature is 7°C, and in the summer, the mean temperature is 43°C. There is Hardibazar village near Korba city in Korba district and three project area of SECL (Deepka, Gevra and Kusunda) are connected to Hardibazar area.



Sample collection and Analysis: During the monsoon, winter, and summer seasons, heavy metals tests for groundwater samples are carried out (October-2019 to May-2020). Heavy metals like iron (Fe), arsenic (As), zinc (Zn), and lead (Pb) were investigated [8, 9]. For our research, we chose areas in and around Hardibazar. The Hardibazar areas were chosen based on their proximity to the Korba frontier, where wastewater flows into the Hasdev River. Water samples were obtained at various stations during the year, including 1) Hardibazar (HS1), 2) Aamgaon (HS2), 3) Mudhali (HS3), 4) Bamhnikona (HS4), 5) Ratija (HS5), 6) Renki (HS6), 7) Reldabri (HS7) and 8) Ralia (HS8).

The samples were collected in two-litre polyethene bottles that had been carefully cleaned and filled with purified water before being transported to the sampling site. The bottles were drained and rinsed with the water to be stored several times. Also, the sample bottles were partly filled with the gathered water and vigorously shook to avoid any odours. The temperature of the sample bottles was taken shortly after they were collected. The atomic absorption spectrometer was used to analyze the heavy metals listed above, according to the standard methods.

RESULTS AND DISCUSSION

The tables and figures below display the results of the AAS study of all the samples, all of the estimates are in mg/L.

Table 1: Metal ion concentrations in groundwater samples collected during the monsoon season of 2019

Sampling Site	Fe	As	Pb	Zn
HS1	0.35	0.02	0.03	5.02
HS2	0.31	0.01	0.04	4.12
HS3	0.37	0.01	0.05	3.27
HS4	0.28	0.02	0.06	4.21
HS5	0.30	0.03	0.04	3.85
HS6	0.38	0.02	0.06	2.47
HS7	0.35	0.01	0.07	3.45
HS8	0.32	0.02	0.05	3.56

Table 2: Metal ion concentrations in groundwater samples collected during the winter season of 2019-20

Sampling Site	Fe	As	Pb	Zn
HS1	0.28	0.01	0.02	4.26
HS2	0.30	0.01	0.05	3.56
HS3	0.31	0.01	0.04	3.02
HS4	0.26	0.01	0.05	3.81
HS5	0.24	0.02	0.06	4.12
HS6	0.27	0.02	0.03	2.40
HS7	0.32	0.01	0.04	3.65
HS8	0.30	0.01	0.06	2.65

Table 3: Metal ion concentrations in groundwater samples collected during the summer season of 2020

Sampling Site	Fe	As	Pb	Zn
HS1	0.36	0.02	0.04	5.70

HS2	0.32	0.01	0.08	4.37
HS3	0.37	0.03	0.05	4.21
HS4	0.28	0.02	0.06	4.34
HS5	0.30	0.02	0.06	4.82
HS6	0.32	0.02	0.04	4.02
HS7	0.34	0.01	0.06	6.08
HS8	0.33	0.02	0.05	4.38

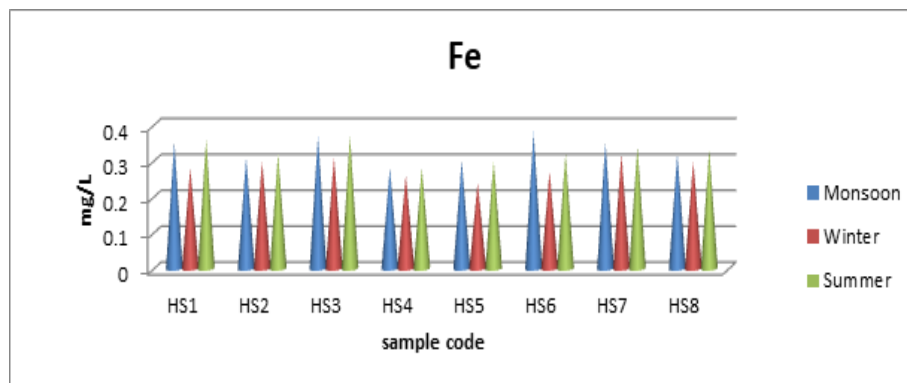


Figure 1: Variations in Iron Seasonally

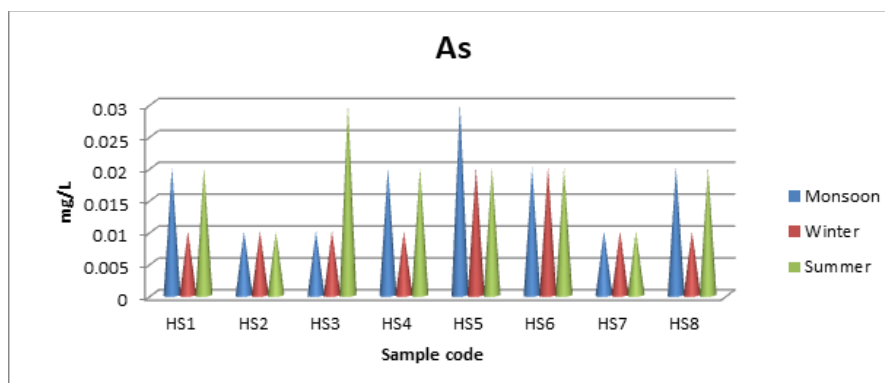


Figure 2: Variations in Arsenic Seasonally

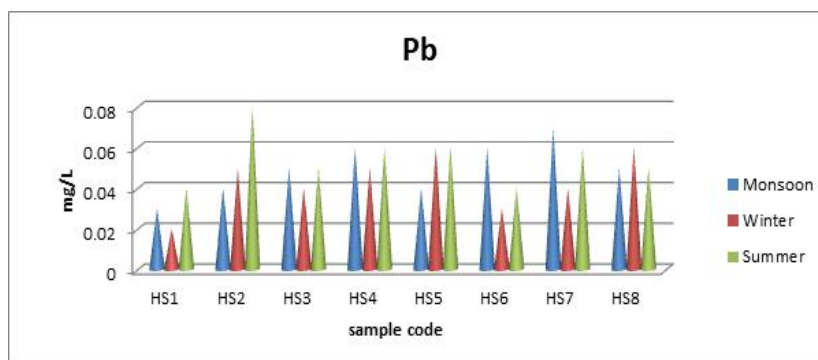


Figure 3: Variations in Lead Seasonally

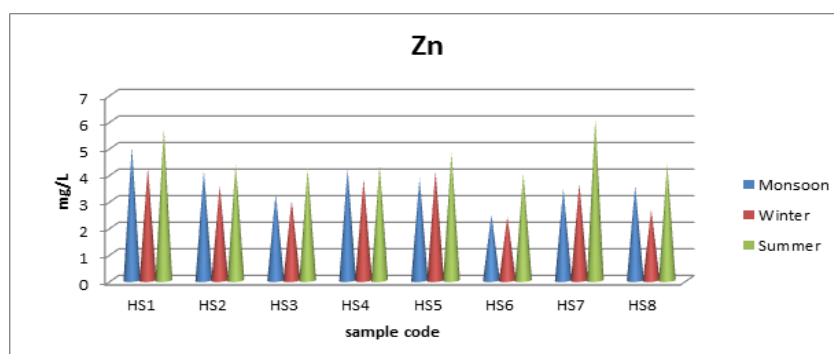


Figure 4: Variations in Zinc Seasonally

Many metals are required for the survival of animals and plants ^[10]. Excessive trace metal concentrations in water systems, on the other hand, can be dangerous due to acute toxicity. The estimate and origins of iron content in the groundwater of Hardibazar's environs are explored in this article.

Iron (Fe):

Iron is an essential element of human nutrition. It's found in biologically important proteins like haemoglobin and cytochrome, as well as oxidation-reduction enzymes. The most prevalent nutritional deficiency in the world is anaemia, which is caused by a lack of iron. Normal amounts of iron are necessary, but an abnormally large amount can harm the human system and cause haemochromatosis, a condition in which tissues are damaged due to prolonged iron accumulation. In the same way, iron deposition in the skin causes a distinct pigmentation. Ferrous salts precipitate as ferric hydroxide, an insoluble compound that settles out as a rust-coloured precipitate ^[11]. This form of water has an awful taste which puts a burden on washing and plumbing. Water movement is steadily decreased as iron sets out of the delivery system ^[12]. Iron stimulates the growth of iron bacteria as well. These microorganisms get their energy by oxidizing ferrous iron to ferric iron and depositing a slimy layer on the piping in the phase. Where the iron content approaches the allowable amount (0.3 mg/l), the issue typically occurs in delivery systems. In monsoon seasons, the concentration of iron was 0.28 mg/L to 0.38 mg/L, in winter it was 0.24 mg/L to 0.32 mg/L, and in summer it was 0.28 mg/L to 0.36 mg/L.

Arsenic (As):

Mining and refining of ores, as well as production of arsenic-bearing sulfides, are both sources of arsenic. Arsenic pollution of groundwater has been identified in a variety of locations due to the dumping of mine waste. Arsenic compounds have been used to make a variety of products ^[13]. Glass and the wood-preservation industries have also used arsenic in the past. By the end of the twentieth century, the latter industry was the most active consumer of such compounds in the United States. Many countries have arsenic contamination of both surface water and groundwater, but the full extent of the issue is unknown. Arsenic levels of groundwater ranged from 0.02 mg/L to 5 mg/L, and hair, bones, skin and funerary preparations (paint, clay) of Chinchorro culture mummies provide clear evidence that the population was exposed to elevated levels of arsenic more than 7,000 years ago. Arsenic concentration has been found in this investigation in monsoon session 0.01 mg/L to 0.03 mg/L, in winter session 0.01 mg/L to 0.02 mg/L and in summer session 0.01 mg/L to 0.03 mg/L.

Lead (Pb):

A concentration of lead in groundwater of more than 0.05 mg/L is considered dangerous. According to scientists, the high concentration of heavy metal, which is due to insufficient hazardous waste disposal and industrial contamination ^[14], may have significant health effects, particularly in rural areas where groundwater is a primary source of drinking water. Lead is a naturally occurring material that is used to produce lead-acid batteries, alloys, wires, and ammunition, among other items. Lead, according to the World Health Organization (WHO), is a systemic general poison that can damage children under the age of six, foetuses, and pregnant women's central nervous systems. In monsoon seasons, the concentration of iron was 0.03 mg/L to 0.07 mg/L, in winter it was 0.02 mg/L to 0.06 mg/L, and in summer it was 0.04 mg/L to 0.08 mg/L.

Zinc (Zn):

Zinc is a mineral that the body requires for formation, bone production, metabolism, and wound healing. Loss of appetite, reduced sense of taste and scent, lowered capacity to combat parasites, slow development, slow wound healing, and skin sores are all symptoms of too little zinc in the diet. Zinc occurs naturally in air, water, and soil, but zinc concentrations are increasing unnaturally as a result of human actions that introduce zinc to the environment. The bulk of zinc is added in manufacturing processes like extraction, coal and waste burning, and steel manufacturing. Some soils are extremely polluted with zinc, and these can be found in areas where zinc is extracted or processed, or in areas where waste sludge from industrial areas has been used as fertilizer ^[15]. Zinc is an important trace factor for human health. When people don't get enough zinc, they can lose their appetite, lose their sense of taste and smell, have poor wound healing, and grow skin sores ^[16]. Zinc deficiency may also result in birth defects. Zinc may be dangerous to children who are either in the womb or who have just been born. When their mothers have ingested high levels of zinc, their children may be exposed to it by their mother's blood and milk. Zinc concentration has been found in this investigation in monsoon session 2.47 mg/L to 5.02 mg/L, in winter session 2.40 mg/L to 4.26 mg/L and in summer session 4.02 mg/L to 6.08 mg/L.

CONCLUSIONS:

The groundwater quality evaluation assists in the selection of critical criteria to provide more data about the cause of contamination. The collected results show that, at this time, metal ion concentrations are not at levels that may be harmful to humans. Nonetheless, the analysis clearly shows that toxic metal concentrations such as Fe, Pb, and others are slightly elevated in two or three stations, and only for one season, and if the situation is

not serious at the moment, there could be concerns if the current trend persists, and the groundwater supply becomes completely polluted and unsafe for drinking and other uses. As a result of ion analysis for various metal ions in partially processed industrial effluent, the following order was observed $Zn^{2+} > Pb^{2+} > Fe^{2+} > As^{3+}$. As a consequence, now is the time to conserve and safeguard this important resource. To stop the repercussions, urgent precautionary steps should be taken.

ACKNOWLEDGEMENT:

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IMPACT OF FLOW OF FDI ON INDIAN CAPITAL MARKET-A STUDY

¹P. Alekhya and ²Apoorwa Yogesh Kumar¹Associate Professor and ²Student, Department of Master of Business Administration, CMR College of Engineering & Technology, Hyderabad**ABSTRACT**

The substantial liberalization of the Foreign Direct Investment (FDI) system in recent years has helped the Indian capital market attract a large number of foreign investors. In India, there has been a huge increase in foreign direct investment. As a result, India has become one of the most popular investment destinations in the world. The inflow of foreign direct investment has had a significant impact on the development and volatility of the Indian stock market. As a result, the purpose of this article is to examine the effects of FDI inflows on the movement of the BSE (Bombay Stock Exchange) SENSEX and the NSE (National Stock Exchange) CNX Nifty throughout the time period under consideration. The research is mostly based on secondary data collected over a fourteen-year period of time.

Keywords: FDI, liberalization, Sensex.

1. INTRODUCTION:

With the recent dramatic liberalisation of the Foreign Direct Investment (FDI) policy and relaxation of FDI criteria under the automatic route in several industries, the Indian capital market has been able to attract a significant number of foreign investors. As a result, India has become one of the most popular investment destinations in the world. Numerous studies have shown that several macroeconomic variables (e.g., GDP, inflation, and exchange rates, among others) have a significant impact on the development and volatility of the Indian stock

Market, with FDI influx being one of them.

A wide number of empirical studies have shown that FDI has had a significant impact on the host countries' overall economic growth and development. Because the expansion of the economy encourages the development of the stock market, it is necessary to examine the

Influence of FDI on the Indian stock market.

2. SCOPE OF THE STUDY

The scope of the study is to study the flow of FDI in India and to assess its impact on the capital market through the study of FDI from last 14 years inflow of foreign direct investment by taking into consideration the National stock exchange and Bombay stock exchange closed index values.

3. OBJECTIVES OF THE STUDY

1. To study the trends and patterns of flow of foreign capital into India in the form of FDI.
2. To study the impact of foreign capital in the form of FDI on the Indian stock market.

4. REVIEW OF LITERATURE:

1. **Nayyar, R., & Mukherjee, J. (2020).** The altering policy environment in emerging markets and the surge in their outward foreign direct investment (OFDI) calls for an empirical investigation. Accordingly, this paper examines the effect of home country macroeconomic conditions and Government policies on the OFDI flows from India during the period 1984 to 2015. Incorporating the structural breaks in the empirical model, results indicate the existence of a long-run relationship between OFDI flows and home country macroeconomic and Government policies. Government policies relating to foreign trade and investment and financial sector development are found to be significant determinants. The results also suggest the need for the Government to enhance its effort on the development of knowledge infrastructure in order to support the OFDI from India's manufacturing sector and thereby contribute to the success of "Make in India" programme. Policy implications are discussed.
2. **Morales, H. F., & Moreno, R. (2020).** In this paper the researcher analysed that foreign direct investment (FDI) brings firm-level productivity spillovers. However, few studies have been conducted in Latin-American economies. By using a unique Brazilian county-level FDI database, this paper explores whether the effect of the amount of FDI at the county level on firms' productivity growth depends on certain minimum levels of local companies' absorptive capacity. To do it, the researcher uses a threshold regression model, a formulation that appears to be robust to assess the specificities of developing

economies. Results indicate that when FDI is set as the threshold and regime-dependent variable, Brazilian firms may suffer from negative productivity spillovers. However, local firms may collect positive spillovers if they are endowed with high absorptive capacity.

3. **A, K. (2020)** The Foreign institutional investments are playing the vital role in the not only in global markets but also in Indian equity markets. The present study has been focused on the FPI flows impact on the Nifty returns and its volatility. The study applied the OLS method and observed the significant impact of FII flows on the Nifty returns. The ARCH model has been applied and the result reveals that the FII flows are influencing the equity market volatility significantly. The study reveals that the Indian equity markets are dominated by the FII net inflows.
4. In a study by **Beladi, H., Dutta, M., & Kar, S. (2016)**. Available evidence, though limited to the organized sector only, suggests that FDI flowing in with MNE activities or direct FIIs generate technological and market access spillovers for firms outside the core group in destination countries. The researcher investigated the organizational link between formal and informal sectors in India and argues that the spread of internationalization is more when production outsourcing prevails between such units. Higher wage in the organized sector is a factor that breaks standard institutional barriers leading to outsourcing of production to informal units. The evidence is puzzling to the extent that foreign capital and better know-how as drivers of international business to developing countries usually relax the credit constraint facing formal sector units at the destination and cause expansion of formal units. Using a measure of technology and a panel data for a large number of industrial units in India, They have shown that FDI transmitted through technology spillover leads to significant increase in the gross value added for several industries located in the informal sector. The paper points out that production re-organization associated with international capital movements should provide additional insights for standard measures of internationalization of production and services.
5. **Alekhyia, P. (2012)**. Even though organized retail sector in India is at the infant stage but is being seen as a potential gold mine for retailing by investors all over the world. With a robust economy experiencing unrelented growth, the country is enticing global companies looking to expand overseas. As per the latest research by AT Kearney¹, a global management consulting firm, India is rated as the most attractive destination globally and has become the potential target for the foreign investors. According to the BMI India Retail report from private consulting company recommends that there is the rapid growth in the Indian retail market despite of many restrictions on FDI. In their third-quarter report published in year 2010, forecasts that the total retail sales will grow from US\$ 353 billion in 2010 to US\$ 543.2 billion by 2014. ² Despite these encouraging signs, India's retail markets remain largely off-limits to large international retailers like Carrefour. Resistance to liberalizing FDI in this sector raises concerns about employment losses, unfair competition resulting in large-scale exit of incumbent

5. HYPOTHESIS OF THE STUDY:

H0: There is no impact on flow of FDI on the NSE (NIFTY) and no statistical significance is existed

H1: There is an impact on flow of FDI on the NSE (NIFTY) and statistically significant

H0: There is no impact on the flow of FDI on the BSE (SENSEX) and no statistical significance is existed

H1: There is an impact on the flow of FDI on the BSE (SENSEX) and statistically significant

6. RESEARCH METHODOLOGY:

The data used for the research was collected from secondary sources. The information is obtained from various FDI factsheets, National stock exchange (CNX Nifty), Bombay Stock Exchange (SENSEX). The data related to the FDI is obtained from the ministry of commerce and industry, department of industrial policy and promotion, Reserve bank of India and also from various news bulletins, journals and articles. The period of the study to impact of foreign capital in the form of FDI on the Indian stock market was 14 years i.e 2006 to 2020. The statistical tools adopted for this study were Karl Pearson coefficient of correlation, Regression, and Analysis of variance.

7. DATA ANALYSIS:

Table-1 The trends and patterns of flow of foreign capital into India in the form of FDI

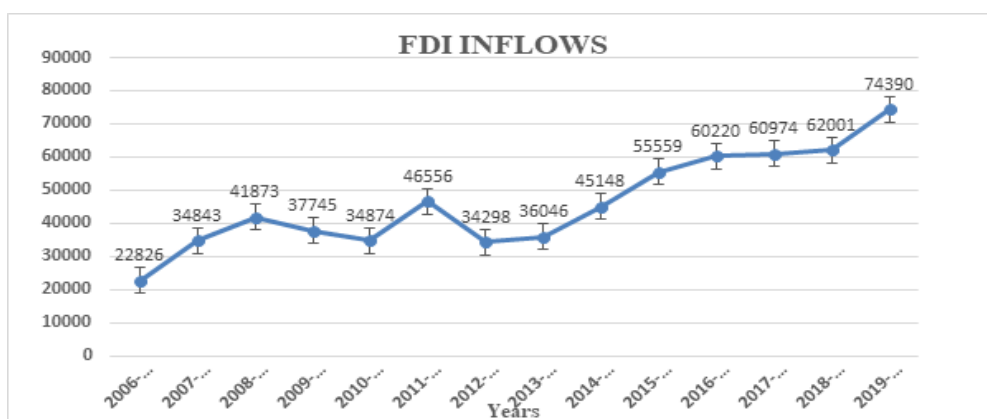
YEARS	FDI INFLOWS	TREND
2007-08	22826	100
2007-08	34843	152.6461053

2008-09	41873	183.4443179
2009-10	37745	165.3596776
2010-11	34874	152.7819154
2011-12	46556	203.960396
2012-13	34298	150.2584772
2013-14	36046	157.9164111
2014-15	45148	197.7919916
2015-16	55559	243.4022606
2016-17	60220	263.8219574
2017-18	60974	267.1252081
2018-19	62001	271.6244633
2019-20	74390	325.9002891
TOTAL	647353	
MEAN	46239.5	

Source: Compiled data

Table-1 consists of FDI inflows from the year 2006-2020. The amount of FDI is in terms of US million dollars. In the year 2006-2007 the FDI inflow is US \$ 22826 million. In 2008-2009 it has been tremendously increased to US \$. 4187. However due to global economic crisis during 2008-2009 the FDI inflows has been reduced to the US\$. 37745. In the year 2009-10 the government changed the FDI policy by imposing the restrictions on the certain inflows so the FDI inflow has been reduced to the US \$ 34874. In the year 2014 the inflow is 45148 million dollars it has been increasing till 2019-2020 with the inflow of the US\$ 74390. There is a tremendous growth rate in the inflows of the FDI in India. The trend % in the year 2006 is 100 and eventually increased by 325.9 by the end of the 2019-20.

Figure No:- 1 the trends and patterns of flow of foreign capital into India in the form of FDI



The above line chart is used to know the upward and downward trend of inflows of FDI in India from the year 2006-2020.

Table-2 The impact of foreign capital in the form of FDI on the Indian stock market i.e., NSE and BSE.

YEARS	FDI INFLOWS	TREND	NSE NIFTY	BSE SENSEX
2006-07	22826	100	3966.4	13786.91
2007-08	34843	152.6461053	6138.6	20286.99
2008-09	41873	183.4443179	2959.15	9647.31
2009-10	37745	165.3596776	5201.05	17464.81
2010-11	34874	152.7819154	6134.5	20509.09
2011-12	46556	203.960396	4624.3	15454.92
2012-13	34298	150.2584772	5905.1	19426.71
2013-14	36046	157.9164111	6304	21170.68
2014-15	45148	197.7919916	8282.7	27499.42
2015-16	55559	243.4022606	7964.35	26117.54
2016-17	60220	263.8219574	8185.8	26626.46
2017-18	60974	267.1252081	10530.7	34056.83
2018-19	62001	271.6244633	10862.55	36068.33
2019-20	74390	325.9002891	12168.45	41253.33
TOTAL	647353		99227.65	329369.33
MEAN	46239.5		7087.689286	23526.38071

Source: Compiled data

Table-2 consists of the data of FDI, NSE NIFTY and BSE SENSEX index values. In order to study the second objective that is impact of foreign capital in the form of FDI on the Indian stock market calculated through the regression, analysis of variance and correlation.

In order to study the impact of FDI we need two variables and they are NSE (NIFTY) and BSE (SENSEX). In regression we taken FDI as an independent variable and BSE and NSE as dependent variables

Table-3 Regression Analysis NSE (NIFTY)

Regression Statistics	
Multiple R	0.8399579
R Square	0.7055292
Adjusted R Square	0.68099
Standard Error	8119.4851
Observations	14

Source: Compiled data

Table-4 Regression Analysis BSE (SENSEX)

Regression Statistics	
Multiple R	0.833271
R Square	0.694341
Adjusted R Square	0.668869
Standard Error	8272.296
Observations	14

Source: Compiled data

Table- 3 and 4 of NSE (NIFTY) AND BSE (SENSEX) are the summaries of regression which is showing us the strong relationship between the models and the dependent variable i.e., R the Karl Pearson's correlation coefficients. The relation between the FDI inflows and NSE (NIFTY) and BSE (SENSEX) is 0.8399579 and 0.833271 respectively. R square is the coefficient of determination in the regression statistics table of NSE (NIFTY) and BSE (SENSEX). The variations of the dependent variables of NSE (NIFTY) and BSE (SENSEX) are 70 % and 69% respectively.

Table-5 ANOVA - NSE (NIFTY)

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1895444079	1895444079	28.751069	0.000170255
Residual	12	791112450.8	65926037.56		
Total	13	2686556530			

Source: Compiled data

Table-6 ANOVA - BSE (SENSEX)

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1865386043	1865386043	27.25942	0.000214345
Residual	12	821170486.4	68430873.87		
Total	13	2686556530			

Source: Compiled data

The Table 5 & 6 of ANOVA reflects the acceptability of the model in a statistical point of view. The regression row shows us the variation accounted by the model in terms of variance. The residual row shows us the variation which has not been affected by the model that is unexplained variance. In the tables of NSE (NIFTY)

ANOVA & BSE (SENSEX) ANOVA tables the dependent variables that is the regression of NSE(NIFTY) & BSE(SENSEX) is much less than the residual sum of squares (SS).

Table-7 Coefficients - NSE (NIFTY)

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	14672.896	6274.301546	2.338570499	0.0374828
X Variable 1	4.4537228	0.830608141	5.362002365	0.0001703

Source: Compiled data

Table-8 Coefficients –BSE (SENSEX)

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	14820	6411.113007	2.311611119	0.039361
X Variable 1	1.335501	0.255791335	5.221055605	0.000214

Source: Compiled data

The p-values in the tables are 0.0374828 of NSE (NIFTY) & BSE (SENSEX) is 0.039361 are less than the 0.05 so null hypothesis H01, H02 are rejected and the alternative hypothesis is being accepted that is Ha1 and Ha2 respectively. There is a linear relationship existing between the variables in the model. Such that it can be concluded that flow of FDI inflow show impact on the movements of NSE (NIFTY) and the BSE (SENSEX). The unstandardized coefficient value Beta values in the above tables gives us the slope values for the regression model and it is being showing us how much dependent variables are dependent on the independent variable that is the FDI inflows. The beta values in the coefficient tables of NSE and BSE are 4.4537228 and 1.335501 respectively. Through this we can say that increase in the FDI inflows leads to rise in the NSE and BSE.

8. FINDINGS & SUGGESTIONS OF THE STUDY:

1. The FDI inflows have been in downward trend during the 2009-10 & 2010-2011, however the inflows increased drastically 2012-2020.
2. There is a positive correlation existed between the FDI inflows and the NSE NIFTY and the BSE SENSEX.
3. There is a direct linear relationship between the FDI and the NSE SENSEX and the BSE SENSEX. Which means that the increase in the FDI will leads to increase in the NSE and BSE.
4. There is an impact on the movement of the FDI inflows on the movements of NSE NIFTY and BSE SENSEX.
5. The FDI inflows into a country are very important which will improve the Indian stock markets as well as it leads to the improvement in the economy.
6. The government of India should focus more on attracting the foreign direct investments along with its regulatory bodies. And also the government should identify the opportunities and attract the foreign direct investments for the development of economy.

9. CONCLUSION OF THE STUDY:

The study attempted to determine the impact of foreign capital in the form of FDI on the Indian stock market. There is positive correlation and direct linear relationship existed between the flows of FDI and the NSE NIFTY & BSE SENSEX. The trend clearly indicating that the FDI inflow leads to rise in the capital markets. The p-values of the NSE NIFTY and BSE SENSEX are 0.0374828 and 0.039361 are less than the 0.05 so null hypothesis has been rejected and the alternative hypothesis is being accepted. Therefore, it can be concluded that there is huge impact of the dependent variables NSE NIFTY and BSE SENSEX which has been taken in the study on the independent variable that is FDI inflows.

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IMPACT OF INDIAN HANDICRAFTS ON SOCIETY

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ABSTRACT

Indian handicrafts industries are an essential element of the Indian culture and tradition. "It is a crowded, labour-decentralized, dense cottage industry," says one observer. Number of the firmness and decide factors include the availability of spectacular and low-cost labour in the country, the use of local resources, inexpensive capital investment, and exclusive craftsmanship in the industrialization of handicrafts, as well as growing international client acceptance. Despite the firmness, industry in the country has multiple challenges, including low literacy, a lack of technological expertise, illiterate personnel, and a shortage of funds. The planning responsibility acknowledges the reality that the unorganized sector, which accounts for around 93 %of the workforce, lacks a formal mechanism to develop and promote the skill. The handicrafts division's five-year plan vision involves the creation of internationally affordable handicrafts and the provision of sustainable employment opportunities for craftsmen through new handicrafts, superior quality, and technological application while preserving traditional art. Different schemes have been designed, and attempts have been undertaken to actualize this goal, but how successful these efforts have been remains a concern. The current research state of that handicrafts industry and artisans, as well as labour in general, in order to conduct a "further examination" of problems and identify a developmental path.

Keywords- Handicrafts, Vision, Labours, Challenges, Development

INTRODUCTION

Handicrafts are one-of-a-kind manifestations of a culture or community made with local materials and craftsmanship. Traditional artisan communities and their crafts can no longer be considered in isolation from global market trends and competition. Handicrafts are part of a bigger industry for home accessories that comprises handmade and machine-made items. Fashion trends, consumer purchasing patterns, and end-market economic situations all have a significant impact on the home accessory business. Many craftsmen are out of touch with those end markets, which makes it difficult for those looking to export their goods. Consumers' reactions to handicrafts are erratic. In many developing nations, handicraft production is a major source of employment and a considerable contributor to the export economy. However, as the world becomes increasingly globalised, items are becoming more commoditized, putting artisan manufacturers in competition with producers from all over the world, notably in China and other Asian countries. All India Handicrafts Board aided state governments of different states like Bihar, Kashmir, Rajasthan, Punjab, Andhra Pradesh, West Bengal, and Goa, Gujarat, Orissa, Manipur, Tripura, Haryana, Uttar Pradesh and many more in establishing Design and Technical institutes. Craftsmen and artists collaborate at these facilities to develop new ideas and goods in specific crafts. These artists seek to integrate traditional and modern elements in their work. The handcraft goods are crafted with attention by artisan so that they keep its ethnic importance while still being functional in today's world. Designers must consider shifting customer demands, particularly in international marketplaces.

LITERATURE REVIEW

(Rao, 1979) India is noted for its diverse culture, which encompasses a wide range of artistic expressions. The handcraft industry has a long and illustrious history. In the past, craftsmen were recognised for their ability and workmanship all throughout the world. The sculptures on the temples bear witness to this. Exports of Indian handcrafted handicrafts have existed since the dawn of civilization.

(PTI, 2013) Because the census of the Handicraft Business is presently underway, it is impossible to estimate the precise size of the industry, demonstrating how overlooked in the past. In a written reply to the Lok Sabha, Minister of State for Textiles Panabaka Lakshmi stated that the estimated artisans in India during 2010-11 were 6.8 million, according to the results made available on various parameters pertaining to the handicrafts sector based on enumeration undertaken so far.

(Handbook of Statistics and Indian Economy, 2006) This sector, which is an important element of the country's rich cultural history, employs artists' traditional skills in a variety of crafts such as wooden ware, metal ware, textile weaving and printing, marble and stone crafts, leather works, and jewellery, among others. This expertise is passed down as a family heritage from generation to generation. The Handicraft industry, as its

name implies, makes numerous goods using traditional manual processes rather than sophisticated technology. It's a cottage business that's disorganized, decentralized, and labour-intensive.

(Ernst & Young, 2012) A huge number of craftsmen from rural and semi-urban areas work in India's handicraft sector. The rural sector produces 78.2 percent of the units and employs 76.5 percent of the craftsmen, while the urban sector employs the remainder. The majority of these persons are women and members of economically disadvantaged groups.

(Hashmi, 2012) The availability of abundant and cheap labour in the country, the utilisation of local resources, minimal capital investment, and distinctive artistry in product manufacture, as well as expanding worldwide customer appreciation, are some of the industry's assets.

RESEARCH METHODOLOGY

Based on secondary data, this research article is descriptive and analytical. Secondary data was gathered from a variety of sources, including old academic papers, journals, books, the internet, and even official data. To comprehend the importance and contribution of the handicraft business, data was gathered from different publications such as books, newsletters, reports, periodicals, journals, newspapers, and the internet, as well as existing literature.

SIGNIFICANCES OF INDIAN HANDICRAFTS

India, with its diverse ethnic cultures and customs, is also a treasure trove of Indian handicrafts. Various sections of the country manufacture exquisite handicrafts utilising a variety of raw materials. Art metal ware, wood ware, hand printed fabrics and scarves, leathercrafts, hand knotted carpets and embroidered items, wood design, shawls as art ware, stone sculptures, imitation jewellery, and assorted other handicrafts are all examples of this.

One of the most distinctive characteristics of handicrafts is that the same item of handcraft made in different places sometimes differs in terms of workmanship, design, colour combination, and finish due to artisan ingenuity. In India's economy, the handicraft industry is extremely important. It is, after agriculture, the greatest employment. While providing a source of income for thousands of artists, the industry also allows millions of individuals to realise their social and cultural potential. Crafts with mythological, religious, social, historical, and aesthetic expressions represent the qualities of Indian heritage while also combining practicality and beauty. The sector is one of the most desired sectors in the process of economic growth because of its high job potential, low per capita investment and high value addition, inclusion of women and the weaker section, environmental friendliness, and capacity to encourage creative abilities.

INDIAN HANDICRAFTS GROWING AND DEPLETING

India needs to focus on the blooming of arts, science, and literature," says Prof. C. K. Prahalad, Paul & Ruth McCracken Distinguished University Professor, Ross School of Business, University of Michigan. The objective is for India to become the world's model for dealing with diversity. It has the potential to serve as a model for universality and inclusivity in practice. Subsidies have nothing to do with inclusive growth. It's all about building long-term opportunities." This inclusive growth may be achieved if the government focuses not just on the thriving organised sector, but also on the unorganised sector, particularly the suffering handicraft industry. Many development efforts have failed because the role of culture has been underestimated, according to the UN report of the World Commission on Culture and Development. Culture, being the lifeblood of growth, can no longer be overlooked and must be expressly expressed in any discussion of human progress.

The vision of the India@75 project (India@75 - The People's Agenda (National Vision Document), 2009) includes the following:

- Creating appealing and profitable employment options in the arts, sports, and literature, as well as discovering potential at the grassroots level.
- Maintaining local arts and culture by promoting them internationally.
- Providing arts and craftsmen with vocational training as well as financial assistance, as well as promoting arts as a topic in mainstream school, ensuring that every Indian has 100 percent functional literacy.
- Establishing a platform for knowledge creation, talent development, and learner-centric education; encouraging industry partnerships to provide professional skills to the workforce and establishing vocational training centres / colleges based on local requirements; and assisting small and medium enterprises in sustaining themselves by providing a supportive environment, thereby generating new

employment opportunities for a diverse workforce.

ARTISANS IN THE HANDICRAFT INDUSTRY ENCOUNTER MAJOR CHALLENGES

With the entrance of the British, the age of prosperity came to an end. With the guilds, a store of products began to accumulate. The British government turned a blind eye to the plight of craft craftsmen and handicrafts. National leaders such as Mahatma Gandhi fought to defend cottage businesses. The national government emphasized the importance of strengthening traditional vocations after the country gained independence in 1947. Cottage and small-scale industries, including handicrafts, suffer the following issues, according to the 1947 Industries Conference.

- Insufficient funds
- Outdated production processes,
- Poor Marketing,
- Non-availability of raw resources
- Competition from automated goods, whether imported or locally produced.
- Lack of access to finance facilities causes a slew of other challenges, including difficulties obtaining raw materials and restricted access to larger markets, forcing craftsmen to fend for themselves in local marketplaces.
- India's lack of sufficient infrastructural facilities has an impact on this sector's production and marketing.
- Indian items are entirely handcrafted, whereas Chinese ones are machine-made, allowing for large manufacturing and product standardization in China.
- The industry's expansion is stifled by complicated trade processes and a lack of information regarding trade incentives and subsidies.

HANDICRAFT MARKETING STRATEGIES

Handicraft businesses can't afford to establish a distinct and well-organized marketing strategy because they're typically controlled by people with sole proprietary organisations. Everyone's life is influenced by marketing. Marketing encompasses a wide range of operations such as market research, product creation, distribution, pricing, advertising, and personal selling, as well as sales promotion, packaging, and branding. Marketing is a collection of actions aimed at detecting, serving, and satisfying customer requirements while also achieving the organization's objectives. With the support of members of the family, the artisan-cum-proprietor of the unit performs all of the functions. Craftsman spends the most of time working on the set. If not then has some spare time, on gathering the raw materials. Somebody usually lacks knowledge and market information about their items.

Hopefully, artists in the handcraft business place a low value on the crucial marketing function. The following essential marketing issues are explored under the headings:

- Product
- Cost
- Location
- Promotion

PROPOSITION FOR INDIAN HANDICRAFTS

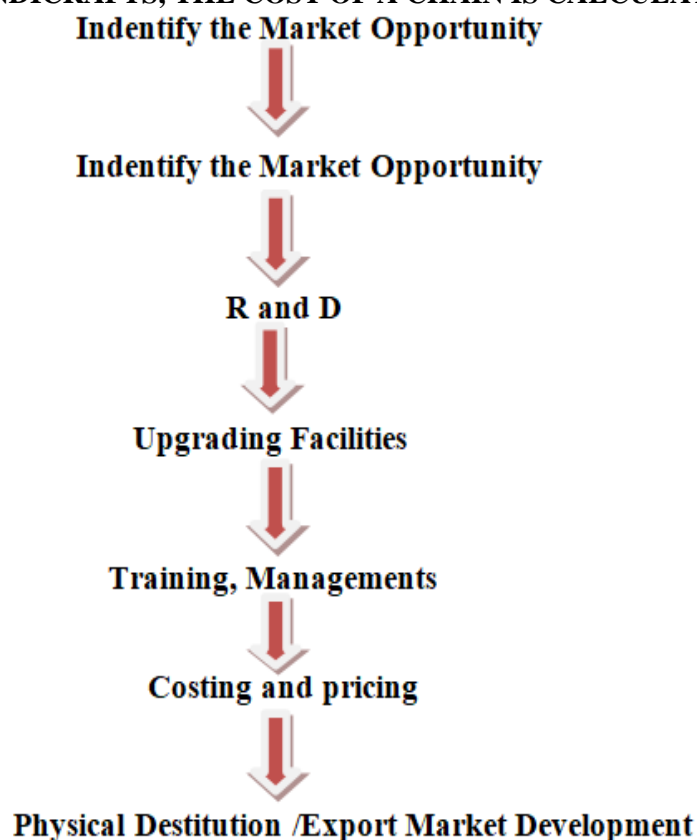
The following measures might be implemented to help handicrafts reach the top of the list.

- Publicity, exhibition, brochure printing, and participation in fairs are all good ways to improve the handicraft industry's long-term growth.
- The government should establish a well-organized handicraft marketing system so that both producers and consumers profit from it. Both consumers and producers are exploited in the absence of a well-organized market.
- Prices of handcraft goods are frequently criticized for being irregular and inconsistent. When purchasing the

same item from two different stores or locations, there is a large price discrepancy. The consumer feels exploited and tormented in this circumstance. This might have a significant negative impact on product demand. The competence displayed and the quality of raw materials used should be utilized to categories art in each craft, and pricing should be determined by a team of specialists.

- To provide assistance to the artisan, foreign master designers may be invented to design centres.
- Value addition in handicrafts different specialist organisations, such as DC(handicrafts), may assist local units in producing various value added goods that would not only help them penetrate the local market, but also help them export such items to other nations.
- Price uniformity is also a significant factor for this industry's success. When clients acquire the same handcraft product from two separate stores at different rates, they feel exploited and irritated.
- Positioning of handcrafted goods, which are manufactured with traditional skills, are increasingly losing ground against machine-made goods, which provide higher consistency and a superior finish. There have been no alternatives or competition from any substantial newcomer into the sector for a huge number of handmade goods. As a result, suppliers, new entrants, and replacement items do not appear to play a substantial role in Handicrafts' strategic orientation. We get at the buyers and buyer groups through the isolation procedure. The intermediaries and distribution chain are also included.
- More research and development in handicraft: R&D is essential for enhancing the quality of the items. With the support of R and D, many more new things and designs may be created.
- Design registration is required to protect the copy right of handicraft. That is to say, any designs offered by an artisan on any object should be registered. Then no one will be able to duplicate it.
- The responded does not engage in any handicraft advertising. The artists' small scale business prevents them from publicising their wares individually. The Corporation has been promoting handicrafts through advertising, exhibits, brochure publishing, and participation in trade shows. The Corporation is also erecting hoardings in high- traffic areas and tourist hotspots, which will act as an effective public relations tool. Participating in trade shows and funding trade / study teams to other states in the country are two more ways to get your name out there.

IN THE FIELD OF HANDICRAFTS, THE COST OF A CHAIN IS CALCULATED.



CONCLUSION

Handicrafts are a one-of-a-kind manifestation of our culture and community. A considerable portion of the population relies on handicrafts for a living, either directly or indirectly. It creates employment and foreign exchange profits, both of which are critical for rural economic growth and development. The dynamic variables that affect the rise and fall of craft must be understood from the perspective of a comprehensive lifestyle, not just an economic one. The government should give both incentives and help in order to maximise the discovery of this handcrafted business. Both the state and the federal governments must take steps to raise pay and improve working conditions for artisans.

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IMPACT OF ONLINE SHOPPING IN RETAIL STORE BUSINESS

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ABSTRACT

Retailing plays an important role in the country's GDP it accounts for approximately 10% with the advent of the virtual era the internet has brought drastic change in the buying behavior of the consumers. In this paper an attempt has been made to highlight the impact of the increasing trend of online shopping over the various fixed shop retailers. Retailers comprise of a large section of the population and a larger population is dependent upon these retailers. But the advent of e-stores with their attractive incentives and wide varieties has slapped on their face the fear of uncertainty and helplessness. This study looks into the various aspects about how retail businesses are being affected and also the various recovery mechanisms they are coming up with to counter those e-stores in their race of survival.

INTRODUCTION:

Internet marketing is conceptually different from other marketing channels and internet promotes a one to one communication between the seller and the end user with round the clock customer service. Today, business internet marketing is the fastest growing segment of online commerce. Online shopping, is buying the goods and services using the internet. After 1991, globalization arrival of e-commerce in India online shopping is adopted by most of the consumers because of various advantages like any time and convenient shopping without going anywhere (Gunasekaran et al., 2002; Shahriari et al., 2015). There are various reasons to adopt technology because of busy life, nuclear family size, heavy traffic and many more reasons made it is mandatory to follow the technology (Shim et al, 2000; Soyeon et al., 2000; Harchekar & Kandalgaonkar, 2018).

Globally, (LOCO, 2015) India is on 2 rank on online shopping through mobile devices that shows e-shopping has come as a boon for consumers in India on the other side local retailers face many problems (Hsiao, 2009) like sales has gone down by around 80% over the past two or three years, less profit margin, increasing debt burden, reduce prices due to high competition and verge of closure (Hiwarkar, 2013; Siva, 2016). To match the present situation there are various ways retailers can strategically mitigate and ultimately offset the negative impact of e-commerce (Williams, 2001; Bharadwaj & Soni, 2007). Retailers need to become more competent omnichannel operators to check the losses (Weltevreden, & van Rietbergen, 2009; Wilson, 2016). Local retailers can take the internet as an opportunity and they can find some new ways to use e-commerce strategically differentiate offerings and build competitive advantage in the market. (Sumanjeet, 2007; Essays, 2018).

REVIEW OF LITERATURE

The studies on consumer's perception on online shopping and other related topic in the Indian context are limited as the online shopping has entered into the market only a few years only. The literatures so far reviewed relates to the studies conducted outside India especially in the United States where the online shopping is a big hit. As taken the case of Indian scenario where the online shopping has just entered into the market and already it has climbing the ladder. Though there are certain literature reviews by the context of Indian consumers.

Saha, 2015 has highlighted the impact of the increasing trend of online shopping over the various fixed shop retailers. Retailers are afraid of uncertainty because of the emerging of E-stores with their attractive offers and wide varieties. This study has enlightened the scenario along with some concrete suggestions.

Sheffling et al., 2015 explored in their study that the effects of increased virtual mobility on local shops in small communities there should be a balance between online and offline shopping that is helpful for both consumers and retailers. They also encouraged further inter-business to build up the competitive position of small retailers and thus ensure their capability.

Shanthanu & Arvind, 2014 focused on online retailers and they emphasized nurturing online retail shops as an effective tool for business excellence and they get competitive advantage expressed in contemporary business format. They compared online retailers with the traditional retailers in India it is highly irregular, out of order, and is at a growing stage.

Karthikeyan, 2017 has enumerated various problems faced by the retail traders after the changing behavior of the customers towards online shopping. Retailers are facing a greater challenge in upgrading themselves for their survival. The study was based on primary data.

Table 1: Some of Commonly used Online Shopping website in india

Products	Website
Clothing	Myntra, amazon, jabong , koovs. Meesho
Furniture & household goods	Urban ladder , pepperfry , faburnish.
Food items	Swiggy, Zomato, Big basket, Grofer , nature's basket,
Books	Ebay , Amazon, Crossword, Indiabookstore.
Health & beauty products	Nykaa, Globox, Theskinstore.
Leisure & Personal goods	Amazon, Alibaba, Paytm mall.
Property	99acres, Magicbricks, Propertybazaar, Makaan.
Electric items	Eleczo, Reliance digital.
Hotel rooms	Trivago, Oyo, Airbnb.

OBJECTIVES OF STUDY

The research has been conducted with the following objectives:

- ❖ To study the effect on profitability of retail stores due to the advent of e-stores.
- ❖ To analyze the remedies taken by the retailers.
- ❖ To analyze the effectiveness of online shopping in pandemic time.

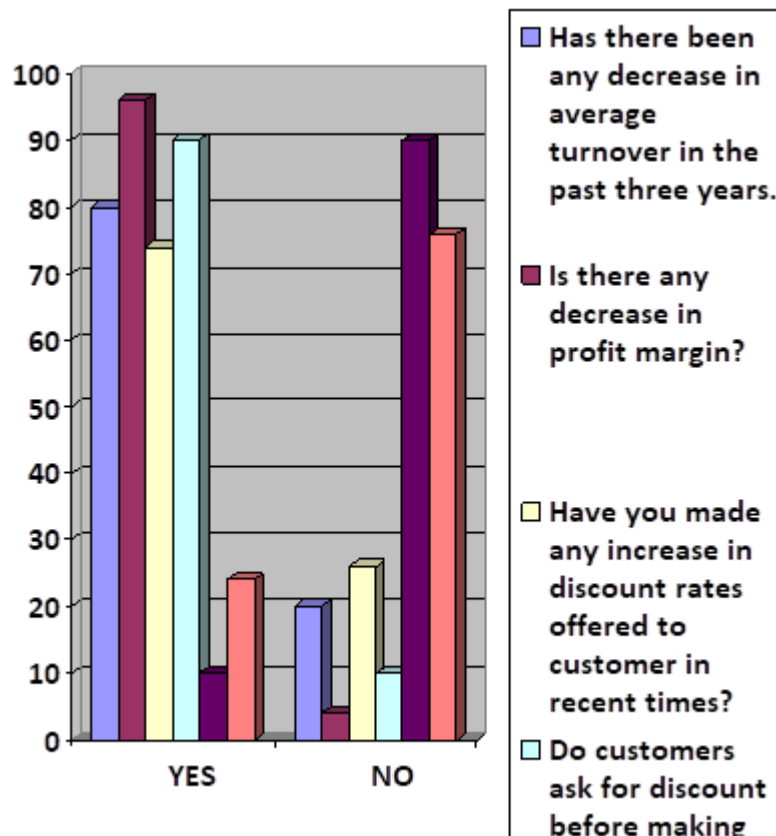
IMPORTANCE OF STUDY:

This study is very much relevant to present times as this will make awareness about the impact of e-stores upon retail stores. The sudden surge in online shopping and customers have adjusted to it to a greater extent which it a real cause of concern for the thousands of retailers who have a small shop offering a small variety of products which are their source of livelihood. This study wants to unravel the real scenario and also look into the threat that looms over the various small scale retailers. In this study an attempt has been made so that retailers are aware of the upcoming that is expected to loom over their business in the near future so that they can appropriate arrangements to face such challenges. world won't be stable all time we can't expect when these sudden pandemic may come at that time retail stores are suffering. Dynamism stands the base of the current scenario and as a result of that anything that remains stagnant will be surpassed by others. It's time the retailers start thinking deep into this aspect and come up with better and advanced strategies.

PRESENTATION OF DATA:

Table: Table showing the analysis of the various aspects of the impact of online shopping upon retail trade.

LIST OF QUESTION	YES	NO
Has there been any decrease in average turnover in the past three years.	80	20
Is there any decrease in profit margin?	96	4
Have you made any increase in discount rates offered to customer in recent times?	74	26
Do customers ask for discount before making purchases?	90	10
Do you keep more variety of stock at your store now-a-days?	10	90
Do you provide home delivery services to your customers?	24	76



INTERPRETATION OF TABLE:

The table highlights that there has been a decrease in turnover in most of the enterprises with a figure as high as 90%. Most of the retailers has also agreed to a decrease in their profit margin in recent years as more discounts have been given by them to the customers in order to ensure a higher amount of sales. More customers are seen to ask for discount in recent times. Retailers now-a-days try to maintain a good variety of stock and also provide various types of customer oriented services in order to attain and retain customers. An alarming signal is the increase in window shopping which explains that prospective consumers do not turn into actual consumers. In future 58% retailers convert their offline to online business, on the other hand, 58% not agreed on creating completely own online business, 48% retailers agreed on taking association with any online shopping, 78% respondents thought online shopping put pressure (tough competition), 52% retailers disagree on sell at online prices are not profitable and in future maximum retailers (i.e. 52%) will shut down their offline business.

ANALYSIS AND INTERPRETATION:

Retailers over a period of three years under study have noticed a considerable decline in their turnover as compared to years back. Some has reported if not decline but stagnancy in their growth which is a warning signal for the enterprise. Profit margin: Online shops have brought in a price war in the market and the main sufferers of this price war are the retailers. In order to survive, most of these retailers too has made an attempt to lower their prices but considering their high cost of operation these retailer has to sacrifice on their margin. Discount: The retailers are at an alarming rate increasing their discounts in order to stand with the online stores who woe the customers with unbelievable discounts. Although the retailers cannot compete with the online stores in terms of discount but it has to lower its prices to a relative extent to survive the market. Retailers are now starting up with home delivery services in the same line of the online shops. Also after sale services are provided with a smile. Window shopping: There has been a trend in recent years for customers to browse the products in a physical store and buy it from an online store at a reduced price. Retailers now have more prospective customers than actual ones. Advertisement: The retailers now-a-days are more involved in advertisement campaign than ever before in order to increase their sales. Retailers leave no occasions to take advantage of the situation to advertise their firm. The table and the diagram highlight the fact about all these aspects and it shows that there is a negative trend on all these aspects with regard to the retailers.

FINDINGS:

E-commerce is consistently taking up a larger proportion of consumer time and spending. There are several driving factors for consumers to shop online with price, convenience in shopping and wide range of available

products being the primary. The major findings of the study are as follows:

- In this pandemic time people prefer online because of their safety, and e-shopping is much convenient they can see whatever they especially want in their comfort zone even If they don't like all e-shopping website has return option and all the things are in affordable price. So now all people are preferring e-shopping.
- Turnover and profit margin of the retailers has considerably decreased in the past few years.
- Retail stores are now-a-days more engaged in services related to customer satisfaction.
- Although the retailers are not able to keep a wide variety in their stock, they attempt to keep the best of them so as to affect more sales.
- Customers are seen to make window shopping at an alarming higher rate to have a physical look at the product and buy that product online at a reduced rate.
- Retail stores are now starting up with home delivery services of their various products at the door step of their customer.
- The consumers become more comfortable with the experience of purchasing online with the convenience and product range become relatively more important as a deciding factor for shopping online.

SUGGESTION:

- Retailers should aware of the customer about duplicate or second hand products deliver at online shopping and give knowledge regarding online fraud.
- Retailer should change their selling policy like provide value added services, fast and quick home delivery in comparison to online shopping.
- Retailers have to change their attitude towards the market. Today's is a consumer market and as a result the priority is the consumer satisfaction. The firm has to be in the good books of the consumer.
- Better quality products, fair price and friendly after-sale services are the basic areas in which the business has to concentrate to a remarkable extent.
- Additional services should be provided to the consumers to woo them and build upon a loyalty which in turn would ensure a stable sales in the years to come.

CONCLUSION:

The face of retail has changed. The advent of technology in recent period being the primary reason for it. Today, retailing means going into shopping centers, going online and going mobile. In all these, small retailers miss out somewhere. But the nearby store is always the most important concern for all reason and seasons. It needs to revive not just survive. The retail stores needs to simply uplift its pattern of business and face the competitive world with a more positive outlook. E-stores and retail stores both have to survive, none at the cost of the other. It's not just about the livelihood it gives to the thousands of people but also the convenience and the steadfastness of a fixed retail store.

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INNOVATION MANAGEMENT - A LITERATURE REVIEW

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ABSTRACT

Purpose : The analyses of this paper is to identify the most important factors that are helpful in the field of innovation.

Approach: Methodology involves 14 important factors which are derived by reviewing about 30-50 research papers and that are identified using Pareto chart. since many of the research papers don't contain pareto chart we have used pareto methodology.

Findings: At the end of paper we will get to know about the most effective factors and if the industries try to come up and solve these factors i.e. 20% of the effective factors then other 80% of the factors will get solved easily. This is one of the significance of the Pareto chart and the analysis is widely known as 20\80.

Research Implication: In order to achieve the organizational goals and bring innovation in all the fields, including and considering these factors is much more needed one . So that the industries or any organizations can easily defeat their competitors.

Physical Implication: This paper helps the companies in differentiating the top important factors and least factors as well. This in turn helps the companies to plan their strategies for addressing the issues that are related to all the sectors.

Keywords: Innovation Management (IM), Pareto, Innovativeness etc,

INTRODUCTION:

Progress and wealth have been fueled primarily by innovation. As a result, considerable effort has been expended in developing new technological knowledge, new process technologies, and new products in order to acquire competitive advantages and solve current challenges. Innovation is a critical component of long-term competitive advantage and economic expansion. The improvisation of company functions required to gain profit from delivering goods and services is known as innovation. Strategic planning, inventory control, logistics, and personnel training, as well as communication, financing, and marketing, are all company operations. (Bosch and Heil, 2013)

Most successful businesses have used fresh knowledge to create new products or services to fulfill the demands of their clients at some point. They are attempting to profit from their competitor's innovative initiatives. Intel's success in the 1990s can be traced back to its 1972 discovery of the microprocessor, whereas Cisco's success in the late 1990s can be traced back to its ability to provide internet routers. Some of the trends followed by enterprises in the manufacturing industry include a shift from closed to more open models of innovation ("openness"), a shift from physical items to industrial product services ("servitization"), and an analogue to a highly digitalized environment ("digitalization"). These trends aided manufacturing enterprises in gaining a higher profit margin than before. These new ideas or processes to boost profit and productivity rate are referred to as invention in the early phases. However, it is eventually replaced or modified with the term INNOVATION. (Hartmann, 2006).

Commercial, process, hybrid, sustaining, and disruptive innovation management are all examples of innovation management. The goal of product innovation management is to bring new or significantly improved goods or services to market. Process innovation management, on the other hand, is concerned with improving the company activities necessary to profit from the provision of goods and services. Process and product innovation management are combined in hybrid innovation management. A sustainable innovation management strategy is one that improves an existing product or process. Disruptive innovation management, on the other hand, includes everything that is fundamentally different from any previously existing process, product, or service on the market. (Riederer and Baier (2005). Innovation management is defined as the implementation and exploitation of new ideas and discoveries, as well as the application of a culture in an organization to promote and enable the emergence of new ideas and economic opportunities. Innovation can also contribute to social welfare through the development of new goods, facilities, and patents, as well as the prosperity of regions and businesses through the creation of new job opportunities. (Riederer and Baier (2005).

Discussing about the Japanese innovation policy, the Japan remains to be an ambitious country in term of development in innovation management. According to the statistics of Organization for Economic Cooperation and Development (OECD), the Japan has been positioned at the top rank for R&D expenditure.

In most Japanese manufacturing, R&D expenses are outpacing equipment costs. As a result, they began to move their focus from production to knowledge development, resulting in ongoing innovation. The corporation transitions from data processing to being a live entity. They also began to change their focus from dominant design to surf-riding, which was critical to technological advancement. R&D investment in Japanese corporations has continuously climbed to a level where it now exceeds capital investment by as much as 80 percent. Between 1985 and 1987, Japanese major corporations spent 29 percent more on research and development than they did on plant and equipment. As a result, many R&D advancements occurred as a result of daily labor in Japan unlike in other western countries. (Keith Jackson and Philippe Debroux, 2008).

In general, Japanese applied R&D has yielded larger returns than other Western countries. Such a finding appears to be reasonable. Because Japan has been able to tap into a vast pool of foreign technology at a low cost. Japan may be able to take the lead in Rand D developments as a result of these innovations. (Mansfield, 1988).

Despite these new ideas and techniques, rapid innovation activities face challenges such as slow response to change in the environment related to customer value acquisition, closeness in R and D investment, company short-termism, low mobility of human and financial resources, and isolation from the global network. It is thought that encouraging open innovation will help to tackle these problems and generate new ideas. (Martin Hemmert, 2008). In the sphere of R&D, innovation is a long-term, aspirational risk-taking activity, as discussed in some of the hurdles. R&D initiatives usually take a long time to complete and require ongoing funding. Innovations in the R&D industry aren't always appropriate for addressing the urgent challenges that a company is experiencing when its performance deteriorates. (Branstetter and Crepon, 1988).

Now, let us go on. Innovation in healthcare, particularly in the COVID-19 pandemic, is a "wicked problem" that the entire globe is dealing with. However, more ingenuity and invention, which has already begun in reaction to the pandemic, may be able to address this issue. Some technologies, such as alcohol distilleries making hand sanitizer and do-it-yourself makers 3D printing face shields and others, have helped to decrease exposure to the corona virus. Such developments, as well as some engineering firms developing new ventilator machines and pharmaceutical companies repurposing existing medications to treat COVID-19 symptoms, have aided in increasing health-care capability. (Cohen & Cromwell, 2021).

The process of innovation has a number of implications, including operational issues such as failing to satisfy quality, cost, or schedule requirements, commercial issues such as failing to attract enough clients, and financial issues such as failing to obtain financial assistance (Tan, 2004). It must ensure that new goods change the economy in fundamental ways, such as increased quality, the introduction of innovative processes into the industrial system, access to all markets and customers, and so on. It is also a rigorous process for managing innovation, which includes a disciplined, stage-by-stage approval process as well as measurement of critical factors such as time and money spent for success, and is capable of addressing a number of key performance dimensions such as quality, quantity, and the speed with which innovation management is implemented. (Pohlmann, 2005). In a range of industrial sectors, such as manufacturing, production, and marketing, as well as in the fields of R&D, supply chain management, logistics and distribution, and product design and development, innovation management is gaining more attention. (Sonar et al, 2020).

LITERATURE REVIEW:

The industries have been incorporating various challenges and also minimum profit. The companies couldn't able to focus on all the challenges and solve them. In order to minimize the focus on entire challenges, they can only focus on 20% of factors for every 100%. where these 20% of factors helpful in solving all the other 80% of factors.

The top 14 factors include:

1. Top management commitment
2. Strategic flexibility
3. Human resources
4. Technological opportunities
5. Innovations
6. Research & development

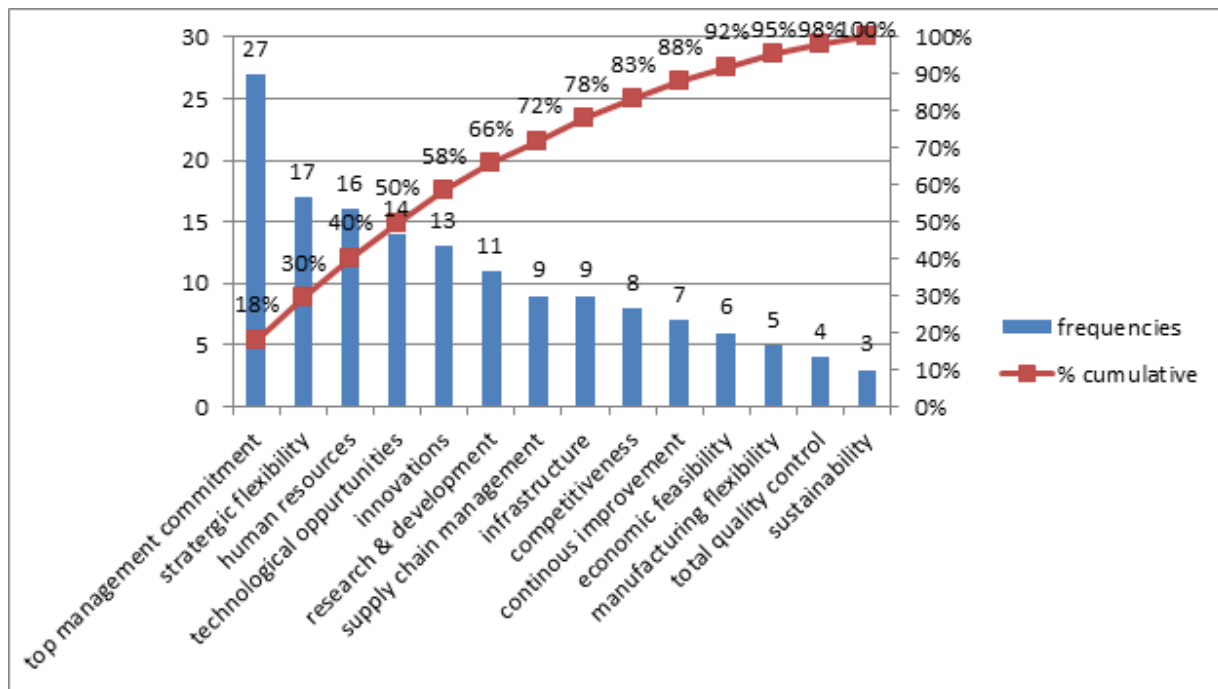
7. Supply chain management
8. Infrastructure
9. Competitiveness
10. Continuous improvement
11. Economic feasibility
12. Manufacturing flexibility
13. Total quality control
14. Sustainability

Companies have adopted Pareto analyses to reduce obstacles. (Leaven good and Reeb, 2002; Young and Winistorfer, 1999). Pareto analyses are based on the premise that around 80% of issues are produced by only 20% of the possible causes. As a result, Pareto analysis can assist a corporation in prioritizing quality issues to fix and focusing on the "important few" issues rather than the "trivial many." The Pareto analysis (PA) is adopted in a simple method to identify the root cause and/or problem solving; As a result, the first component solves the greatest number of problems. This is based on the assumption that as few as 20% of the problems will affect 80% of the concerns. It can also be computed that those needs with a larger statistical value will play a stronger role than all other requirements in the implementation of Pareto's 80/20 theory. According to the Pareto analysis theory, the top 20% of the causes must be addressed in order to solve the remaining 80% of the problems.

This problem can be encountered in any sector of the economy. For this issue, Failure Modes and Effect Investigation and Multi Criteria Decision Making techniques can be used together, with every area of analysis that can be merged into technology and user criteria. It is based on the Pareto principle, which states that the majority of issues or outcomes are influenced by a small number of variables. A Pareto chart is a type of histogram that highlights any data gathered by frequency of occurrence and displays, for example, how many quality flaws fall into a specific category. The bars represent each type of failure. The graph shows how by streamlining data processing in 14 categories, 80 percent of errors might be avoided. With an 80/20 ratio, the PA results lead to unambiguous recommendations-solutions for processes and requirements that cause issues or concerns. (ERDİL, A.2020).

Sl. No	Factors	Frequencies	Cumulative	Cumulative %
1	Top management commitment	27	27	18%
2	Strategic flexibility	17	44	30%
3	Human resources	16	60	40%
4	Technological opportunities	14	74	50%
5	Innovativeness	13	87	58%
6	Research and development	11	98	66%
7	Supply chain management	9	107	72%
8	Infrastructure	9	116	78%
9	Competitiveness	8	124	83%
10	Continuous improvement	7	131	88%
11	Economic feasibility	6	137	92%
12	Manufacturing flexibility	5	142	95%
13	Total quality control	4	146	98%
14	Sustainability	3	149	100%
	Total	149		

Table 1:



PARETO CHART

CONCLUSION:

We all know that Innovation plays very important role in all the organizations. The above mentioned factors are the significant one in which companies should give more attention towards these factors. Using Pareto analysis we got to know the vital few factors rather than trivial many. By knowing these factors industries can able to solve many of their challenges not only in the field of innovation but also in other sectors as well. After all these innovation can easily happen in the industries which in turn leads to gain more profit and achieve their requirements. and also they can stand firmly in front of their competitors. This research also contributes to identify the factors from a generic perspective. However, focusing on vital few factors is much easier than all the factors. And innovation can happen in faster rate.

STATUS OF ACADEMIC RESEARCH IN EDUCATION: AN OVERVIEW IN NEW NORMAL OF COVID-19

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ABSTRACT

Today COVID-19 becomes a health emergency of international concern which created largest disruption in education system. Closures of schools, institutions and other learning spaces have affected almost whole population of students in the world. It brought far-reaching changes in all aspects of our lives. Traditional educational practices have significantly disturbed due to social distancing and restrictive movement policies. Even after in relaxation of restriction, reopening of educational institutes is another challenge due to new normal of COVID-19. The new normal of COVID-19 made changes in traditional research practices what has been experienced or done before. Today COVID-19 has posed new challenges to academic research community also. Researchers shared their works on teaching and learning in different ways. Now it becomes the need of the hour that the future research will be multi-disciplinary. There is a new wave of academic research in the new normal of COVID-19. In new normal of COVID-19 researchers cope with the crisis of pandemic and recover stronger with a renewed sense of responsibility towards research. Now they have a better understanding for assuring the quality of academic research in this time of new normal. This article presents an overview on status of academic research in education in new normal.

Keywords:-Academic Research, Education, New Normal, COVID-19

INTRODUCTION:-

During the COVID-19 pandemic, the term new normal has been increasingly used that refers to the changes of human behavior during and after the pandemic. Its effect caused massive changes to our daily lives. It has completely invested and transformed unchangeable pivots of human life. It revised the traditional ways, practices and skills for professional identity, children's education management, economic subsistence, work and family organization etc.

The COVID-19 Pandemic reshaped education system. Online classes replaced face to face instructions in classrooms, now educational institutes are using blended learning approach to facilitate teaching-learning process. Nobody in the recent past would have thought the teaching-learning process will be scheduled online at homes. This pandemic is giving tech massive insights to education by shifting formal classroom education to augmenting relationships with teachers, personalization and independence. This pandemic makes our thinking critical. It opens up new opportunities for learning. Technology connects people with each other in their homes. E-learning comes with its own set of advantages and disadvantages; it has taught us to become self-disciplined and benefitted us in many ways. As we are living in an uncertain and ever-changing world it demands us to be more adaptable to the only then it will be possible for us to reach greater horizons.

The COVID-19 pandemic has a major impact on the academic research globally. It led to substantial innovation in research collaboration and scholarly communication. Educators developed online resources to facilitate research scholars. Now researchers go for systematic review and meta-analysis based studies. They are producing a concise summary of a research topic which has not been reviewed yet. The previous methodology is shifted to new methods of recording and measurement of data.

Influence of digital and online tools in academic research is very much increased in new normal of COVID-19. A considerable shift to digital academic research has gradually occurred. Faculties are encouraging students to take up digital tools for research which is revealing new ways of using ICT's for academic purposes.

CHALLENGES IN NEW NORMAL OF COVID-19 FOR ACADEMIC RESEARCH:-

Covid-19 pandemic has changed the way of doing of almost everything. Now one has to live under various restrictions. The pandemic has put on incredible pressure on researchers, regulators, and policy makers. To carry out research one must ensure the safety of the participants and oneself. In present scenario, a researcher is facing many challenges which are the result of COVID-19. Some of these challenges are:

- **A Quick Shift in Teaching-Learning Materials and Style:** In the past, E-learning was underutilized especially in developing countries. But current crisis of the COVID-19 pandemic forced the entire world to rely on it to stop the disruption of education caused by COVID. Due to which the teaching-learning

material and style is changed and it brings challenge for academic research. It reshaped the research productivity.

- **Jobs and Internship Opportunities:** After being negatively impacted by COVID-19 companies are abrogating job and internship offers. Students are finding it harder to find internships opportunities especially foreign research opportunities which play a significant role in interdisciplinary research and exposure to global research facilities.
- **Psychological Disturbance:** The uncertainty faced by the faculty and students due to pandemic brings stress to them and affects their mental health which disrupts the research productivity.
- **Global Recession:** Many people experiencing financial difficulties due to global recession. The gap between private and public mode of education is increased because of the requirement of a digital facility. This creates even more problems. The lack of financial support to research also interrupts its productivity.
- **Ethical Challenges:** Researchers face many ethical challenges like obtaining informed written consent using remote technologies. One of the most crucial challenges is creating and maintaining trust, honest of research participants. Due to the pandemic now the needs and demands of the users are different. Acknowledging, handling emotions and fatigue is also very challenging for the researcher in the new normal of COVID-19.
- **Environmental:** Researchers face the global environmental impact of reduced and stopped travel and flights.
- **Limitations in Conducting Online Research:** In COVID-19 pandemic focus of research is shifted to online research by using Google forms, voice calls and video calls. But there are many limitations in conducting online research. Difficulties faced due to lack of digital literacy or access to digital technologies by researchers as well as participants. Getting access to strong internet connection to carry voice or video calls is difficult. Communicating through Google forms, voice and video calls makes research really difficult as compared to face to face contact.

POSITIVE CHANGES OCCUR IN ACADEMIC RESEARCH DUE TO COVID-19:-

- Now the design and conduction of research are different from usual ones.
- Use of online platforms is increased.
- E-learning tools play a crucial role in data gathering process.
- Speed of data collection is increased.
- Now researches are more techno savvy.
- Rise in collaborative work.
- Students conduct systematic review and meta-analysis.
- Increases academic integrity.
- Increases systematic, appropriate research methodology.
- Development of innovative strategies for research.
- Reduction in cost.
- Use of alternative platforms for disseminating research findings.
- Developed and nurtured professional relationships which led to collaborations with others from across the globe.

SUGGESTIONS TO OVERCOME THE CHALLENGES:-

1. **Minimizing Exclusion:-** To minimize the risk of unintentional exclusion from research community 'mobilisers' will be used who could take technology to the homes of the research participants as well as provide training to them on how to use the technology they have. The use of secondary data and by investigating more thoroughly what already exists can also help in minimizing the exclusion.
2. **Maximizing Ethics:** COVID-19 has produced a number of ethical challenges for research. To overcome the problem of obtaining a physical signature or face to face discussion, researcher can send consent forms, discussed and returned via email. Researchers must ensure to keep themselves and their research

participants safe. One must remind the participants that they are being interviewed or recorded for gathering the data. Researcher must take care of participants privacy issues.

3. **Overcoming Practical Issues:-** Researchers faced many practical issues like contact, connectivity, communication etc. in carrying out research. For removing these issues community mobilisers can help and travel funds of academic research can be divert in improving internet connections for local researchers, research organizations and participants. Voice-notes can be used to follow-up and focus group discussion can be used to build relationships and trust.
4. **Exploring New Opportunities for Different Ways of Working:-** COVID-19 provides us new opportunities to work differently. It increases capacity building within local partners. Due to this they can take on more responsibility. Online activities can be used to create cross-programmatic learning and knowledge exchange. Research teams can talk on issues like ethics, risks, research practices and sampling strategies around the world.
5. **Sensitization Programs and Training:-** Unethical research practice should be curbed and controlled. Sensitization programs and training in research ethics should be organized to deal with the existing research scenario. The mindset of the researcher needs to be changed from considering research to be a source of fame and monetary gains to a means of providing the society a better life.
6. **Coordination and Collaboration:-** The advancement of ICT requires collaboration, which includes publishing of all data, regardless of the results, and releasing them to the research community.

BEGINNING OF A NEW ERA IN ACADEMIC RESEARCH:-

Covid-19 replaces the normal of past recent to new normal of present which introduces a new era in academic research. However, Covid-19 brings many challenges to academic research like Global recession, ethical challenges, environmental challenges, psychological disturbance etc., but it also provides many opportunities like many web resources are approachable at global level to student. Now there is more collaboration in Academic research is increased and dissemination of research become global. Researcher of this New Era becomes more techno savvy. Now research gets more financial support. There is more funding mobility which reduces tremendous problems on the part of researcher. Researcher got a pool of information in this new era of academic research which is easy to assess. It encourages initiative for enhancing investment in innovation, skills and research. This new era in Academic research provides a new approach to it which bridges the research gap at Global Level.

CONCLUSION:-

The entire population in the world has faces negative repercussions of COVID-19 and so on academic research. The pandemic has intensified research challenges. Academic research community has responded to COVID-19 very strongly and explores new opportunities from it. It has brought a spirit of collaboration to research. Presently the public trust has increased in academic research and it results in greater public investment in research in future. The COVID-19 pandemic once again highlights the importance of research, its challenges, opportunities and resources for making it more efficient and cost effective. New paradigms and models for research will hopefully emerge from this pandemic and benefits society.

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INTELLECTUAL PROPERTY (IP) AND INTELLECTUAL PROPERTY RIGHTS (IPRs): A BRIEF OVERVIEW

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ABSTRACT

Intellectual Property (IP) is a term increasingly in use today, but still little understood. To many people it remains an obscure legal concept of little relevance to everyday life. It is a power tool for economic development and wealth creation that is not yet being used to optimal effect in all countries, particularly in the developing world. Nowadays, knowledge, information, creativity and inventiveness are rapidly replacing traditional and tangible assets such as land, labour and capital as driving forces of economic health and social well-being.

Creativity and innovation being universal natural resources, Albert Einstein quotes, "Imagination is more important than knowledge". His preference for imagination over knowledge is a starting point, because Intellectual Property (IP) is based on power of imagination. In fact, it is a product of human intellect and the rights granted on it allow its owner to benefit from the fruits of this intellectual endeavour. As it is changing in terms of its forms, nature and features, scope and coverage, and legal framework as well, better understanding of it become necessary. In near future there will be numerous opportunities to work in this field in order to be benefited of it and create one's own identity.

Keywords: Intellectual Property (IP), Intellectual Property Rights (IPRs), Human Intellect and Creativity.

INTRODUCTION:

The progress and well-being of humanity depend on our capacity to come up with new ideas and creations. Most importantly, technological progress requires the development and application of new inventions, while a vibrant culture will constantly seek new ways to express itself. In the social, economic, scientific and technological progress of human civilisation so many new creations and inventions have taken place. The journey towards new creations over a period of time necessarily leads to emergence of the new things, amenities or facilities, services, commodities or products, which are outcomes of the human intellect. These being an outcome of intellect are called as "Intellectual Property (IP)" and the rights which the creator of it is getting are called as "Intellectual Property Rights (IPRs)". Even people started recognising it as intellectual property or assets or capital.

In the recent past, it has been seen that with the advent of the knowledge and information technology era, intellectual capital has gained substantial importance. Tangible assets are being replaced by intangible one. In this modern and competitive world, with the globalisation of trade, commerce and industry, products such as Patent, Trademarks, Copyrights, etc., which are the outcome of human intellect, are gaining substantial importance and recognition. Consequently, Intellectual Property (IP) and rights attached thereto have become precious products or commodities and are being fiercely protected.

Basically, the domain of Intellectual Property (IP) is very vast and is becoming much wider in coverage day by day than ever before. In the days to come even colours, smells, fragrances, voices may also be recognised and recorded as an intellectual property. In this era of globalisation, in the country like India, which has diversity in terms of cultures, foods, vestures, languages etc. there are lot of opportunities and ample scope so far as intellectual property is concern. It is to be highlighted that for the young generation of the country like India for their intellect, ideas, creativity, inventiveness, sky is the limit. Only the need is to understand the changing world of intellectual property and related rights.

The purposes/intention behind writing this descriptive and conceptual research paper is to provide the readers better insight into the subject matter with respect to history and evolution, terminologies, nature and scope, various forms/categories and the prevailing laws.

METHODOLOGY:

This research study is descriptive and conceptual in nature and is based on the secondary data/information. The required inputs have been obtained from thorough review of the research papers/articles, handbooks, and comprehensive reports. Official websites are also visited to collect necessary information in order to fulfil purposes of study.

HISTORY AND EVOLUTION:

The journey of Intellectual Property (IP) goes to the centuries in the past, which has laid down certain milestones. The earliest records relating to Intellectual Property (IP) dates back to the 6th century B.C.E., from Sybaris in Ancient Greece. It is one of the first known references to Intellectual Property (IP) protection dates from 500 B.C.E., when chefs in the Greek colony of Sybaris were granted year-long monopolies for creating particular culinary delights. It supposedly granted a yearlong exclusivity for bakers to make their culinary invention. In a manner of speaking, the rise of Intellectual Property (IP) originated from the rising of bread.

Origin of the concept of Intellectual Property (IP) is as old as renaissance northern Italy, because it is thought to be the cradle of the Intellectual Property System. A Venetian Law of 1474 made the first systematic attempt to protect inventions by a form of patent, which granted an exclusive right to an individual for the first time. In the same century, the invention of movable type and the printing press by Johannes Gutenberg around 1450, contributed to the origin of the first copyright system in the world. Thereafter, towards the end of 19th century, new inventive ways of manufacture helped trigger large-scale industrialization accompanied by rapid growth of cities, expansion of railway networks, the investment of capital and a growing transoceanic trade. New ideals of industrialism, the emergence of stronger centralized governments, and nationalism led many countries to establish their modern Intellectual Property (IP) laws. At that time, the International Intellectual Property System also started taking shape with the setting up of the Paris Convention for the Protection of Industrial Property in 1883 and the Berne Convention for the Protection of Literary and Artistic Works in 1886. The modern concept of Intellectual Property (IP) was developed in England in the 17th and 18th centuries. The term "Intellectual Property (IP)" began to be used in the 19th century, though it was not until the late 20th century that intellectual property became commonplace in the majority of the world's legal systems.

The important landmark in the history of Intellectual Property (IP) is the WIPO Convention (formally, the Convention establishing the World Intellectual Property Organization), which is the multilateral treaty that has established the World Intellectual Property Organization (WIPO). The Convention was signed at Stockholm, Sweden, on 14th July 1967 and entered into force on 26th April, 1970. It is an agency of the United Nations, which has headquarter at Geneva, Switzerland. The organisation has given a list of the subject matter protected by intellectual property rights. With the establishment of the World Trade Organization (WTO) on 1st January, 1995, the importance and role of the intellectual property protection has been crystallized in the Trade-Related Intellectual Property Systems (TRIPS) Agreement. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) treaty in 1994.

The TRIPS Agreement encompasses, in principle, all forms of intellectual property and aims at harmonizing and strengthening standards of protection and providing for effective enforcement at both national and international levels. The TRIPS Agreement, which came into effect on 1st January, 1995, is to date the most comprehensive multilateral agreement on intellectual property. The areas of intellectual property that it covers are, Copyright, Trademarks, Patents, Geographical Indications (GIs), Industrial Designs, Layout Designs (Topographies) of Integrated Circuits (ICs) and undisclosed information including Trade Secrets and Test Data. This agreement has extensively incorporated intellectual property rights into the global trading system for the first time in 1995, and has prevailed as the most comprehensive agreement reached by the world.

TERMINOLOGIES:

Basically, Intellectual Property (IP) is an intangible creation of the human mind, usually expressed or translated into a tangible form that is assigned certain rights of property. It deals with Intellectual Property (IP) deals with any basic construction of human intelligence such as artistic, literary, technical or scientific constructions. Examples of intellectual property include an author's copyright on a book or article, a distinctive logo design representing a soft drink company and its products, unique design elements of a web site, or a patent on the process to manufacture chewing gum. Intellectual Property (IP) refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.

In another words, the term "Intellectual Property (IP)" can be defined as inventions of the mind, innovations, literary and artistic work, symbols, names and images used in commerce. The objective of intellectual property protection is to encourage the creativity of the human mind for the benefit of all and to ensure that the benefits arising from exploiting a creation benefit the creator. This will encourage creative activity and give investors a reasonable return on their investment in research and development.

According to Article 2 of the WIPO (World Intellectual Property Organisation) – Central Organisation for the protection of Intellectual Property Laws and the expert organization of the UN, "Intellectual Property (IP) shall include the rights relating to literary, artistic and scientific works, inventions in all fields of human endeavour,

scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition, and all the other rights resulting from intellectual activity in the industrial, scientific, literary or scientific fields.”

And on the other hand, “Intellectual Property Rights (IPRs)” is the term used for various legal entitlements which attach to certain types of information, ideas, or other intangibles in their expressed form. The holder of this legal entitlement is generally entitled to exercise various exclusive rights in relation to the subject matter of the Intellectual Property (IP).

In another words, Intellectual Property Rights (IPRs) can be defined as “the rights given to people over the creation of their minds. They usually give the creator an exclusive right over the use of his/her creations for a certain period of time”. Further, Intellectual Property Rights (IPRs) refers to “the legal rights granted to the inventor or manufacturer to protect their invention or manufacture product. These legal rights confer an exclusive right on the inventor/manufacturer or its operator who makes full use of it’s his invention/product for a limited period of time”.

Intellectual Property Rights (IPRs) can also be defined as “the legal rights that prohibit all others from using the Intellectual Property (IP) for commercial purposes without the prior consent of the holder of rights. These rights mainly include trade secrets, utility models, patents, trademarks, copyrights and related rights, geographical indications, industrial design, layout design of integrated circuits, and new varieties of plants”.

To be summarised, Intellectual Property (IP) is a product of human intellect and the rights granted on it allow its owner to benefit from the fruits of this intellectual endeavour by creating a monopoly over it are called Intellectual Property Rights (IPRs). Such benefit is not always a natural right but requires recognition by a statute. Thus, the term “Intellectual Property (IP)” reflects the idea that this subject matter is the product of the mind or the intellect, and that “Intellectual Property Rights” (IPRs) may be protected at law in the same way as any other form of property. Intellectual property laws vary from jurisdiction to jurisdiction, such that the acquisition, registration or enforcement of Intellectual Property Rights (IPRs) must be pursued or obtained separately in each territory of interest.

NATURE AND SCOPE:

The main property that distinguishes Intellectual Property (IP) from other forms of Property is its intangibility. In the language of the law, it is an asset that can be owned and dealt with. Most forms of it are contested in rights of action that are enforced only by legal action and by those who have rights. It is to be noted that Intellectual Property (IP) gives rise not only to property rights but also duties. The owner of it has the right to perform certain functions in relation to his work/product. Different types of Intellectual Property Rights (IPRs) can co-exist in relation to a particular function. They are generally subject to the doctrine of exhaustion. Exhaustion basically means that after the first sale by the right holder or by its exhaustion authority, his right ceases and he is not entitled to stop further movement of the goods. In fact, it is in the process of continuous development. As technology is rapidly evolving in all areas of human activities, the field of Intellectual Property (IP) is also growing. As per the requirement of scientific and technological progress, new items are being added to the scope of Intellectual Property Rights (IPRs), and the scope of its preservation is being expanded.

Intellectual Property (IP) covers a wide range of activities, and plays an important role in both cultural and economic life. This importance is recognized by various laws which protect Intellectual Property Rights (IPRs). The scope of Intellectual Property Rights (IPRs) is broad i.e. two classification modes are used to determine whether Intellectual Property (IP) is copyright or Industrial Property. Industrial properties include patents or inventions, trademarks, trade names, biodiversity, plant breeding rights and other commercial interests. The recognition and protection of these rights is of recent origin. Patents, designs and trademarks are considered as industrial property. As per International Convention for the protection of industrial (Paris Convention) the protection of industrial property has as its object patents, utility models, industrial designs, trademarks, service marks, trade names, indications of source or appellations of origin and the repression of unfair competition when copyrights, Geographical indicators, layout Designs and confidential information were included to industrial property, they all become intellectual property.

FORMS/CATEGORIES AND LAWS IN INDIA:

There are many different forms of rights that together make up intellectual property. Intellectual Property (IP) can be basically divided into two categories, i.e., “Industrial Property” and “Intellectual Property”. Traditionally, many Intellectual Property Rights (IPRs) were collectively known as industrial assets. They

mainly include patents, trademarks, copyrights, industrial design rights, plant variety rights, trade dress, geographical indications, and in some jurisdictions trade secrets.

Generally, Intellectual Property (IP) is divided into two categories for ease of understanding i.e. “Industrial Property”, and “Copyright”. Where, industrial property, includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and copyright, includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Further, rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and those of broadcasters in their radio and television programs. Thus, Intellectual Property (IP) shall include the right relating to:

- Literary, artistic and scientific works;
- Performance of performing artists;
- Inventions in all fields of human endeavour;
- Scientific discoveries;
- Industrial designs;
- Trademarks, service marks and etc.;
- Protection against unfair competition.

Moreover, we can broadly classify the various forms of Intellectual Property Rights (IPRs) into two categories, i.e. Intellectual Property Rights (IPRs) that stimulate inventive and creative activities (patents, utility models, industrial designs, copyright, plant breeders’ rights and layout designs for integrated circuits) and Intellectual Property Rights (IPRs) that offer information to consumers (trademarks and geographical indications). Thus, different rights protected under Intellectual Property (IP) are:

- Patents;
- Copyrights (writings, paintings, musical works, dramatics works, audio-visual works, sound recordings, photographic works, broadcast, sculpture, drawings, and architectural works, etc.);
- Trademarks;
- Industrial designs;
- Protection of Integrated Circuits (ICs) layout design;
- Geographical Indications (GIs) of goods;
- Biological diversity;
- Plant varieties and farmers rights;
- Undisclosed information.

At the end, it is to be said that In India, Intellectual Property Rights (IPRs) are recognised under different laws. They are:

- The Patents Act, 1970;
- The Trade Marks Act, 1999;
- The Copyright Act, 1957;
- The Designs Act, 2000;
- The Geographical Indications of Goods (Registration & Protection) Act, 1999;
- The Semiconductor Integrated Circuits Layout Design Act, 2000;
- The Biological Diversity Act, 2002;
- The Protection of Plant Varieties and Farmers' Rights Act, 2001.

CONCLUDING REMARKS:

Though the concepts of Intellectual Property (IP) and Intellectual Property Rights (IPRs) are gaining wide popularity in the today’s knowledge society, proper understanding of it by the people throughout the society is still necessary. Day by day, the nature of Intellectual Property (IP) is changing, scope is widening, new forms/categories are emerging, opportunities are increasing, and need for legal protection is emphasising. All these things demand for better understanding, different treatment, handling, planning, policies and strategies,

and individuals' engagement with different domain knowledge such as science, engineering, medicine, law, finance, marketing, and economics. Intellectual Property Rights (IPRs) have social, economic, technical and political implications as well. In today's knowledge based society, both Intellectual Property (IP) and Intellectual Property Rights (IPRs) are very much essential for progressive economic and societal development. They are of basic necessity to be a part of local as well as global competitive trade and commerce as without dissemination of information, knowledge, and implementation, creating the innovative environment is really impossible. It should always remember that, *'The progress and well-being of human society greatly depend on our capacity to come up with new ideas and creations'*.

AUTHORS' CONTRIBUTION:

The author has conceived the idea of this research study through his readings on the subject and by understanding scenario in the world, developed the conceptual framework, collected the information and processed it, and wrote this descriptive and conceptual research paper.

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EXPLICATING NATIVITY AND BENGALI CULTURE IN THE SELECT NOVELS OF AMIT CHAUDHURI

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ABSTRACT

Literature of every country is bound to reflect the social and political conditions in the past and in the present. Even so, the Indian writers adopted English as a tool and employed it in diverse ways to express widely differing cultural experiences. They use it as a dynamic medium to explore the complex Indian reality - native scenes and sentiments, rites and rituals, cultures and customs. They have succeeded in registering the shift from the English literacy use of metaphor to local range and variety through the literary history of post-colonial Indian societies. Indian English, in the process, has expressions bringing with them the flavours of the regional languages. During colonization, the original cultures of those countries subjected to foreign rule were often sidelined, suppressed, and openly denigrated in favor of elevating the social and cultural preferences and conventions of the colonizers. In response, much postcolonial literature seeks to assert the richness and validity of original cultures in an effort to restore pride in practices and traditions that were systematically degraded under colonialism. Amit Chaudhuri's writing persona has been shaped largely by the West in spite of his love for Indian languages and India especially Bengal. He tries to confer his Indian rootedness in Bengal and Bengali culture. From here he looks on different India(s) but picks on only certain very small Indian parts namely Kolkata and Mumbai.

KEYWORDS: culture, nativity, Indianness, diaspora, conflict

INTRODUCTION

The family is central to one's social life in Bangladesh, forming the basis of individuals' support networks. The typical household in Bangladesh, especially in villages, often includes several generations. Indeed, if individuals do not live in a village, they will usually still have relatives (such as their parents) who reside in their home village. People living in urban areas and cities often try to make at least one trip per year to their village – particularly men that work in different locations to provide for their family. The general approach to family ties is communal, and people often act in the best interests of the community rather than based on their individual preferences. Generally, children are expected to consult their parents on major life choices such as their education and marriage. This is slowly changing, with some people making decisions without deliberating with their parents.

The most common family unit in Bangladesh is called the 'barhi'. This consists of a husband and wife, their unmarried children, and their adult sons with their wives and children. The barhi provides economic stability and a form of social identity. The barhi is both patriarchal and patrilineal. For example, it is common to find married sons living in their parents' household during the father's lifetime, and grandparents may also be present depending on the family's economic and personal situation. While sons often build separate houses for their nuclear families, they remain under their father's authority.

Women tend to be in charge of household affairs. Most of their economic and social lives revolve around the home, children and family. Although women are gradually gaining more mobility and roles outside of the domestic sphere, men continue to have greater access to education and paid labour as well as acting as the primary source of authority. The oldest woman may have considerable authority within the household, but ultimately it is the patriarch who makes most decisions.

ABOUT THE AUTHOR

Amit Chaudhuri is a versatile writer working in numerous genres. He has written fiction, poetry, stories, essays, memoir and literary criticism. His writings have appeared in The Guardian and the London Review of Books. He has written seven novels: A Strange and Sublime Address (1991), Afternoon Raag (1993), Freedom Song (1998), A New World (2000), The Immortal (2009), Odysseus Abroad (2014) and Friend of My Youth (2017). Among his non-fiction writings are a critical study of D.H. Lawrence's poetry, D.H. Lawrence and Difference (2003), a book of critical essays, Clearing a Space (2008) and Calcutta: Two Years in the City (2013). He is currently working as a professor of Contemporary Literature at the University of East Anglia, England. He has also edited an anthology of Indian Writing, The Picador Book of Modern Indian Literature.

EXPLICATING NATIVITY AND BENGALI CULTURE

Amit Chaudhuri's first novel, *A Strange and Sublime Address* (1991) is about a boy of twelve years, Sandeep, who comes to spend his holidays at his uncle's home in Calcutta. Here, he cherishes simple joys of daily routine – cooking, bathing, eating, and sleeping in contrast to his organized and lonely life in Bombay. Chaudhuri tries to capture the faded comfort and happiness of childhood. The novel is about the pure innocent memories of small middle class homes in India. Chaudhuri's use of language in this novel reveals an extraordinarily keen sensibility.

In *A Strange and Sublime Address*, Abhi fingers massaging Chhotomama perform a sonata on his back: "the notes rose, lovely and exultant. Chhotomama closed his eyes and sighed, intoxicated by music no one else could here" Chaudhuri's novels are however musical not only at the thematic level but also the form dissolute into music. His novels are characterized by a heightened sensibility of sound and also its absence of it when dialogue dominates the scene. In *A Strange and Sublime Address* Chaudhuri writes that the radio babbles like a local idiot, a car makes a grating earthy noise, "like a drunk man cracking an obscene joke in a rasping dialect and laughing at the same time" or the sound when, after a moment silence "the thunder spoke – gurgurgur". In fact, one can perceive the various sound and noise that get contextualized by the treatment of the author. Amit Chaudhuri grew up in Mumbai and has lived in England since his undergraduate days. Amit Chaudhuri's special ability lies in bringing alive the city rich with its eccentric sights, sounds and smells. The affectionate rendering of Kolkata is mixed with wry realism. The city they inhabit is the city of dust. Though the description seems hyperbole there is an iota of realism in it: If one walks down the street, one sees mounds of dust-like sand-dunes on the pavements, on which children and dogs sit doing nothing, while sweating labourers dig into the macadam with spades and drills.... The old houses, with their reposeful walls, are crumbling to show dust, their once gleaming gates are rusting. Dust flakes off the ceiling in offices; the buildings are becoming dust, the roads are becoming dust. At the same time, dust is constantly raised into startling new shapes and unexpected forms by the arbitrary working of the wind, forms on which dogs and children sit doing nothing. Daily, Calcutta disintegrates, unwhispering, into dust and daily it rises from dust again. Amit Chaudhuri's remarkable feeling for the texture of place summons up a multi-layered city – a city of stupefying heat, power-cuts and a city of insects and mosquitoes, pariahs, beggars and vendors but withal very lovable. Thus a Sikh taxi driver sustain himself through fifteen years in Kolkata on a single image of barges caught rapidly in the film *Pyaasa* which remains his visions of the city despite the ambivalent feelings which intrude later: He spoke of Calcutta with a mixture of disgust and reverence. But he no longer wanted to return to Punjab. The city, or the idea of the city given to him years ago by the black and white film, had absorbed him without his even knowing it. (45) Amit Chaudhuri conflict arises out of his desire for English, Bengali, and Hindi. He feels that he could feel in his mother tongue but could fluently express them in English as he spent most of his young age in England. In his novels he adopts what can be considered to be a standard English in which hybridity resides in much more subtle ways. In *A Strange and Sublime Address* the plot moves between Mumbai and Kolkata.

Both the places are rendered in seemingly Standard English. Like Seth, Chaudhuri uses English without the unnecessary scattering of Indian words. "His novel displays a strong belief in the evocative ability of everyday world which encode deep-rooted cultural history. This is clearly a modernist assertion a rebuttal of the de Saussurean loss of faith in the power of words to capture the real physical world" (Majumdar 23-24). An acute ear for sounds is indeed a unique gift that the writer of *A Strange and Sublime Address* possesses in a greater measure. It is evident at the micro level of textual practice that Chaudhuri's narrative is replete with sounds and sound-effect. To cite a few examples, pots and pans in the kitchen holds a "dialogue" (3), mynahs and shaliks sing in a "fragmentary chorus" (5), clothes being washed make a "loud watery pluff on the floor" (5), chillies snap with a "sound terse as a satirical retort" (6), postprandial conversation trickle "into desert patches of silence" (7), radio begins to "babble... like the local idiot" (7), and Chhotomama's battered Ambassador car makes a "grating, earthy noise, like a drunk man cracking an obscene joke in a guttural dialect..." (12). It is important to note, however, that none of these sounds are described or sounded or evoked merely to create an effect of a simple and single sense-impression in the mind of the readers. Like individual notes in a piece of music, each distinct 'sound' reverberates to a unique frequency of effect while coalescing, all of them, to constitute a total harmony or tone – a kind of raga/ or of an emotion. For words and their sounds, as the narrator himself tells at one point in the novel, are 'incantatory', capable of composing or of evoking "a world of pure elemental feeling" (41). It is therefore no accident but a matter of skilled organization on the part of the novelist that all the sound-images instanced above appear in just ten pages of text spread over the first two chapters of the novel. In fact, these chapters accurately capture and commune a special flavored ambience of a relaxed and lazy Sunday spent in a middle-class Kolkata home.

In Afternoon Raag, he makes his protagonist or the author persona to venerate his music teacher Pandit Govind

Prasad Jaipurwale. He gives a detailed description of life in Oxford and India. Though the music teacher is remembered, various ragas and the narrator's friends Sharma, Shehnaz and Mandira and his association with them occupy most chapters of the novel. Hence the author puts forth his conflicts at various levels namely remembering the music teacher, explaining the ragas, the narrator's choice between India and Oxford, his nostalgic desire for India, and his attraction for Shehnaz and Mandira and ends in none of these girls. Even the title itself is a conflict or paradox because the novel has been termed as Oxford raga by a reviewer: It may appear to be so. The bulk of the space and time in the novel is occupied by Oxford. Outwardly the form of this novel looks like that of the 'Tanpura' bought by the narrator.... Oxford forms the urn and India – Bombay, Calcutta a bit by Rajasthan and East Bengal now in Bangladesh – forms the long neck. The diasporic experience portrayed by the author forms one of the conflicts of the novel. It is in Oxford that the students from India namely the narrator, Sharma, shehnaz, and Mandira try to adjust themselves in their own ways. Each is conscious about of the strangeness of the 'one' that has been chosen "of having travelled great distances, of arriving... at a place that is not home, a feeling that cannot be recalled or understood later..." (63). The relationship they try to establish with each other is charged with the feeling of suppressed anxiety and loneliness, the sense that after the time of social intercourse, lectures, and studying at libraries, fade at night "in the solitary moment before falling asleep. Oxford seems to be a dream one is about to remember... that one has no existence for oneself, except in their absence" (67). The realization of being in transit remains so that all the characters and events only help them to feel the tangibility of the situation which otherwise would melt into dream. "It is the city that ultimately remains a kind of meeting place... never becomes one's own or anyone else's" (74). Amit Chaudhuri while describing India, especially Kolkata, Mumbai and Rajasthan portrays the life of his music teacher and the nuances of various ragas. This explanations form the basic thematic pattern of the novel. The narrator tries to overcome his experiences of diasporic cross-over through his commemoration of India, his music teacher, various ragas taught by him and so on. When the narrator in Afternoon Raag arrives in Kolkata on his university summer break, he notices: "In Calcutta, nothing has happened after Marxism and modernism. In tea-shops and street vendors, Bengali men, as ever, indulge in adda, a word that means both a pointless, pleasurable exchange in which it is conducted" (225). Chaudhuri juxtaposes it with the depiction of an increasingly assimilated capitalist ethos in A Strange and Sublime Address: "Everywhere in the lane, fathers prayed their sons would be, successes ...No effort would be spared; 'future' and 'career' had become Bengali words, incorporated unconsciously but feverishly into daily Bengali parlance.... Meanwhile, children like Egyptian slaves, dragged huge blocks of exasperating study all day to build that impressive but nonexistent pyramid of success" (23-24). The apparent irony in this extract reveals the deadly 'march of progress' or the urge to succeed in the capitalist economy to be an ancient and yet ultimately futile endeavour. The juxtaposed practice of adda here provides a mocking antithesis to the spread of capitalism.

Amit Chaudhuri's Freedom Song is a little different from his previous two novels namely A Strange and Sublime Address and Afternoon Raag in a sense that in the first two novels the world is perceived from a boy's or young man's point of view. But in Freedom Song Chaudhuri sees the world from grown-ups' point of view. In this novel the author juxtaposed two generations namely young and old on the same platform to. The old especially Khuku and Mini's perception of various changing scenario and the young man namely Bhaskar's reaction to the transforming India form the conflict part of the novel. Even a bit diasporic experience is discussed by the author in this novel. As the novel is told from Khuku's point of view it is stated that Bhaskar's attitude startles the old generation of the family. Yet Khuku keeps herself unaffected and becomes a witness of the various attitude of Bhaskar. Bruce King who makes a critical comment on the novel states: Amit Chaudhuri who has his roots in India, in Calcutta to be exact and yet living in Britain is able to distance himself culturally to review the rapid changes in a socio-cultural and political scene in the India of the 90s. The elderly parents namely Khuku and Shib who have returned to Kolkata after an active working life in Mumbai seem to be familiar characters in Freedom Song. The delicate web of relationship that fan out both geographically and historically crossing borders and pulling the different members of the family together, even as they seem to be scattering apart still further as the children depart to various destinations in the West are reaffirmed through Khuku's voice in this novel and that forms the conflict part of it.

CONCLUSION

Amit Chaudhuri's novels reflect the Indian values and Bengali sensibility. To conclude, one may tune with Amartya Sen, Noble Prize winner and jury chair of the first Infosys prize for the Humanities, who in his congratulatory address said: He (Chaudhuri) is of course a remarkable intellectual with a great record of literary writing showing a level of sensibility as well as a kind of quiet humanity which is quite rare.

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IMPORTANT OF PILATES FOR KAYAKING AND CANOEING

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ABSTRACT

Pilates is a kind of low impact exercise which helps to improve your body posture. The main concepts of the Pilates exercise to build up our major muscles, which is undeveloped or weaker muscles and help to grace full movement that's aims of the Pilates exercise to maintain our body alignment, flexibility, strong core muscle, balance, stability etc. Pilate's helps to stay healthy or fit in regular lifestyle with the help of Pilates exercise you can prevent your injuries smoothly. While doing Pilates exercise you can use equipment or without equipment's. This exercise used full for young youth or old age person. Pilates is a full-body mind exercise that will help to do every tithing easily. Because while doing Pilates you need to more concentrate or focused during practice session. If doing this exercise regularly then you can see to develop the muscle surrounding the joints. Pilates exercise is good for health and its looks beauty and grace.

Keywords: Pilates, kayaking, canoeing.

INTRODUCTION:

Pilates is a full body and mind exercise. Now a day Pilates is very popular in overall world including India also day by day doing well in Pilates training. Originally Pilates use for only prevention of injuries. But now Pilates training is most important for youth's as well as old age because if anyone wants to stay healthy and run their life smoothly working worried free. The concept of Pilates training is that a stronger core or improves our body posture and alliance, which will lead in optimal physical performance. While doing Pilates training we need to be more concentrated and focus on current situation, because our body has to cover up all the range of motion. Pilates help to increase stretches and lengthen capacity buildup of each and every major body muscles and maintain body balanced. That's why in recent years, the practice has become very popular with the celebrities. Because Pilates helps them maintain body posture and looks good front on camera. Pilates is a training which includes a slow movement, proper exercise using abdominal control and proper respiration. When we are practicing pilates it does not matter how many times we have done or how much strength we are applying while doing pilates but rather it focuses on the quality of every poster.

Pilates if you regular practice Pilates exercise then it will be helpful for every individual person. After doing Pilates exercise it will change your body shape size and loss body fat, improve muscle tone very soon. Looks beautiful young, grace full body shape and stay fit. You will do 20 to 40 minutes plates exercise alternate *days not every day. After that you can see the positive changes in your body immediately.*

Kayaking and canoeing

Kayaking and canoeing both are water sports game. These two game's played by single or double. This game included in international events. Both the game are very popular in India and other countries. At the other point these two game very popular for tourism place. But for tourists they provide different boat or paddle which was not valid for competition. Kayaking and canoeing game both are very attractive or interesting events. These two game played by men or women. One of the main common thing in two games kayaking and canoeing is they used paddle. But both game having different paddle.

Different design and technique

Mainly in canoeing, the player uses a single-bladed paddle through the paddle water pulling and move forward. Whereas but kayak player used a double-bladed paddle pulling water through the paddle and starting paddling alternate One of the differences between the two sports is the paddle design and sitting style different to each other. First player need to proper stable on boat and maintain balance. Second things are Player paddling time coordinate each other at a same time. Eye-hand coordination, balance and power are the most important in these two game times.

The Health Benefits Pilates for Kayaking and canoeing:

- Improved flexibility, muscular strength and balance
- Improve body posture and increase muscles tone
- Pilates helps to reduce body fat

- Particularly your abdominal muscles, lower back, hips and buttocks
- Balanced muscular strength on both sides of your body..
- Improve concentration
- Improve knees injuries
- Improve Back pain
- Improve eye-hand co-ordination
- Improve power

CONCLUSION

Now days pilates is more important for every one not only for celebrities or sports person. Every one want to become maintain their health. So pilates is kind of full body mind exercise which is use full for everyone if anyone having some injuries. Pilates work like a prevention, that injured person also can do pilates exercise to recovery the injuries. And smoothly run their life worried free and healthy, with the help of pilates exercise you can maintain your fitness or improve muscles strength. Kayak or canoe player need more balance muscles strength, power, eye-hand coordination, flexibility to improve their performance. If pilates exercise regularly practice kayak or canoe player they will improve their performance and get good result. Pilates exercise also helps to relax our tens muscles its work like a multitask function.

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INDIAN RETAIL BANKING INDUSTRY AND ITS INNOVATION: A THEORETICAL OVERVIEW.

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ABSTRACT

The entry of new generation private sector banks has changed the entire scenario. Earlier the household savings went into banks and the banks lent out money to corporate. Now they need to sell banking. The retail segment, which was earlier ignored, is now the most important of the lot, with the banks jumping over one another to give out loans. The consumer has never been so lucky with so many banks offering so many products to choose from. With supply far exceeding demand it has been a race to the bottom, with the banks undercutting one another. A lot of foreign banks have already burnt their fingers in the retail game and have now decided to get out of a few retail segments completely. The nimble footed new generation private sector banks have taken a lead in this front and the public sector banks (PSBs) are trying to play catch up. The PSBs have been losing business to the private sector banks in this segment. PSBs need to figure out the means to generate profitable business in the days to come. Banks play a vital role in spearheading the economic development of the nation and are the main stimulus of the economic progress.

The highly regulated and directed banking system has transformed itself into one characterized by openness, competition and prudence. This development conforms to the liberalization and globalization needs of the Indian economy. As gradual up gradation of skills and technology and restructuring and re-engineering processes are attempted by both foreign and private sector banks, public sector banks in India face new challenges. The need to become highly customer focused has forced the slow-moving public sector banks to adopt a fast track approach.

The unleashing of products and services through the net has galvanized players at all levels of the banking and financial institutions market grid to look new at their existing portfolio offering. Further, due to exposure to global trends after information explosion led by internet, customers demand better services from their banks. There is shift from mass banking product to class banking with an introduction of value added and customized products. Banks, privately owned or in the public sector have all jumped into retail band wagon. The nimble footed new generation private sector banks have taken a lead on this front and the public sector banks are trying to play catch up. In these directions researcher made an attempt to study the various Drivers of Innovating Retail Business in India and to highlight various Opportunities & Challenges to Retail Banking in India.

Keywords: Retail Banking, Technology banking, Innovation, Financial Inclusion

INTRODUCTION:

Banks play a vital role in spearheading the economic development of the nation and are the main stimulus of the economic progress. The highly regulated and directed banking system has transformed itself into one characterized by openness, competition and prudence. This development conforms to the liberalization and globalization needs of the Indian economy. As gradual up gradation of skills and technology and restructuring and re-engineering processes are attempted by both foreign and private sector banks, public sector banks in India face new challenges. The need to become highly customer focused has forced the slow-moving public sector banks to adopt a fast track approach. The unleashing of products and services through the net has galvanized players at all levels of the banking and financial institutions market grid to look new at their existing portfolio offering. Further, due to exposure to global trends after information explosion led by internet, customers demand better services from their banks. There is shift from mass banking products to class banking with an introduction of value added and customized products.

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RETAIL BANKING

Retail Banking is a banking service that is geared primarily towards individual consumers. Retail banking is usually made available by commercial banks, as well as smaller community banks. Unlike wholesale banking, retail banking focuses strictly on consumer markets. Retail banking is typical mass-market banking where individual customers use local branches of larger commercial banks. The term Retail Banking encompasses various financial products viz., different types of deposit accounts, housing, consumer, auto and other types of loan accounts, demat facilities, insurance, mutual funds, credit and debit cards, ATMs and other technology-based services, stock-broking, payment of utility bills, reservation of railway tickets, etc.. It caters to diverse customer groups and offers a host of financial services, mostly to individuals. It takes care of the diverse banking needs of an individual. Retail banking is a system of providing soft loans to the general public like family loans, house loans, personal loans, loans against property, car loans, auto loans etc. The products are backed by world-class service standards and delivered to the customers through the growing branch network, as well as through alternative delivery channels like ATMs, Phone Banking, Net Banking and Mobile Banking. Customers and small businesses get benefited from increased credit access, speedy and objective credit decisions whereas lenders get benefited from increased consistency and compliance. Today's retail banking sector is characterized by three basic characteristics:

- Multiple products (deposits, credit cards, insurance, investments and securities);
- Multiple channels of distribution (call centre, branch, Internet and kiosk); and
- Multiple customer groups (consumer, small business, and corporate)

The objective of retail banking is to provide customers a full range of financial products and banking services, give the customers a one-stop window for all their banking requirements. Retail banking segment is continuously undergoing innovations, product re-engineering, adjustments and alignments.

OBJECTIVES:

- To study the various Drivers of Innovating Retail Business in India
- To highlight various Opportunities & Challenges to Retail Banking in India.

RESEARCH METHODOLOGY:

This paper is descriptive and diagnostic in nature. The secondary data was the main source for collecting the needed data. Data was collected by referring books, journal, annual report of the banks and internet source.

FINDINGS OF THE STUDY:

DRIVERS OF INNOVATING RETAIL BUSINESS IN INDIA:

The Indian players are bullish on the retail business and this is not totally unfounded. As the face of the Indian consumer is changing, that is reflected in a change in the urban household income pattern, the direct fallout of such change is on the consumption pattern and hence on the banking habits of Indians, which is now skewed towards retail products. Following changing consumer demographics have led to the need for expansion of retail banking activities in India.

1. **INCREASINGLY AFFLUENT AND BULGING MIDDLE CLASS:** About 320 million people will be added in the middle-income group in a period of 15 years approximately.
2. **YOUNGEST POPULATION IN THE WORLD:** Changing consumer demographics indicate vast potential for growth in consumption both qualitatively and quantitatively, due to increasing affluent with bulging middle class and youngest people in the world. 70% of Indian population is below 35 years of age which means that there is tremendous opportunity of 130 million people being added to working population. The BRIC report of the Goldman-Sachs, which predicted a bright future for Brazil, Russia, India and China, mentioned Indian demographic advantage as an important positive factor for India.
3. **INCREASING LITERACY LEVELS:** Due to increase in the literacy ratio, people have developed a taste for latest technology and variety of products and services. It will lead to greater demand for retail activities specially retail banking activities.

4. **HIGHER ADAPTABILITY TO TECHNOLOGY:** Convenience banking in the form of debit cards, internet and phone-banking, anywhere and anytime banking has attracted many new customers into the banking field. Technological innovations relating to increasing use of credit / debit card, ATMs, direct debits and phone banking have contributed to the growth of retail banking in India.
5. **CONTINUING TREND IN URBANIZATION:** Urbanization of Indian population is also an important feature influencing the retail banking.
6. **INCREASING CONSUMPTION MINDSET OF INDIANS:** Economic prosperity and the consequent increase in purchasing power have given a fillip to a consumer boom. During the 10 years after 1997, India's economy grew at an average rate of 6.8 percent and continues to grow at the almost the same rate – not many countries in the world match this performance. It means that Indian consumers are now shifting from the tendency of buying more and better quality to new services and products.
7. **DECLINING TREASURY INCOME OF THE BANKS:** The Treasury income of the banks, which had strengthened the bottom lines of banks for the past few years, has been on the decline during the last two years. In such a scenario, retail business provides a good vehicle of profit maximization. Considering the fact that retail's share in impaired assets is far lower than the overall bank loans and advances, retail loans have put comparatively less provisioning burden on banks apart from diversifying their income streams.
8. **DECLINE IN INTEREST RATES:** Finally, decline in interest rates has also contributed to the growth of retail credit by generating the demand for such credit.

COMPETITION IN RETAIL BANKING

The entry of new generation private sector banks has changed the entire scenario. Earlier the household savings went into banks and the banks lent out money to corporate. Now they need to sell banking. The retail segment, which was earlier ignored, is now the most important of the lot, with the banks jumping over one another to give out loans. The consumer has never been so lucky with so many banks offering so many products to choose from. With supply far exceeding demand it has been a race to the bottom, with the banks undercutting one another. A lot of foreign banks have already burnt their fingers in the retail game and have now decided to get out of a few retail segments completely. The nimble footed new generation private sector banks have taken a lead in this front and the public sector banks (PSBs) are trying to play catch up. The PSBs have been losing business to the private sector banks in this segment. PSBs need to figure out the means to generate profitable business in the days to come.

OPPORTUNITIES AND CHALLENGES OF RETAIL BANKING IN INDIA As the growth story gets unfolded in India, retail banking is going to emerge astonishingly. A. T. Kearney, a global management consulting firm, recently identified India as the "second most attractive retail destination" of 30 emergent markets. The rise of the Indian middle class is an important contributory factor in this regard. The percentage of middle to high income Indian households is expected to continue rising. The younger population not only wields increasing purchasing power, but as far as acquiring personal debt is concerned, they are perhaps more comfortable than previous generations.

Improving consumer purchasing power, coupled with more liberal attitudes toward personal debt, is contributing to India's retail banking segment. The combination of the above factors promises substantial growth in the retail sector, which at present is in the nascent stage. Due to bundling of services and delivery channels, the areas of potential conflicts of interest tend to increase in universal banks and financial conglomerates. Some of the key policy issues relevant to the retail banking sector are: financial inclusion, responsible lending, and access to finance, long-term savings, financial capability, consumer protection, regulation and financial crime prevention

CHALLENGES OF RETAIL BANKING FOR THE INDUSTRY AND ITS STAKEHOLDERS

Retention of customers is going to be a major challenge. According to a research by Reichheld and Sasser in the Harvard Business Review, 5 per cent increase in customer retention shall increase profitability by 35 per cent in banking business, 50 per cent in insurance and brokerage, and 125 percent in the consumer credit card market. Thus, banks need to emphasize retaining customers and increasing market share. Rising indebtedness could turn out to be a cause for concern in the future. India's position, of course, is not comparable to that of the developed world where household debt as a proportion of disposable income is much higher. Such a scenario creates high uncertainty.

Expressing concerns about the high growth witnessed in the consumer credit segments the Reserve Bank has, as a temporary measure, put in place risk containment measures and increased the risk weight from 100 per cent to

125 per cent in the case of consumer credit including personal loans and credit cards (Mid-term Review of Annual Policy, 2004-05). Information technology poses both opportunities and challenges. In spite of availing the services of ATMs and Internet Banking, many consumers still prefer the personal touch of their neighborhood branch bank. Technology has made it possible to deliver services throughout the branch bank network, providing instant updates to checking accounts and rapid movement of money for stock transfers.

However, this dependency on the network has brought IT department's additional responsibilities and challenges in managing, maintaining and optimizing the performance of retail banking networks. Illustratively, ensuring that all bank products and services are available, at all times, and across the entire organization is essential for today's retail banks to generate revenues and remain competitive. Besides, there are network management challenges, whereby keeping these complex, distributed networks and applications operating properly in support of business objectives becomes essential. Specific challenges include ensuring that account transaction applications run efficiently between the branch offices and data centers. KYC issues and money laundering risks in retail banking is yet another important issue. Retail lending is often regarded as a low risk area for money laundering because of the perception of the sums involved. However, competition for clients may also lead to KYC procedures being waived in the bid for new business. Banks must also consider seriously the type of identification documents they will accept and other processes to be completed. The most significant challenge is to devise appropriate pricing mechanism.

The industry today is witnessing a price war, with each bank competing to have a large slice of the cake of the market, without much of a scientific study into the cost of funds involved, margins etc.,. Most of the banks that use rating models for determining the health of the retail portfolio do not use them for pricing the products. This issue will be gaining more importance in the near future.

While retail banking offers phenomenal opportunities for growth, the challenges are equally daunting. How far the retail banking is able to lead growth of the banking industry in future would depend upon the capacity building of the banks to meet the challenges and make use of the opportunities profitably. However, the kind of technology used and the efficiency of operations would provide the much needed competitive edge for success in retail banking business.

CONCLUSION

With much scope in the avenues for operations, the true challenge for the banks in the current scenario is to stand out in the midst of hard-hitting regulations of the apex body. Globalization, consolidation and want of expertise are drastically redefining the banking taxonomy. Thus the participants, be it a Indian financial player or a foreign entrant in the retail sector have to adopt a different approach in everything viz., products, services to hold the Indian market share, as a popular saying goes as variety is the spice of life.

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A STUDY ON THE BUYING PREFERENCES OF LAWYERS FROM ONLINE AND TRADITIONAL MARKETS

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ABSTRACT

Electronic Commerce has had a significant impact on the buying patterns of the customers all over the world, it has brought Nations closer and eliminated the physical boundaries as the Marketplace has moved from a physical Store to an electronic server holding the website through which customers all over the world can access it, search for the commodities they like and place order for it. These websites provide the customers with the facility to make the payments online after which the online retailer delivers the goods at the doorstep of the customer or at whatever address the customer has requested. The process of digital marketing is technology intensive and requires all the bases which are involved in e-commerce to be up to date with the latest technologies in order to remain competitive in the markets. The use of devices like cell phones, laptops and desktop computers along with the speed at which the number of internet users have increased all over the world has led to a digital revolution which has resulted in exchange of information on a scale never ever imagined in the history of humanity. The number of businesses which are involved in e-commerce has been growing continuously for the past 15 years and it is predicted that it will continue to grow for another decade also to come. The researcher in this paper has attempted to understand the spending habits of practicing lawyers residing in the Thane city region of the state of Maharashtra and to understand their buying preferences from online and traditional markets.

Keywords: Lawyers, Professional practitioners, E-commerce, Online sales, Thane

1. INTRODUCTION

India has been one of the fastest growing major economy all over the world for the past 15 years. The GDP of India has been growing at an average rate of 7% annually where as the projected global growth rates for years has been between 3% to 3.5%. This has resulted in a rapid growth of income levels within the country, couple with the rise of cell phone users in India and rapidly falling prices of data packs has led to a explosion of Information sharing which has greatly benefited The E-Commerce business. For the purpose of the study the researcher has focused on those lawyers who are practicing but residing in Thane city region. A lawyer is a person who uses his knowledge of law to solve the various problems of their client. The Bar Council of India (BCI) Oversees their training and education and provide them with the licence to practice after its completion. Any individual who intends to become a lawyer must first pass the LLB exams and then acquire the membership of the bar council of India in order to practice within India. Lawyers are highly trained individuals who utilize their knowledge to earn their livelihood. The researcher has attempted to understand their buying habits from the traditional and online markets in this research paper.

2. REVIEW OF LITERATURE

Eric Greenberg and Alexander Kates [2013] carried out the study about the impact of digital Technologies on businesses. And its impact on various industries, sectors as well as across various geographical areas. The authors have placed a special emphasis on the impact of digital Revolution all over the world. E-Commerce has made it possible eliminate all physical barriers and the goal of globalization has been realized due to it.

Adam Cohen [2014] focuses his studies on the E-commerce website eBay which has risen rapidly since its formation. The success of this website lies on the fact that it offers all the commodities which are sold by retailers along with those commodities which are offered by regular customers for sale and even those commodities which are placed for sale by governments online.

Porter Erisman [2017] in his research paper states that the E-Commerce business is entering its Golden era, the first 20 years which have seen the growth of e-commerce business are mostly in the developed markets while the next 20 years will have a special focus on the emerging markets all over the world and these new markets will play a much larger role in the growth of e-commerce business.

3. OBJECTIVES OF THE STUDY

- I. To study the the buying preferences of lawyers residing in Thane City region from online and regular markets.
- II. To find out the kinds of commodities lawyers prefer to purchase directly from the markets.

III. To find out the kinds of commodities lawyers prefer to purchase online.

4. RESEARCH METHODOLOGY

The study is based on the primary data collected through a questionnaire provided to the participants of the survey, this questionnaire contained questions relevant for the study. The data has been collected only from practicing lawyers residing in the Thane city region. The age group of lawyers who have participated starts from 21 years of age till above 60 years. The income level is considered starting from 300,000 up to more than 1,000,000. The total number of participants in the survey is 146. The data collected in this survey has been analysed using simple frequency percentage

5. ANALYSIS AND INTERPRETATION OF DATA

For the purpose of research Three characteristics of the participants have been considered, they being **Gender**, **Age and Annual Household Income** to ascertain the influence of each of the characteristic on the spending patterns of the participants.

Characteristic Details of the Participants

Demographics	No. of Participants	Percentage
Gender		
Male	74	50.68%
Female	72	49.32%
Age Groups		
21 to 30	50	34.24%
31 to 40	54	36.99%
41 to 50	26	17.81%
51 to 60	6	4.10%
Above 60	10	6.84%
Annual Household Income		
300,000 - 500,000	48	32.88%
500,001 - 750,000	46	31.51%
750,001 - 1,000,000	46	31.51%
1,000,001 - Above	6	4.10%

From the above table it can be noted that out of 146 participants, 74 participants were males and 72 female constituting to 50.68% and 49.32% respectively. Age Groups for the purpose of the study; a total of 50 participants belong to the age group of 21 to 30 (34.24%), 54 participants belong to the age group of 31 to 40 constituting to 36.99%, 26 participants belong to the age group of 41 to 50 constituting to 17.81%, 6 participants belong to the age group of 51 to 60 constituting to 4.10% and 10 participants belong to the age group of above 60 constituting to 6.84%.

The annual household income of the participants can be observed as follows; 48 participants belong to the annual household income group of 300,000 To 500,000 constituting to 32.88%, 46 participants belong to the income group of 500,001 to 750,000 constituting to 31.51%, also another 46 participants belong to the income group of 750,001 to 1,000,000 constituting to 31.51% and lastly only 6 participants constituting to 4.10% belong to the income group of 1,000,001 and above.

6. FINDINGS OF THE SURVEY:

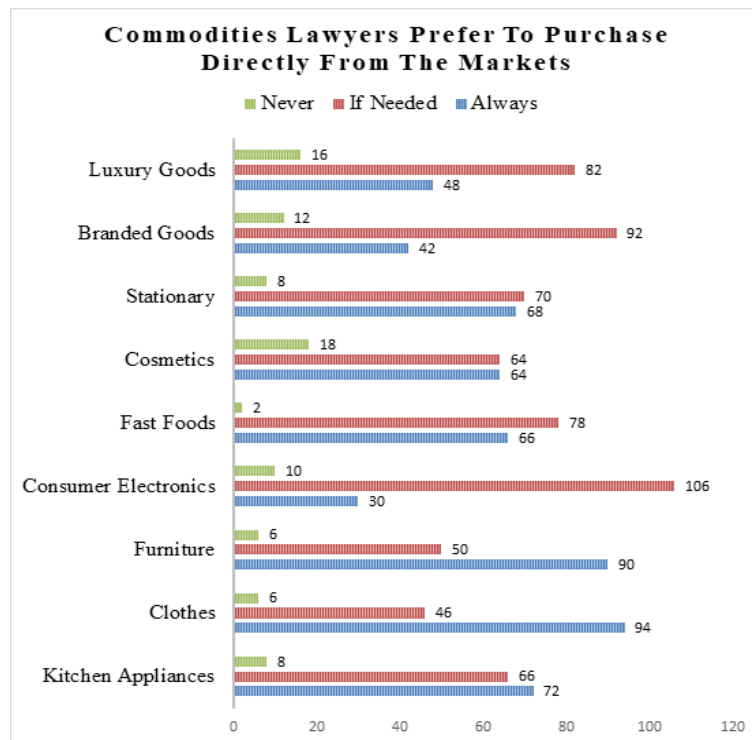
6.1 The buying preferences of the lawyers residing in the Thane city region from online and regular markets.

Out of 146 participants total of 94 participants stated that they prefer to purchase goods directly from the market where as only 52 participants in the survey stated that they prefer to purchase goods online, constituting to 64.38% and 35.62% respectively.

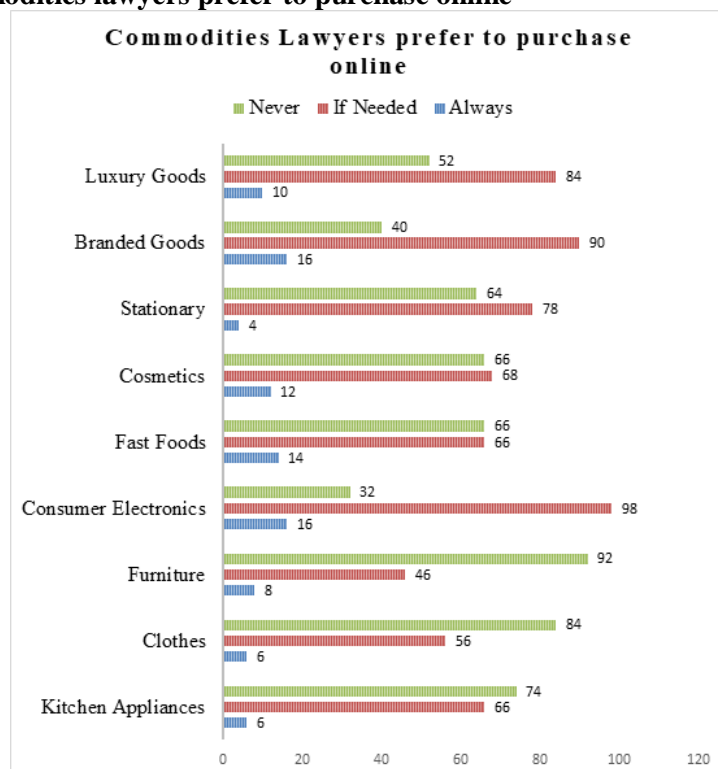
6.2 The kinds of commodities lawyers prefer to purchase directly from the markets

In the following chart it can be observed that the lawyers when it comes to buying luxury goods 16 out of 146 participants stated that never purchase it from the market, 82 participants purchase from the market if needed and 48 participants always purchase it from the markets. For branded goods 12 participants never purchase it from the market, 92 participants purchased branded goods from the market if needed and 42 participants always purchase branded goods from the market. For stationary eight participants never purchase it from the markets, 70 participants purchase from the market if needed and 68 participants always purchase them from the market. For cosmetics 18 participants never purchase it from the market whereas 64 participants in both cases purchase

it from the markets if needed and always purchased from the markets. In case of fast foods 2 participants never purchase it from the market, 78 participants purchase it from the market if needed whereas 66 participants always purchase it from the market. In case of consumer electronics 10 participants never purchase it from the markets, 106 participants purchased from the market if needed and 30 participants always purchase it from the markets. In case of furniture 6 participants never purchase it from the market, 50 participants purchase from the market if needed where is 90 participants always purchase from the markets. In case of clothes 6 participants never purchase it from the market, 46 participants purchase from the market if needed whereas 94 participants always purchase clothes from the markets directly. In case of kitchen appliances 8 participants never purchase it from the markets, 66 participants purchase kitchen appliances from market if needed Whereas 72 participants always purchase kitchen appliances directly from the markets.



6.3 The kinds of commodities lawyers prefer to purchase online



From the above chart it can be observed that the lawyers when it comes to buying luxury goods 52 out of 146 participants stated that never purchase it online, 84 participants purchase online if needed and 10 participants always purchase it online. For branded goods 40 participants never purchase it online, 90 participants purchased branded goods online if needed and 16 participants always purchase branded goods online. For stationary 64 participants never purchase it online, 78 participants purchase online if needed and 4 participants always purchase online. For cosmetics 66 participants never purchase it online, 68 participants purchase online if needed and 12 always purchase online. In case of fast foods 66 participants never and the same number purchase it online if needed and 14 participants always purchase online. In case of consumer electronics 32 participants never purchase it online, 98 participants purchased online if needed and 16 participants always purchase it online. In case of furniture 92 participants never purchase it online, 46 participants purchase online if needed whereas 8 participants always purchase online. In case of clothes 84 participants never purchase it online, 56 participants purchase online if needed whereas 6 participants always purchase clothes online. In case of kitchen appliances 74 participants never purchase it online, 66 participants purchase kitchen appliances online if needed Whereas 6 participants always purchase kitchen appliances online.

7. CONCLUSIONS

- I. Commodities which the lawyers prefer to always purchase directly from the markets are clothes and furniture.
- II. Commodities which are likely to be purchased by lawyers if needed to be purchased from the markets are consumer electronics followed by branded goods.
- III. The lawyers are least likely to purchase fast foods from the market directly.
- IV. Commodities which lawyers always prefer to purchase online are consumer electronics along with branded goods followed by fast foods.
- V. Commodities which are purchased by the lawyers online if needed again include mostly consumer electronics followed by branded goods.
- VI. Commodity which the lawyers are least likely to purchase online is furniture followed by clothes.

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IS EVERYTHING GOING WELL WITH DIGITAL IMMUNITY CERTIFICATES APPLIED WITH QR CODE TECHNOLOGY IN PANDEMIC? A FRAME OF REFERENCE FOR RESEARCH OF AN NFT-BASED SOLUTION

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ABSTRACT

With the continuous deepening and upgrading of the Fourth Industrial Revolution (4IR), the development prospects of digital technology and blockchain technology have gradually expanded. Undoubtedly, the COVID-19 pandemic has provided a great opportunity for further promotion of the digital transformation (DT) of society. The shift in social security from physical form to digital form, and the establishing of digital form logic into an emergency as this pandemic, which was unprecedented, have not only affected the normal development of society, but also greatly changed the rules of social security in the process of DT. On the contrary, information security and social security are weaker than at any time in people's memory. And this pandemic caused by COVID-19 and its variations have exacerbated the existing both digital information security issues and challenges facing social security. It is understandable, therefore, that to improve the security of digital information to enhance globally stable social order and economic progress in both the current pandemic and the post-pandemic era be of great urgency. The purpose of this study was to qualitatively discuss the potential risk of digital immunity certificates applied with QR code technology and afterwards provide a frame of reference for research of a non-fungible token (NFT) - based solution to them.

Keywords: QR code, Blockchain, NFT-based solution, Pandemic, Information security, Social security

INTRODUCTION

Since December 2019, the unexpected outbreak of the COVID-19 pandemic has brought huge challenges to all walks of life in society. Some scholars pointed out "The impact of COVID-19 will probably be greater than that of severe acute respiratory syndrome (SARS) in 2003" (Ting et al., 2020, p. 459). According to WHO statistics, globally, as of 5:15pm CEST, 30 September 2021, there have been 233,136,147 confirmed cases of COVID-19, including 4,771,408 deaths (Covid19.who.int). Studies show that every year the average number of deaths are almost 470, 000 in the world due to complications from seasonal influenza (flu) viruses (Worldometers.info). The evidence thus is the number of deaths caused by COVID-19 and its variations is more than ten times higher than the data before this pandemic. Shocking aside, we cannot help but make such a conclusion: Indeed, the global pandemic of this time is a global public health emergency of the most difficult prevention and control since World War II, with the fastest spread, the widest range of infections, the largest number of deaths, and the farthest-reaching influence. On the one hand, countries and regions are anxiously responding to the pandemic, because it is not only repeated but continuously mutated. On the other hand, they are also racking their brains on measures to restore economic and people's freedom. At the macro level, the economic growth rate of many countries is not positive at all (Bbc.com), while at the micro level, people's economic income has fallen sharply compared to before the pandemic, and people's request to restore the right of survival and liberty is overwhelming. While the world is in the wave of DT, the raging pandemic has added a new puzzle to issues of information security and social security in digital transformation, but at the same time it has also pushed DT into an accelerated development track.

After many countries have successively vaccinated the people, they have also considered launching "vaccine passports". Take China, which is the first to enter the state of epidemic prevention and control, as an example. The "health code" (HC) is widely used in China as an effective means of pandemic prevention and detection. The HC serves as a personal health certificate and travel certificate during the pandemic prevention period. The China Electronics Standardization Institute (CESI) announced, on 30 April 2020, that the several national standards on Personal Health Information Codes (PHIC) had released by State Administration for Market Regulation and the National Standards Committee (Dataguidance.com). The implementation of this series of national standards is of great significance for the collection, processing, and use of private information of people during the pandemic, and can realize the unification of the code system, the unification of the display mode and the unification of the data content of the personal health information code. This also means that the national health code is expected to achieve one-yard pass.

The world's largest COVID-19 vaccination campaign in the history of the human being is underway. On January 26, 2021, the 'Guardian' stated that with the advancement of vaccine research and production, European countries have started vaccination plans, but the vaccination schedule of EU countries varies greatly, and the overall schedule lags that of the United Kingdom and the United States. One of the reasons is that the AstraZeneca and Johnson & Johnson vaccines successively purchased by the European Union have been suspected of being related to the formation of blood clots, which has shaken the public's confidence in the safety of the vaccine campaign. But this has not prevented the EU from implementing its plan to restart the EU with the introduction of green passes (The Guardian.com). 'Returning to move' during the pandemic has obvious impacts not only on personal freedom but also on the economy of Europe. Then, the European Commission Press Center announced on 17 March 2021 that the European Commission made a proposal for Digital Green Certificates¹ (DGC²) (Ec.europa.eu). Two fundamental information were noticed. One information is the so described "... to create a Digital Green Certificate to facilitate safe free movement inside the EU", the other is as detailed below, "It will include a QR code to ensure security and authenticity of the certificate" (Ec.europa.eu). From the first point, one can know the geographical area of the use of the green pass, and the latter point explains the manner of the green pass. Accordingly, "from the European Commission, the WHO, and the Biden Administration" the call for the launch of the green pass is getting louder and louder (Siddarth et al., 2021, p. 1). However, at the same time, this has also aroused some doubts and thoughts. But, finally, the EU Digital COVID Certificate Regulation entered application on 01 July 2021 (Ec.europa.eu).

It is worth noting that the above-mentioned country and region have used the HC and the DGC. In this article they are collectively referred to as digital immunity certificates³. As the COVID-19 situation in many countries is gradually brought under control and the number of confirmed cases has also markedly declined overall, the use of health pass to achieve safe cross-border movement of people is becoming a practical issue for many countries and regions around the world. The digital immunity certificates of both China and EU are applied QR code technology as another pandemic prevention and control method to cooperate with the COVID-19 vaccines. At an important moment when QR code technology is got involved in current most important global issue and applied as a line of defense for social security, the implementation of the HC and the DGC based on this technology means that the people and governments have unprecedented trust in this technology. however, is everything going well with digital immunity certificates applied with QR code technology in pandemic? With media reports on the illegal activities of forging the HC and the DGC, the issues of social security caused by the imperfections of digital technology (the current QR code technology) has become increasingly prominent. In other words, if the QR code technical support is not perfect, are there other feasible solutions to improve it?

The rest of this study is constructed as follows. Main body is composed by literature review (Section 1), research methodology (Section 2), research results (Section 3) and discussion (Section 4). Finally, the study ends with a conclusion and references.

1. LITERATURE REVIEW

The full name of QR Code is Quick Response Code. In practice, sometimes it is also called quick code. Just as its name implies, it embodies a kind of quickest, fastest paradigm. And it can hold more types of data than basic barcodes. Therefore, it is admired by the fast-paced and multi-sourced modern society. QR code was created by Denso⁴ in 1994 (Soon, 2008, p. 60). Due to its ease of use, there is a considerable number of its application (Shah & Shah, 2014, p. 22). In the past two decades, QR codes have become widespread in a much broader context, as QR code payment (Liu et al., 2021), Wi-Fi access (Narayanan, 2012), Website login

¹ Further information is available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1181.

² Further information is available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0130>.

³ Digital **immunity certificates**, referred to as immunity passports or immunity cards, are a form of identification to help mark people who have been infected with COVID-19, recovered, and developed antibodies (including vaccinated information) to the disease. Further information is available at: <https://www.cnet.com/health/covid-19-immunity-certificates-everything-to-know-about-this-controversial-solution/#:~:text=What%20are%20immunity%20certificates%3F%20Immunity%20certificates%2C%20sometimes%20referred,COVID-19%2C%20recovered%20and%20developed%20antibodies%20to%20the%20disease.>

⁴ Denso Wave is the Japanese automotive company which is one of major Toyota group companies. And it was approved as ISO/ IEC18004 in 2000. Further information is available in Soon (2008) and Fava (2020), also <https://www.qrcode.com/en/>

(Narayanan, 2012), Product tracing (Mishra et al., 2020), Catering and related services (Borovyk & Kokhan, 2015), Ticket processing and business card (Soon, 2008; Shah & Shah, 2014), Social media platforms and related services (Damle et al., 2020), Electronic authentication (Gandhi et al., 2014), and recently digital vaccine certificates (Siddarth et al., 2021) due to a world wide range of COVID-19 pandemic. However, in the digital era, the digital immunity certificates based on QR code technology may not be so perfect. In fact, the security issues of this 2D message carriers with significant information have already been raised by many scholars. Narayanan made an exposition of “attack via QR codes” (Narayanan, 2012, p. 70). As Ahuja stated in her research (2014), “QR Codes can be used for attacking both the human interaction and the automated systems” (p. 3878). Likewise, Damle and the co-authors in their studies also stated how QR codes can be used to attack human interaction and automated systems (Damle et al., 2020). All research would help raise awareness of the issues of information security and social security where survive flaws in existing HC and DGC based on QR code technology.

As well as the ancestry of blockchain technology has also injected new impetus into the technological transformation and progression of digital technologies. Thus, the field of digital technologies also stands in need of the sustain of blockchain technology for its higher security features, such as Decentralization, Persistency, Anonymity and Auditability (Zheng et al., 2018, p. 357). Since 2020, the NFT economy has grown rapidly. There are also many studies on the application value of NFT technology, i.e., in the field of art (Trautman, 2021; Kugler, 2021), in the financial sector (Musan et al., 2020), in the tourism industry (Mofokeng & Fatima, 2018), in the public events and places (Regner et al., 2019; Fernandez, 2021). All the existing works have identified the great potential application of NFT technology. However, people's understanding of NFT may still stay in some of the previously mentioned known areas, but the application potential of NFT is much broader. In the era of normalization of the pandemic and even in the post-pandemic era, the importance of health factors for world restoring in international personnel exchanges will become more prominent. Therefore, unforgeable immunity certificates will play a greater role in promoting the health, safety, and orderly exchanges of transnational personnel to provide a solid guarantee for international citizens to "walk the world". Thus, the manuscript presents an analysis of problems or flaws of QR code technology which is applied in existing HC and DGC. Moreover, it also proposes herein the potential solution based on NFT technology. Put briefly, this study evaluates the potential solution by embedding a non-fungible token (NFT) technology (Wang et al., 2021; Chohan, 2021) into the QR code to effectively overcome the uncertainties of authentication (Aini et al., 2020) in meeting the needs of ensuring social security in battling against COVID-19. There is the challenge of course for NFT (Wang et al., 2021).

2. RESEARCH METHODOLOGY

After having identified the research issues, the present study approaches research with Quantitative analysis. In this article, we have attempted to review the prior art in the field of both QR code technology and NFT technology, to clarify the flaws of QR code technology in existing immunity certificates and evaluate the potential application possibilities of NFT technology in solving related issues. To be specific, an evaluation of the techniques of existing immunity certificates development related the information and society security will be carried out. If there are still loopholes in them, is there any solution? Through a review of previous research and based on existing gaps the study evaluates the applicable space of an NFT-based solution to immunity certificates.

3. RESEARCH RESULTS

3.1 QR Code and security concerns

Among many types of 2D barcodes, commonly used code systems are QR Code, Data Matrix, Cool-Data-Maxi, Aztec, Upcode, Trillcode, Quickmark, Shotcode, mXcode, Beetagg, etc (Shah & Shah, 2014, p. 22). Take China and the EU as examples. The immunity certificates they put into use all use QR code technology¹. It is a type of 2D matrix QR code with the feature that allow multi-directional scanning (Ahuja, 2014, p. 3878; Tiwari, 2016, p. 39; Shah & Shah, 2014, p. 22). And it has much higher data density than ordinary barcodes (Soon, 2008, p. 60; Shah & Shah, 2014, p. 22). The most popular matrix QR code² nowadays is QR code. As the core perception technology of the Internet of Things and the important information entry technology of the Internet, QR code has developed rapidly and have gradually penetrated various fields of economy and social life. The

¹ QR code can “contain 7,000 digits of characters at maximum including Kanji characters (Chinese characters used in Japan)”. Further information is available in (Soon, 2008).

digital immunity certificates applied with QR code technology are seen as highly prospective as the main symbol for prevention and control of the pandemic and for return to mobility.

With the official launch of the digital immunity certificates of both China and EU. This means that these digital immunity certificates will serve as a certificate for free entry and exit respectively in China and EU. They contain personal information, including vaccination, recovery from previous infections, test results, etc. Since the pandemic, after the vaccines, all have brought great hope from being proposed to being adopted. In the context of the ongoing global COVID-19 pandemic and the vaccinations of all countries in succession, vaccine passports are imperative. While stepping up the launch of their national vaccine passports, some countries have begun to actively promote the international recognition of vaccine passports. However, on January 30, 2021, according to a report from the well-known Chinese media Sohu, certain mobile application store has a software that can simulate the HC status of various places based on personal needs, which is obviously suspected of illegal and endangering public safety (Sohu.com). At present, the international epidemic prevention and control situation is still grim. The application of QR code technology to digital immunity certificates is only the first step. This fake simulated HC App incident is a powerful wake-up call. Coincidentally, on July 3, 2021, according to Reuters, "Italian police said on Saturday they had broken up a number of online schemes offering to sell fake European Union digital COVID-19 status certificates or purported coronavirus vaccines" (Reuters.com).

Not surprisingly, there already exist certain kind of security problems related QR code technology (Zhang et al., 2017, p. 88). So far, in general, there are two main types of risks involved in QR codes:

- **The main form is QR-code-initiated phishing**, which is a track in form of fraudulent activity that obtains the user's credentials through deception by scanning of the QR code (Vidas, 2013, p. 1; Ahuja, 2014, p. 3879). After the user scans the QR code, the phishing website (including fake and malicious online advertisement) is automatically opened. Then it will defraud users to fill in their account numbers and passwords, eventually stealing personal information and even property (in the case of performing a payment). In this case, as the phishing website is similar looking to the original one, users do not have systematic information technology knowledge, thus they usually don't check those URLs carefully. In addition, the inside content of QR code cannot be distinguished with the naked eye. All these have led to a general lack of security awareness of QR codes among the public. While phishing brings considerable profits to criminals, it also greatly harms personal privacy (including property) and more importantly, causes serious damage to the social security.
- **The other is virus implantation**. When the user completes the scanning, the malicious download web page is opened, and then the user's scanning device (as the QR code reader/scanner) is implanted with viruses such as Trojans. In this way, with the use of command injections, criminals can gain full control over the information in the user's scanning device (mostly Smartphone) like contacts, Emails, messages etc (Ahuja, 2014, p. 3879). Theoretically, each digital immunity certificate should contain the unique and authentic private information used as prevention of COVID-19. But the issues of QR code full of forged information or insecure factors will inevitably damage personal information, health and safety, and the safety of the entire society. Therefore, to conduct the research, this study reviews the loopholes of QR code technology which is adopted by existing the digital immunity certificates in both China and the EU. Herein the main factors that lead to the vulnerabilities of QR code technology are summarized as follows:
- **Factor 1: QR code technical standards have not yet been unified**. Denso has fully disclosed the relevant standards of QR codes and has released the patent into the public domain with the aim of benefiting society (Soon, 2008, p. 60). Soon stated (2008), QR code "can be used by anybody free of charge" (p. 60). All kinds of online software to generate codes are available everywhere (Damle et al., 2020, p. 90). Besides, according Soon (2008), "Data structure standard is not prerequisite for current usages" (p. 60). Thus, in 2015, QR codes promulgated a new technical standard (ISO/IEC 18004:2015¹) and began to charge patent fees (Iso.org). However, there are still 2000 technical standards available for free use in the market. This is also the main factor that causes the QR code application to be basically out of control and disorder. With the rapid development of technology, there are many lawbreakers regard it as fertile ground for grabbing illegal benefits. This is also, nowadays, one of the great challenges of existing applications of QR code technology facing by China.

¹ ISO/IEC 18004:2015 defines the requirements for the symbology known as QR Code. Further information is available at <https://www.iso.org/standard/62021.html>

- Factor 2: Lack of regulatory mechanisms in related fields.** In addition, in the current chaotic situation of inconsistent technical standards, there is a lack of unified supervision of QR code generation and reading tools. Thus, it is imperative to introduce a set of international and effective supervisory mechanisms on these issues. Take the EU's DGC as an example. Firstly, issuance. As Narayanan stated (2012), "However, since it is easy to modify the content stored in the 2-D code, we must verify whether the identifier written in the 2-D code is indeed issued by the authorized organization." (p. 69). But, according to the proposal for regulation (Document 52021PC0130), "the 'Digital Green Certificate' framework should not require the setting up and maintenance of a database at EU level" (Eur-lex.europa.eu). On the one hand, the European Union has given all countries the power to safeguard sensitive DGC information. On the other hand, it has also increased the inconsistency of DGC. Secondly, verification. We must objectively and rationally face the massive disclosure of personal information that was staged due to the emergency of the pandemic. Obviously, the European Commission is soberly aware of this, as can be seen from the proposal for regulation (Document 52021PC0130), "a very high level of data protection should be ensured, and data minimization principles should be preserved" (Eur-lex.europa.eu). But, how to ensure that in the verification process, prevent the illegal recording of personal information, and then be sold, and eventually be stolen? Finally, acceptance by other Member States. The electronic version of DGC in English is undoubtedly the inevitable trend of consistency in globally free movement during the pandemic and post-pandemic period. However, since the EU assigns the rights and responsibilities of DGC production and distribution to various countries, this may cause many inconsistencies, as after all, the relevant laws and regulations of various countries are different. However, can DGC in electronic form ensure the safety and reliability of cross-border personal information data? What is even more uncertain is that we cannot predict how long this pandemic will last? Even if it is temporarily over, will it return soon? Thus, it is necessary to use more rigorous technological means to better protect personal information security and social security around the world. The Figure 1 shows a general overview of the evolution of QR code technology.

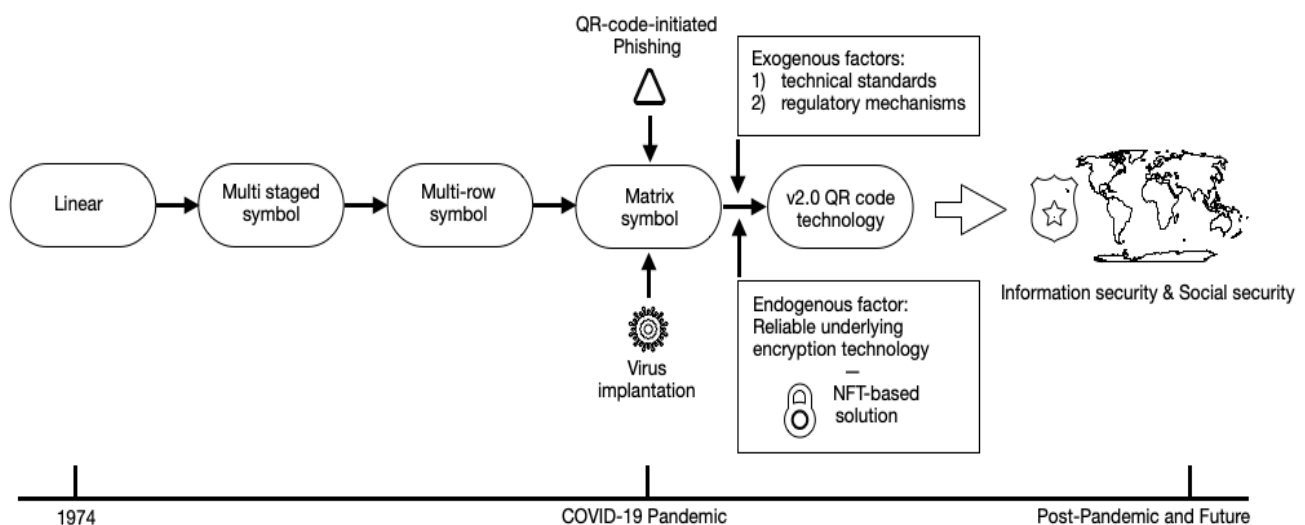


Figure 1. Evolution of QR code technology

Source: Author's own elaboration based on (Soon, 2008)

The above factors may cause a huge impact indirectly to the security issues of QR code technology application. Besides, from many scholars' point of view, various strategies against security issues related to QR codes have addressed, i.e., user's pre-check, QR code reader alertness, digital signatures embedding in QR code, "simultaneous encryption and obscurity of data", invention of QR code readers with the more rigorous reading functions (Ahuja, 2014, p. 3879). But in the fast-paced society, who has enough vigilance to watch out for the countless QR codes. As the security of the information contained in the QR code cannot be recognized from the outside. In another word, it can be accessed easier and automatically by scan. Although the wave of 4IR has greatly promoted the popularization of information technology knowledge, but according to Ahuja (2014), "This information isn't present in human readable form hence an individual cannot anticipate whether this is a valid information or a maliciously manipulated code" (p. 3878). The fundamental and important thing is these proposals are all external remedies for QR code technology endogenous factors, in other words, the symptoms are not the root cause. Therefore, the attack or forgery issues should be solved fundamentally from the endogenous aspect. To some extent, the information security and social security all around the world could

depend upon the perfection of QR code technology in the crucial moment of both current pandemic and post-pandemic.

3.2 An NFT-based solution

In the process of DT, blockchain technology has become a hot spot of social concern. But, probably, NFT, which is rapidly heating up in the world does not seem to be as familiar to all people as blockchain. Because of this, it is necessary to explain the concept of NFT, and then go to reality, namely, the proposal of application of this approach. Obviously, from its concept, its primary feature is non-fungible. The proposed solution makes use of the NFT, which is the abbreviation of Non-Fungible Tokens¹. To better interpret this substantive property, we might compare it to the mainstream digital currencies on the market today such as Bitcoin (BTC), Bitcoin Cash (BCH), Ethereum (ETH), Litecoin (LTC), Ripple (XRP), which are becoming more mature. They are homogeneous, but their issuers are different. Take BTC as an example, there is no difference between each BTC, thus they can be swapped and divided with facility. The concept of NFT originated from a token standard of Ethereum, and its purpose is to distinguish each token through a distinguishable sign (Wang et al., 2021, p. 1; Kugler, 2021, p. 19). While a conceptual framework for the determinants of the distinctive features of NFT are: Each NFT has an original and unique identifier. More importantly, it is verifiable. And the third point it is not interchangeable for each other. is that its smallest unit is 1 which is doomed to its indivisibility. And the last point is it has independent value. Why the NFT approach will probably have a crucial impact on the existing digital immunity certificates applied with QR code technology? They will be discussed in more detail as follows:

- i. **Original and unique identifier.** From the literal meaning, it can be known that the typical characteristic of this kind of token is uniqueness. This is also one of its important characteristics different from other cryptocurrencies (Wang et al., 2021, p. 1). It can be applied to virtual/digital properties, which will possess a unique identification. Thus, to our knowledge, NFT has been used in some specific applications, especially in the field of art. Unsurprisingly, Kugler stated (2021), "the most lucrative auction for a piece of art from a living artist happened in 2021" (p. 19). This proves that the value of virtual items with NFT as the underlying technology has been recognized by the market and demonstrated its security. In fact, from artistic value perspective, every artwork should be unique and unforgeable. However, unlike the art of circulation, our private information is priceless. In addition, the feature of NFT technology is fully in line with the characteristics of human beings, that is, having a unique id and gene. Digital immunity certificates which applied with QR code technology include all private privacy including vaccine information should be regarded as personal properties and should be uniquely identifiable. During the process of prevention and control of the pandemic and economic recovery, the digital immunity certificates which applied with QR code technology has played a vital role. Therefore, personal information security and social security governance issues are extremely important. The prevention and control of the COVID-19 pandemic is at a critical moment, and details will determine the ultimate victory. An NFT approach proposed to be applied to the existing digital immunity certificates which could provide an effective protection solution to guarantee their originality and uniqueness during the process from issuance to verification (domestic or cross-border). To this point, it has performed the protection of the user's ownership of digital property by using "an underlying distributed ledger for records" (Wang et al., 2021, p. 5).
- ii. **Verifiability.** This echoes the above feature. Namely, in theory, NFT can be applied to any field that requires unique authentication. To be specific, the NFT (including its token metadata and its ownership) can be publicly verified (Wang et al., 2021, p. 7). Accordingly, NFT technology is an effective solution to solve the issues of information security and social security that occurred during the prevention and control of this pandemic.
- iii. **Not interchangeability.** This makes NFT inherently anti-counterfeiting feature. Likewise, NFT is "cannot be exchanged like-for-like (equivalently, non-fungible)" (Wang et al., 2021, p. 2). The fraud of digital immunity certificates which applied with QR code technology appeared on the Internet (both China and EU). It has violated personal interests and at the same time has seriously disrupted the social security order. Correspondingly, this characteristic can generate potential impact on tampering and counterfeiting of personal information.

¹ Token is called "pass certificate" and has the attributes of property rights, equity, and currency. The English of the pass is "Token", which is an encrypted digital certificate that can be circulated. It is a value certificate on the blockchain, which can represent anything of value and realize the digitization of rights and interests. Further information is available in (Liao & Shao, 2021; Wang et al., 2021).

- iv. **Independent value.** As everyone is an independent individual in this world, and everyone has a unique value. No one can allow criminals to use his personal information (including in the digital immunity certificates which applied with QR code technology) to arbitrarily grab illegal benefits and destroy one's own value. This feature is also consistent with the goal of protecting personal privacy and social security.

4. Discussion

Incidents of economic loss or disclosure of important information due to scanning of QR codes of unknown origin or containing security risks such as Trojans and viruses have occurred from time to time. It can be said that the QR code has become a new tool for criminals to carry out online fraud and spread harmful information. With the occurrence of forgery of existing immunity certificates applied with QR code technology, the related situation of information security cannot be ignored. Information security and social security incidents triggered by QR codes have occurred from time to time, touching the nerves of the public. The inevitable issues have also garnered notable attention from all society. Objectively speaking, the security problem of QR code needs to be solved urgently. The elaborations in the Section 3 have demonstrated that the issues of existing digital immunity certificates applied with QR code technology is related to information security and social security. Thus, QR code still need to solve the underlying encryption problems. The endogenous technology is considered a challenging task for restoring social normalization. Thus, an NFT-based technology suits the requirements of information security and social security is proposed. As its series of advantageous features can significantly reduce uncertainty. With the above analysis it can be inferred that the NFT technology provides better solutions. It is necessary to look for related technical deficiencies through an all-round cooperation, and constantly improve underlying encryption technology to protect the dignity and rights of individuals and the social safety. However, technical issues of NFT such as scarcity still need to be resolved, but we also have reason to believe that there will be more possibilities for NFT technology to protect personal information security and social security in the future.

CONCLUSION

Put briefly, however, with the rapid spread of QR code, the related security issues have become increasingly prominent. QR codes have become a new high-incidence area for personal information security and social security. The study outlines the issues of digital immunity certificates applied with QR code technology, in the meanwhile, proposes an endogenous NFT-based solution to them. It will bring an unlimited impact on both the private security and public security of the whole society. The digital immunity certificates are closely related to people's lives, social public safety, and economic operation safety. As the pandemic is not over yet, a new global health emergency may also be coming. Moreover, the use of QR code technology continues to expand and the number of people continues to expand, thus, it is very necessary to improve the security related this technology application, together with using unique technical standards and strengthening both regulations and supervision. However, the technologies of NFT are still to furtherly develop (Wang et al., 2021, p. 1). The road is far away to embrace the Continuously deepening of DT. As Taking the current COVID-19 as a lesson, the direction of future research should be more people & human community-oriented.

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LOWER LEVEL SUBHEMIRINGS OF A T-FUZZY SOFT SUBHEMIRINGS OF A HEMIRING

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ABSTRACT

In this paper, we present the idea of Lower level subhemirings of a T-fuzzy soft subhemirings of a hemiring utilizing soft set hypothesis. Demonstrate the segment of the idea of Lower level subhemirings of a T-fuzzy soft subhemirings of hemiring and their properties are studied.

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Keywords: T-fuzzy soft sub hemiring, Lower level subhemirings of a-T-fuzzy soft sub hemiring, normal T-fuzzy soft subhemiring.

1. INTRODUCTION:

In our everyday life vulnerability shows up in like manner wonders on the grounds that our surroundings are loaded with vulnerabilities. Consequently, it hushes up characteristic us to demonstrate this vulnerability winning in physical world. An enormous number of these models depends on an augmentation of normal set hypotheses, for example, fuzzy sets, Intuitionistic fuzzy sets, delicate set etc. Dealing with vulnerabilities is a significant issue in numerous zones, for example, financial matters, designing, natural science, medicinal science and sociologies. These sorts of issues can't be managed by old style techniques, since old style strategies have intrinsic troubles. To defeat these sorts of challenges, Molodtsov [11] proposed a totally new approach, which is called soft set hypothesis, for displaying vulnerability. At that point Maji et al. [9, 10] presented a few tasks on soft sets. Akta and Çagman [1] characterized soft gatherings and acquired the principle properties of these gatherings. Besides, they contrasted delicate sets and fuzzy sets and unpleasant sets. Also, Jun et al. [7] characterized delicate goals on BCK/BCI-algebras. Feng et al. [6] characterized soft semirings, delicate standards on soft semirings and hopeful soft semirings. Qiu-Mei Sun et al. [13] characterized the idea of soft modules and concentrated their essential properties. The principle reason for this paper is to present fundamental ideas of T-fuzzy soft subhemirings of a hemiring, which are really a parameterized group of subhemirings of a over a hemiring R. Besides, the idea of the Lower level T-soft subhemiring homomorphism is presented.

2. PRELIMINARIES

2.1 Definition: A T-norm is a binary operation $T: [0,1] \times [0,1] \rightarrow [0,1]$ satisfying the following requirements:

- (i) $1 \ T \ x = x$ (boundary conditions)
- (ii) $x \ T \ y = y \ T \ x$ (commutativity)
- (iii) $x \ T \ (y \ T \ z) = (x \ T \ y) \ T \ z$ (associativity)
- (iv) If $x \leq y$ and $w \leq z$, then $x \ T \ w \leq y \ T \ z$ (monotonicity).

2.2 Definition: Let $(\dot{R}, +, \cdot)$ be a hemiring. A fuzzy subset of R is said to be a T-fuzzy subhemiring (fuzzy subhemiring with respect to T-norm) of \dot{R} if it satisfies the following conditions:

- (i) $\theta_{(D,W)}(x + y) \leq T(\theta_{(D,W)}(x), \theta_{(D,W)}(y))$
- (ii) $\theta_{(D,W)}(xy) \leq T(\theta_{(D,W)}(x), \theta_{(D,W)}(y))$, for all x and y in \dot{R} .

2.3 Definition: Let (D,W) be a T-fuzzy soft subset of x. For α in $[0, 1]$, the lower level soft subset of (D,W) is the set $(D,W)_\alpha = \{x_{(D,W)} \in \dot{X} : \theta_{(D,W)}(x_{(D,W)}) \leq \alpha\}$.

2.4 Definition: Let (D,W) be a T-fuzzy soft subhemiring of a hemiring \dot{R} . Then $(D,W)^0$ is defined as $(D,W)^0(x_{(D,W)}) = (D,W)(x_{(D,W)}) / (D,W)(0)$, for all $x_{(D,W)} \in \dot{R}$

2.5 Definition: Let $(\dot{R}, +, \cdot)$ be a hemiring. A T-fuzzy soft subhemiring (D,W) of \dot{R} is said to be a T-fuzzy soft normal subhemiring (TFSNSHR) of \dot{R} if $\theta_{(D,W)}(x_{(D,W)}y_{(D,W)}) = \theta_{(D,W)}(y_{(D,W)}x_{(D,W)})$, for all $x_{(D,W)}$ and $y_{(D,W)}$ in \dot{R} .

3. LOWER LEVEL SUB HEMIRINGS OF A T-FUZZY SOFT SUBHEMIRING OF A HEMIRING

3.1 Theorem:

Let (D, W) be a T- fuzzy soft subhemiring of a hemiring \dot{R} . Then for α in $[0, 1]$, $(D, W)_\alpha$ is a lower level soft subhemiring of \dot{R} .

Proof:

For all $x_{(D, W)}$ and $y_{(D, W)}$ in $(D, W)_\alpha$,

we have, $\delta_{(D, W)}(x_{(D, W)}) \leq \alpha$ and $\delta_{(D, W)}(y_{(D, W)}) \leq \alpha$.

Now, $\delta_{(D, W)}(x_{(D, W)} + y_{(D, W)}) \leq T \{ \delta_{(D, W)}(x_{(D, W)}), \delta_{(D, W)}(y_{(D, W)}) \}$
 $\leq T \{ \alpha, \alpha \} = \alpha$,

which implies that $\mu_{(D, W)}(x_{(D, W)} + y_{(D, W)}) \leq \alpha$.

And, $\delta_{(D, W)}(x_{(D, W)}y_{(D, W)}) \leq T \{ \delta_{(D, W)}(x_{(D, W)}), \delta_{(D, W)}(y_{(D, W)}) \}$
 $\leq T \{ \alpha, \alpha \} = \alpha$,

which implies that $\mu_{(D, W)}(x_{(D, W)}y_{(D, W)}) \leq \alpha$.

Therefore, $\delta_{(D, W)}(x_{(D, W)} + y_{(D, W)}) \leq \alpha$ and $\delta_{(D, W)}(x_{(D, W)}y_{(D, W)}) \leq \alpha$.

Therefore, $x_{(D, W)} + y_{(D, W)}$ and $x_{(D, W)}y_{(D, W)}$ in $(D, W)_\alpha$.

Hence $(D, W)_\alpha$ is a lower level subhemiring of a hemiring \dot{R} .

3.2 Theorem:

Let (D, W) be a T- fuzzy soft subhemiring of a hemiring \dot{R} . Then two lower level soft subhemiring $(D, W)_{\alpha_1}$, $(D, W)_{\alpha_2}$ and α_1, α_2 are in $[0, 1]$ with $\alpha_1 < \alpha_2$ of (D, W) are equal if and only if there is no x in \dot{R} such that $\alpha_2 > \delta_{(D, W)}(x_{(D, W)}) > \alpha_1$.

Proof:

Assume that $(D, W)_{\alpha_1} = (D, W)_{\alpha_2}$.

Suppose there exists $x_{(D, W)}$ in \dot{R} such that $\alpha_2 > \delta_{(D, W)}(x_{(D, W)}) > \alpha_1$.

Then $(D, W)_{\alpha_1} \subseteq (D, W)_{\alpha_2}$ implies x belongs to $(D, W)_{\alpha_2}$, but not in $(D, W)_{\alpha_1}$.

This is contradiction to $(D, W)_{\alpha_1} = (D, W)_{\alpha_2}$.

Therefore there is no $x_{(D, W)} \in \dot{R}$ such that $\alpha_2 > \delta_{(D, W)}(x_{(D, W)}) > \alpha_1$.

on the other hand if there is no $x_{(D, W)} \in \dot{R}$ such that $\alpha_2 > \delta_{(D, W)}(x_{(D, W)}) > \alpha_1$.

Then $(D, W)_{\alpha_1} = (D, W)_{\alpha_2}$. (by the definition of lower level soft set

3.3 Theorem:

Let (D, W) be a T- fuzzy soft subhemiring of a hemiring \dot{R} . If any two lower level soft subhemirings of (D, W) belongs to \dot{R} , then their intersection is also lower level soft subhemiring of (F, A) in \dot{R} .

Proof :

Let $\alpha_1, \alpha_2 \in [0, 1]$.

Case (i): If $\alpha_1 < \delta_{(D, W)}(x_{(D, W)}) < \alpha_2$, then $(D, W)_{\alpha_1} \subseteq (D, W)_{\alpha_2}$.

Therefore, $(D, W)_{\alpha_1} \cap (D, W)_{\alpha_2} = (D, W)_{\alpha_1}$, but $(D, W)_{\alpha_1}$ is a lower level soft subhemiring of (D, W) .

Case (ii): If $\alpha_1 > \delta_{(D, W)}(x_{(D, W)}) > \alpha_2$, then $(D, W)_{\alpha_2} \subseteq (D, W)_{\alpha_1}$.

Therefore, $(D, W)_{\alpha_1} \cap (D, W)_{\alpha_2} = (D, W)_{\alpha_2}$, but A_{α_2} is a lower level soft subhemiring of (D, W) .

Case (iii): If $\alpha_1 = \alpha_2$, then $(D, W)_{\alpha_1} = (D, W)_{\alpha_2}$.

In all cases, intersection of any two lower level soft subhemirings is a lower level soft subhemiring of (D, W) .

3.4 Theorem:

The homomorphic image of a lower level soft subhemiring of a T- fuzzy soft subhemiring of a hemiring \dot{R} is a lower level soft subhemiring of a T- fuzzy soft subhemiring of a hemiring $\dot{R}^!$.

Proof:

Let $(\dot{R}, +, \cdot)$ and $(\dot{R}^1, +, \cdot)$ be any two hemirings and $f: \dot{R} \rightarrow \dot{R}^1$ be a homomorphism.

That is, $f(x + y) = f(x) + f(y)$ and

$f(xy) = f(x)f(y)$, for all x and y in \dot{R} .

Let $(G, V) = f((D, W))$, where (D, W) is an T-fuzzy soft subhemiring of a hemiring \dot{R} .

Clearly (G, V) is an T- fuzzy soft subhemiring of a hemiring \dot{R}^1 .

Let $x_{(D, W)}$ and $y_{(D, W)}$ in \dot{R} , implies $f(x_{(D, W)})$ and $f(y_{(D, W)})$ in \dot{R}^1 .

Let $(D, W)_\alpha$ is a lower level subhemiring of (D, W) .

That is, $\delta_{(D, W)}(x_{(D, W)}) \leq \alpha$ and $\delta_{(D, W)}(y_{(D, W)}) \leq \alpha$; $\delta_{(D, W)}(x_{(D, W)} + y_{(D, W)}) \leq \alpha$, $\delta_{(D, W)}(x_{(D, W)}y_{(D, W)}) \leq \alpha$.

We have to prove that $f((D, W)_\alpha)$ is a lower level soft subhemiring of (G, V) .

Now, $\delta_{(G, V)}(f(x_{(D, W)})) \leq \delta_{(D, W)}(x_{(D, W)}) \leq \alpha$, which implies that $\delta_{(G, V)}(f(x_{(D, W)})) \leq \alpha$;

and $\delta_{(G, V)}(f(y_{(D, W)})) \leq \delta_{(D, W)}(y_{(D, W)}) \leq \alpha$, which implies that $\delta_{(G, V)}(f(y_{(D, W)})) \leq \alpha$ and $\delta_{(G, V)}(f(x_{(D, W)}) + f(y_{(D, W)})) = \delta_{(G, V)}(f(x_{(D, W)} + y_{(D, W)}))$, as f is a homomorphism

$\leq \delta_{(D, W)}(x_{(D, W)} + y_{(D, W)}) \leq \alpha$,

which implies that

$\delta_{(G, V)}(f(x_{(D, W)}) + f(y_{(D, W)})) \leq \alpha$.

Also, $\delta_{(G, V)}(f(x_{(D, W)})f(y_{(D, W)})) = \delta_{(G, V)}(f(x_{(D, W)}y_{(D, W)}))$, as f is a homomorphism

$\leq \delta_{(D, W)}(x_{(D, W)}y_{(D, W)}) \leq \alpha$,

which implies that $\delta_{(G, V)}(f(x_{(D, W)})f(y_{(D, W)})) \leq \alpha$.

Therefore, $\delta_{(G, V)}(f(x_{(D, W)}) + f(y_{(D, W)})) \leq \alpha$, $\delta_{(G, V)}(f(x_{(D, W)})f(y_{(D, W)})) \leq \alpha$.

Hence $f((D, W)_\alpha)$ is a lower level soft subhemiring of a T- fuzzy soft subhemiring (G, V) of a hemiring \dot{R}^1 .

3.5 Theorem:

The homomorphic pre-image of a lower level soft subhemiring of a T- fuzzy soft subhemiring of a hemiring \dot{R}^1 is a lower level soft subhemiring of a T- fuzzy soft subhemiring of a hemiring \dot{R} .

Proof:

Let $(\dot{R}, +, \cdot)$ and $(\dot{R}^1, +, \cdot)$ be any two hemirings and $f: \dot{R} \rightarrow \dot{R}^1$ be a homomorphism.

That is, $f(x + y) = f(x) + f(y)$ and

$f(xy) = f(x)f(y)$ for all x and y in \dot{R} .

Let $(G, V) = f((D, W))$, where (G, V) is a T- fuzzy soft subhemiring of a hemiring \dot{R}^1 .

Clearly (D, W) is a T- fuzzy soft subhemiring of a hemiring \dot{R} .

Let $f(x_{(D, W)})$ and $f(y_{(D, W)})$ in \dot{R}^1 , implies $x_{(D, W)}$ and $y_{(D, W)}$ in \dot{R} .

Let $f((D, W)_\alpha)$ is a lower level soft subhemiring of V .

That is, $\delta_{(G, V)}(f(x_{(D, W)})) \leq \alpha$ and $\delta_{(G, V)}(f(y_{(D, W)})) \leq \alpha$;

$\delta_{(G, V)}(f(x_{(D, W)}) + f(y_{(D, W)})) \leq \alpha$, $\delta_{(G, V)}(f(x_{(D, W)})f(y_{(D, W)})) \leq \alpha$.

We have to prove that $(D, W)_\alpha$ is a lower level soft subhemiring of (D, W) .

Now, $\delta_{(D, W)}(x_{(D, W)}) = \delta_{(G, V)}(f(x_{(D, W)})) \leq \alpha$, implies that $\delta_{(D, W)}(x_{(D, W)}) \leq \alpha$;

$\delta_{(D, W)}(y_{(D, W)}) = \delta_{(G, V)}(f(y_{(D, W)})) \leq \alpha$, implies that $\delta_{(D, W)}(y_{(D, W)}) \leq \alpha$ and

$\delta_{(D, W)}(x_{(D, W)} + y_{(D, W)}) = \delta_{(G, V)}(f(x_{(D, W)} + y_{(D, W)}))$

$= \delta_{(G, V)}(f(x_{(D, W)}) + f(y_{(D, W)}))$,

as f is a homomorphism $\leq \alpha$,

which implies that $\delta_{(D,W)} (x_{(D,W)} + y_{(D,W)}) \leq \alpha$.

Also, $\delta_{(D,W)} (x_{(D,W)} y_{(D,W)}) = \delta_{(G,V)} (f(x_{(G,V)}) f(y_{(G,V)}))$

$= \delta_{(G,V)} (f(x_{(G,V)}) f(y_{(G,V)}))$, as f is a homomorphism

$\leq \alpha$.

which implies that $\delta_{(D,W)} (x_{(D,W)} y_{(D,W)}) \leq \alpha$.

Therefore, $\delta_{(G,V)} (f(x_{(G,V)}) + f(y_{(G,V)})) \leq \alpha$, $\delta_{(G,V)} (f(x_{(G,V)}) f(y_{(G,V)})) \leq \alpha$.

Hence, $(D,W)_\alpha$ is a lower level soft subhemiring of a T- fuzzy soft subhemiring (D,W) of \tilde{R} .

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AN ANALYSIS OF VARIOUS COST ESTIMATION METHODS FOR ENHANCEMENT IN SOFTWARE RELIABILITY

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ABSTRACT

The estimation of the software price remains one of the most challenging problems in software engineering; as a preliminary estimate of cost includes many elements of uncertainty. Trustworthy and early estimates are hard to obtain because of the lack of the detailed information about the future system at an early stage. However, the before time estimates are really important when bidding for a contract or determining whether a project is feasible in terms of cost-benefit analysis. Estimators often rely on their long-ago experiences for the prediction of effort for software projects. The primary factors that are contributing towards inaccuracy of the cost estimation process are imprecise and drifting requirements, information not readily available on past projects, and the ways that were developed and trained on specific data. In this proposed work we have developed a software cost estimation tool that helps commercial software-development organizations to effectively and quantitatively measure and analyze the software metrics based upon the function requirements, operational constraints and organizations capability to handle a project. This cost estimation tool is a fusion implementation or an essence of certain software measurement and estimation techniques that help a software organization to evaluate and analyze fundamental software metrics such as complexity, time, effort, and cost all of which are essential to improving turnaround time and attaining organizational maturity. The new cost estimation method is proposed for the iterative software development projects.

KEYWORDS: Software, Cost, Estimation, Effort, Project & Engineering

INTRODUCTION

Software engineering is about engineering the software development procedure. It requires maximum degree of analyses, hard work and the management of the two. With the increasing size and complexity of software's; software development has become a more clamorous process and hence needs to take care of even the simplest activity in the development process. The problems being faced in the software developments are cost overrun, schedule overrun and quality degradation [1]. In the core of these troubles lies the problem of poor estimation. Wrong estimation surely results a disaster in the development process. Effective estimation is essential for proper project planning and control and is one of the most critical and challenging task in the development process. Under-estimating a project leads to quality degradation, employee over exploitation and setting short schedule and hence outcome in missed deadlines. Over-estimating is even worse than the previous condition; allocating more resources to the project and thus increasing the cost of the project without any scope. Proper planning of the project and tracking the project development is the second essential task for assuring the success of the project. Once the estimates are available the next task is to assign the tasks to individuals. Regular feedback from

The development procedure is supportive in determining the status of the task and the project. Tracking gives opportunity to the project manager to take care of any unexpected situation while development [2]. Management in any project starts with estimation. A valuable estimation is the back bone for the development of any project. Without effective estimates appropriate project planning and tracking is impossible. If the estimates are too low then the project management tries to employ more personnel in order to expedite the development process; that eventually results in poor quality product and employee dissatisfaction [3].

Basic software estimation is as follows:

- Estimation of the size.
- Estimation of the effort.
- Estimation of the schedule.
- Estimation of the cost.

LITERATURE REVIEW:-

The aim of Ruhe et al.'s study [2003] was to assess whether the COBRATM4 (Cost Estimation Benchmarking and Risk Analysis) method was adequate for estimating Web development effort accurately using data from a small Web company. COBRA is a method that aims to develop an understandable cost estimation model based

on a company specific dataset. It uses expert opinion and data on past projects to estimate development effort and risks for a new project. The size measure employed was Web objects (Reifer 2000), measured for each one of the 12 finished Web applications used in this study.

Emilia Mendes et. al. [2005] Software practitioners recognize the importance of realistic estimates of effort to the successful management of software projects, the Web being no exception. Having realistic estimates at an early stage in a project's life cycle allow project managers and development organizations to manage resources effectively.

Sergio Di Martino, Carmine Gravino [2007] uses the Single Company Data set the use of Case-Based Reasoning with cross-company data set compared both sets of productivity values (cross-company vs. single-company) using both parametric (the independent samples T-test) and non-parametric (the Mann-Whitney Test) tests and given that the 25 variables identified are measures that are meaningful to Web companies and define the one particular equation to estimating the cost in web Engineering.

Sultan H. Aljahdali and Khalid A. Buragga et al. [37] (2018) demonstrated the results of utilizing the connectionist modeling and learning algorithms for prediction the software reliability. The expression includes a comparement of the four connectionist models with different leaning algorithms and methods. The Elman recurrent neural networks is a healthy method for function prediction due capturing the dynamic performance of the data values.

Raj Kiran et al. [38] (2018) ensemble models are developed to forecast software reliability efficiently. A variety of statistical and intelligent methods constitute the ensembles. They are several linear regression (MLR) and multivariate adaptive regression splines (MARS); backpropagation trained neural network (BPNN), dynamic evolving neuro-fuzzy inference system (DENFIS) and TreeNet. Based on the numerical experiments conducted by us on the software reliability facts obtained from literature, we noticed that the non-linear ensemble outperformed all the other ensembles and also the constituent statistical and intelligent techniques. Further, they noticed that the linear ensembles also outperformed the constituent techniques from lag3 onwards.

Chitra S. et al. [39] (2019) was seen that the error classification percentage improves if the data is preprocessed using immune technique methods. In the present research paying attention on the density of error rather than tuple error count. The densities were subjected to normalization and distributed using neural network multilayer forward classification. The outcome were hopeful with only 0.38% classification faults. More investigation needs to be carried out to find whether the attributes selected by cyclomatic and design density are the right choice.

Estimation Methods In Software Engineering

There are following methods for estimating effort, cost, schedule and size. This project is based on COCOMO 2 for cost and effort estimation and integrates all three models of COCOMO 2. i.e. Early Design, Application Composition and Post Architecture Model. For size estimation we have used FPA(Function Point Analysis).

Various estimation techniques have been developed in the past which follows mathematical model for estimation. SLIM (Software life cycle model), COCOMO (Constructive Cost Model), SEER (System Evaluation and Estimation of Resources) are some of the model based techniques for software estimation. Projects' related data is used as input in these techniques and past projects' data is used for calibrating the models [2].

When past projects' data is not available then experts' knowledge is used for estimation. Delphi and Rule-based techniques comes under this category. Delphi technique is based purely on the experts' judgment whereas rule based technique is adopted from the artificial intelligence domain in which a set of rules work together to get the output i.e. the estimates [2].

A lot of work has been devoted for the development of learning based techniques for estimation. Neural networks defined by three entities neurons, interconnection structure and the learning algorithm, is one of the popular learning based technique. Case-Based technique is another kind of learning based techniques in which a database of completed projects is maintained and new project's cost is estimated by comparing the new project with similar projects in the database [2].

Standard or ordinary least squares (OLS) method and robust regression are the regression methods used for estimation. Robust regression resolves the most common problem of outliers in software engineering data [2].

Model based techniques are most widely used in the industry due to its independence to any previous information and due to the fact that it works on certain parameters pertinent to the model, being used in the

estimation. In the model based techniques the values for different standard parameters are fetched according to the project being developed and using the equations defined in the model the estimates are calculated. Various tools are available in the market for automating the process of estimation [2].

Cost and Effort Estimation using COCOMO II

Budgeting, planning and tracking, risk analysis and return on investments analyses are some of the uses of software cost, schedule and effort estimation. COCOMO II is one of the most widely used parametric models, for effort and schedule estimation [2]. The section contains a short description of details of the COCOMO II model and this model is based on the same model.

There are three models of COCOMO II explained as follows:

Application Composition

This model is useful for application which cannot be generated through application generators but can be created by combining prepackaged solutions. Examples are GUI builders, query browsers, database managers etc.

The model uses object points for size estimation. It estimates the size of any tool on the basis of the number of screens, reports and 3 GL components [4]. The output of object point analysis is number of object points.

Early Design

This model can be used for application generators, system integration and for infrastructure development sectors. The model is used early in the development when very little is known about the project. The model uses unadjusted function points for the size estimation [2].

- **Converting function points to SLOC**

COCOMO II early design and post architecture model use SLOC in effort estimation. Hence the unadjusted function points need to be converted into equivalent SLOC [2]. This conversation is performed on the basis of available table for different languages such as Table given below:

Table : Equivalent SLOC per Function Point Count for different languages

LANGUAGE	SLOC/UFP
Ada	71
C	128
C++	29
Fortran 77	105
Lisp	64
Pascal	91
Prolog	64
HTML	14
JAVA 2	46

- **Cost drivers**

COCOMO II uses 17 cost drivers for adjustment of effort. Early Design model uses a reduced set of cost drivers. These cost drivers are obtained by combining different cost drivers of post-architecture model. If the ratings of cost drivers are between two levels, the rating near to nominal is selected i.e. if the rating of any driver is between very low and low then low is selected [2]. The Table below shows the relationship between early design cost drivers and there post architecture counterparts.

Table: Relationship between early-design cost drivers and Post-Architecture cost drivers

EARLY DESIGN COST DRIVERS	POST-ARCHITECTURE COUNTERPART
RCPX	RELY, DATA, CPLX, DOCU
RUSE	RUSE
PDIF	TIME, STOR, PVOL
PERS	ACAP, PCAP, PCON
PREX	AEXP, PEXP, LTEX
FCIL	TOOL, SITE
SCED	SCED

Post- Architecture

This model is suitable for application generators, system integration and infrastructure development sector. It has same granularity as of COCOMO 81 and uses all the 17 cost drivers for estimation. The model uses unadjusted function point and source lines of code as size measures. Scale factors are used in both the early design and post architecture model in the same form [2].

Size Estimation

A sound size estimate could be a good foundation for the software estimation. The information source for estimation can be the project proposal, system specification or software requirement specification. If the size estimation is being done in the later stages such as design or during coding, then design specifications and other work products can be used as information source for estimation [2].

Various methods for estimating size are given as follows:

- LOC based
- FPA(Function Point Analysis)
- Use-Case Points
- Object Points

Here, we are going to explain three methods because our project uses LOC, FPA and Object Point method for estimating size. The estimation of size acts as an input for the estimation of cost so accuracy of size estimation is very important for further estimation of project.

LOC Based

LOC is the simplest among all metrics available to estimate project size. This method measures the size of a project by counting the number of source instructions in the developed program. While counting the number of source instructions; lines used for commenting the code and the header lines are ignored.

FPA (Function Point Analysis)

FPA breaks the system into smaller pieces so that intricacies of the systems become more visible and can be analyzed better. Function point analysis measures size of the software on the basis of the functionalities to be provided by the software. The method quantifies the functionalities of software by the information provided by the user based on logical design. FPA estimates the size of software in terms of function point counts (FPC) which can be converted into SLOC easily if the equivalent SLOC for unit FPC is available.

Complexity of software and the effort needed to develop it are a function of the number and type of five different kinds of functional components that can be obtained and assessed at the requirements specifications phase [5].

- Internal Files (IF) corresponding to the database files that are created and maintained within the application to develop.
- External Files (EF) corresponding to the files owned and maintained by other applications, but are used by the application to develop.
- External Inputs (EI) corresponding to the inputs that affect the control flow and internal logic of the application leading to the creation and maintenance of data.
- External Outputs (EO) corresponding to the data leaving the application to different output devices, files or external systems.
- External Inquiries (EIQ) corresponding to simple user queries resulting in responses to them.

The first two types of components are referred to as data-based components and the other three as transaction-based components.

Each component is then assigned a points value on the basis of its type and complexity. The point's values of all the components are then summed to give a size for the system in unadjusted function points (UFPs).

$$\text{UFPs} = \sum(\text{EI}) + \sum(\text{EO}) + \sum(\text{EF}) + \sum(\text{EIQ}) + \sum(\text{IF})$$

The technical complexity factor is given by quantifying the effect of fourteen General Application Characteristics that affect the complexity of carrying out the design and implementation task.

The degree of influence of each of the characteristics can range from zero (meaning, not present, or has no effect) to five (meaning, a strong influence throughout). The sum of the fourteen characteristics, that is, the total degrees of influence (DI), is then converted to the technical complexity factor (TCF) using the formula given as [6]

$$DI = \sum \text{General Application Characteristics } [i] \quad \text{where } i = 1 \text{ to } 14$$

$$TCF = (0.65 + 0.01 * DI)$$

The TCF is now used to modify the size of the system to give the overall size in function points as below.

$$FPs = (UFP * TCF)$$

Object Point Based

It measures the size from a different dimension. This measurement is based on the number and complexity of the following objects: screens, reports and 3GL components [7,8,9]. This is a relatively new measurement and it has not been very popular. But because it is easy to use at the early phase of the development cycle and also measures software size reasonably well. This measurement has been used in COCOMO II for cost estimation. Following are the steps for calculating object point:

- Assess object count: number of screens, reports and 3GL components.
- Classify object: simple, medium and difficult depending on the values of characteristic dimensions. Weight the number in each cell using the following scheme. The weights reflect the relative effort required to implement an instance of that complexity level.
- Determine object points: add all the weighted object instances to get one number, the object point count.
- Estimate percentage of reuse you expect to be achieved in this project. Compute new object points to be developed as, $NOP = (\text{Object Point}) * (100 - \%reuse)/100$
- Determine a productivity rate depending on developers' experience and ICASE maturity as given in the table
- Compute the estimated person-months as, $\text{Person Month} = NOP/PROD$.

Problems with Software Estimation

Software estimation is hard, really hard, but still many software companies rely heavily on software estimations. There are some big problems that come with software estimation.

It is impossible to estimate the unknown

Every software is unique, and it is impossible to estimate software accurately, when it's being done for the first time. Even if the requirements are given, it is really hard to estimate a complex system that is going to be built with the given requirements.

Software can be programmed in so many different ways, and usually design decisions, which are not known during the time of estimation, have a huge impact on the duration of the project.

There are, of course, different kind models and methods to make the estimates more accurate, but even with the perfect method, the estimates are still only guesses, because of all the things that are unknown when the estimates are needed, which is usually before the development starts.

a) Estimates are usually optimistic

Most programmers make optimistic estimations. They either think they are more productive than they actually are, or they do not understand the complexity of the software.

This usually leads to padding. The person who receives estimates from the programmers might multiply the estimates with a magic number just to make the estimates less optimistic. This is also very bad, because everyone doesn't make optimistic estimations.

b) Estimated time is always used

Most programmers also tend to spend the allocated time on a task. If something is estimated to take two days, the programmer makes sure that it takes two days. Even if he finishes early, he will tune and polish his solution, or just slack off, until the allocated time is spent.

This creates a situation, where nothing gets done faster than the estimates, but some things will take longer than the estimates.

c) Business relies on estimations too heavily

Product launches are scheduled based on estimates. Trade shows are booked based on estimates. In some companies the whole sales and marketing departments rely so heavily on estimations that any kind of delay will cause major problems for the company.

d) A lot of time is spent on things that are not estimated

Even if the estimates are perfect, a lot of time must be spent on things that are not estimated. Programmers need to do some maintenance for older versions, someone gets sick, and new tasks come up during the project.

e) Estimates are not treated as estimates

People do not understand the meaning of the word estimate. It should be taken literally, but the true meaning of the word is not understood nor is it respected. There shouldn't be too many plans that rely on the estimates. If things that have estimates depend on other estimated things, it creates a chain reaction of delays, when an estimate cannot be reached.

f) Estimates do not consider productivity variations between programmers

This adds another level of difficulty for estimations. In traditional industry, you know the speed of the average bridge builder, but programmers differ so much in productivity that it is impossible to estimate accurately something when you have two unknown variables: the speed of development, and the required amount of work.

g) Changes in requirements do not reflect on estimations

Most projects have changes in requirements throughout the project, but the estimations for the whole project are not changed. Every single feature added to project must have an effect on the estimates; otherwise the whole process of estimating things is a complete joke.

h) Estimates are not updated when they cannot be reached

When estimates are not reached, other estimates should also be corrected, because missing estimates is usually a sign of optimistic estimation. However, in these situations programmers blindly believe that they can do the rest of the tasks faster to make up for the lost time, when the opposite is usually true.

i) Programmers are blamed when estimates cannot be reached

When the whole success of the company depends on estimates, someone must be blamed when the estimates cannot be reached. Usually the finger is pointed to the people, who could not keep up with the estimates: the programmers. This will create a very unhealthy work environment, and programmers will pad the estimates just to keep their jobs safe.

The Current Scenario

As stated earlier, estimation plays a very important role in projects' success and failure. Software estimation is done to estimate the size of project, cost of the project that is to be developed, schedule for the development of project on time. There are various tools available to help the programmers and the managers working on a software project. These tools are used for different types of software projects and the organizations that are supposed to develop the same on time and within budget. These tools have their own advantages and disadvantages. This chapter explains some tools as follows:

ACEIT (Automated Cost Estimating Integrated Tools)

ACEIT (Automated Cost Estimating Integrated Tools) is a family of applications that support program managers and cost/financial analysts during all phases of a program's life-cycle. ACEIT applications are the premier tool for analyzing, developing, sharing, and reporting cost estimates, providing a framework to automate key analysis tasks and simplify/standardize the estimating process. Please visit our Products page to find out more about which ACEIT application best suits your needs and how to purchase.

Bournemouth University -- ANGEL Project

Estimation by analogy is the focus of a research project being undertaken by the Empirical Software Engineering Research Group (ESERG) at Bournemouth University. A brief bibliography and the downloadable ANGEL tool are provided.

Center for Software Engineering (CSE)-Tools Section

The Center for Software Engineering Tools section includes access to the COCOMO Suite, USC COCOMO 81, USC COCOMO II, Code Count and Win Win.

Charismatek ESP - Estimate Software Projects

CHARISMATEK's ESP - Estimate Software Projects is a straight-forward and simple to use software utility allowing you to quickly and easily estimate delivery rate, effort and cost for your software projects. Estimates

are expressed as ranges showing best, most likely and worst case scenarios. ESP comes seeded with standard industry benchmark data. In addition, ESP can be individually customized and calibrated to your organization's software delivery environment to ensure that your project estimates are consistent, repeatable and achievable. ESP is included FREE with the Function Point WORKBENCH™. Independent copies can also be purchased.

COCOMO Overview

The COCOMO cost estimation model is used by thousands of software project managers, and is based upon a study of scores of software projects. Unlike other cost estimation models, COCOMO is an open model, so all of the details are published. This site presents a brief overview of COCOMO.

COCOMO Project Homepage

The COCOMO II model is an update of COCOMO 1981 to address software development practices in the 1990s and 2000s. It is being developed and continually enhanced by USC-CSE, UC Irvine, and 29 affiliate organizations. A public version of COCOMO II is available, including a Java implementation.

Construx Estimate

Construx Estimate helps improve your software estimation capabilities. Estimate leverages a blend of proven estimation models to predict effort, budget, and schedule for your project based on size estimates. Estimate comes calibrated with industry data, but is most powerful when calibrated with your organization's data. As part of our mission to advance the art and science of commercial software engineering, we provide Construx Estimate™ version 2.0 for free download with a limited license.

Cool Soft

COOL Soft utilizes a hybrid approach of intermediate and detailed versions of the Constructive Cost Model (COCOMO). This allows for the reuse of existing code, development of new code, the purchase and integration of third party code, and hardware integration. The output is then displayed as man-months of programming effort, calendar schedule, support costs and hardware costs.

Cosmos

This state-of-the-art software project estimation and analysis tool gives project managers insight into the size, effort, and schedule of their software development project. This tool is unique in that it combines the well-known Function Point and COCOMO models as well as a Rayleigh model of staff buildup proposed by Lawrence Putnam. These three models can be used independently or work together. With COSMOS, users can gain an understanding of changes in project requirements and resources that impact the project's size, effort, and schedule. Furthermore, COSMOS is ideal for helping educators provide students with insight into how the function point and COCOMO models work.

Costar Software Estimation Tool

Costar is a software cost estimation tool based on COCOMO II. A software project manager can use Costar to produce estimates of a project's duration, staffing levels, effort, and cost. Costar is an interactive tool that permits managers to make trade-offs and experiment with what-if analyses to arrive at the optimal project plan.

Now, most of the above mentioned tools are desktop application. Some tools incorporate only one or two methods of size estimation or don't use all the types of a specific method. Level of complexity of some tools is very high. The current situation states that a company or organization that works on developing software projects have to choose a tool from a pool of such tools which suits the organizations structure and can fulfill the requirements.

Problems In Current Scenario

Study of above tools has revealed the following problems in the current scenario.

- Need of web-based tools because available tools are desktop application tools.
- If the managers work at different location, there should be such a system which supports sharing of data using the same system. This feature is not present in current tools.
- An estimation tool should have different methods for estimation which increases the functionality and makes the estimates accurate.
- Management of security and control of access for different level of managers and developers etc.
- Any supporting documents or reports should be available.

- Requirement of an extensible, simple and easy to use tool that can be extended easily to support more features in future.

CONCLUSIONS & FUTURE SCOPE:

There is no estimation method which can be present the best estimates in all various situations and each technique can be suitable in the special project. It is necessary understanding the principals of each estimation method to choose the best. Because performance of each estimation method depends on several parameters such as complexity of the project , duration of the project, expertise of the staff, development method and so on. Some evaluation metrics and an actual estimation example have been presented in this paper just for describing the performance of an estimation method(for example Cocomo). Trying to improve the performance of the existing methods and introducing the new methods for estimation based on today's software project requirements can be the future works in this area.

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IMPLEMENTATION AND EXECUTION ASSESSMENT OF SYMMETRIC ENCRYPTION TECHNIQUES FOR SECURING IMAGE DATA IN THE CLOUD ENVIRONMENT

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ABSTRACT

Cloud computing is an emerging technology that uses a network of remote servers hosted on the Internet to store, manage, and process data. The ability to access data from remote locations with just a stable internet connection is what gives the cloud an edge over other standard storage options. The important thing that is to be considered is how security had provided for the data. Cloud storages are frequently under cyber-attacks. Hackers are honing their methods and techniques to intrude into cloud storage and steal the data. The cloud is explicitly unsafe in that a wide range of client stores their information on a similar framework and systems. Data is not safe anywhere, not even within an organization, leads to boost cloud security instead of abandoning cloud services. From the time cloud platform utilized for storage, many researchers and analysts are trying to develop many encryption algorithms to provide excellent security on the data. We should know the performance, strength, and algorithms' weaknesses to apply a suitable cryptography algorithm to an application. Therefore, the algorithms must be analyzed based on several features. This paper presents an evaluation for three encryption techniques primarily used in the cloud environment: AES, DES, and Blowfish. These encryption algorithms' performance is analyzed based on their encryption time, decryption time, memory consumption, avalanche effect, throughput rate, and speedup ratios in the cloud environment. The cryptography algorithms implemented using Java Cryptography Extension (JCE), which demonstrates each algorithm's effectiveness.

Keywords: cloud computing, cloud security, image encryption, image storing, algorithm analysis

1. INTRODUCTION

Cloud make sure that users are able to orchestrate their various functioning, applications, managing resources properly by combining all the data centres together through a network and then providing the user with the control to use these resources and to manage them properly[1]. Users are being offered cloud services platforms to use their services or applications basically. But different people have different requirements such as certain people who just want to consume a particular resource or the certain people who actually want to create their own infrastructure and all those things. Based on these needs cloud providers provide the user with particular service models with their needs[2]. The basic service models are IaaS, PaaS and SaaS. In SaaS (Software as a Service) basically users are just consuming a service which is already being maintained and handled by someone else. One of the common examples for the SaaS is Gmail. In PaaS, users are provided with a platform where they can build their own applications. Example is Google cloud engine. In IaaS the whole infrastructure is provided user so that user can create different applications. Apart from service models, cloud also provides three types of deployment models such as public cloud, private cloud and hybrid cloud[3]. Public cloud is available to everyone. The service providers make these services or these resources available to people worldwide through the internet. In private cloud, users are provided with this service and create their own applications and since it is a private cloud they are protected by a firewall and don't have to worry about various issues. The hybrid cloud is the combination of the private cloud and public cloud. There are different Cloud Service Providers in the market such as Amazon Web Services, Google Cloud Platforms, Microsoft Azure, and Digital Ocean. AWS is highly popular and it leaves other cloud providers way behind. Its compute capacity is 6 times larger than all the other service providers. Every company these days is moving towards cloud with so much data stored in digital echo system. So the cloud security becomes one of the hardest topics in the IT and Security Sectors[4]. In the last few decades, many researchers have developed many cryptographic algorithms to protect data in the cloud environment. This paper is analyzing performance, strength, and weakness of three popular cryptographic algorithms, namely DES, AES, and Blowfish.

2. RELATED WORKS

Bhardwaj et al.,[5] compared Asymmetric and Symmetric cryptographic algorithms based on computational cost and time for encryption and decryption processes to point out the correct algorithm. Ghosh et al., [6] explained security efficiency and architecture of existing symmetric cryptography algorithms: DES, AES, Extended DES, Triple DES, Blowfish, and Twofish. Panda.M [7] has presented performance analysis of symmetric key algorithms such as DES, 3DES, AES, and Blowfish, for image data encryption based on encryption and decryption time. Kansal & Mittal [8], has evaluated DES, 3DES, and AES encryption algorithms

on image data and text data in terms of execution time, throughput, and memory utilization. Patil et al., [9] analyzed encryption algorithms such as DES, 3DES, AES, RSA, and Blowfish for text and image data encryption based on encryption time, decryption time, memory used, avalanche effect, entropy, and the number of bits required for encoding optimally. Raigoza and Jituri,[10] assessed the performance of Advanced Encryption Standard (AES) and Blowfish algorithm on various kind of data string values using different measures. Semwal & Sharma [11] discussed and compared the symmetric and asymmetric encryption algorithms DES, 3DES, AES, Blowfish, and RSA based on encryption time, decryption time, an avalanche effect, and memory consumption. Agrawal & Ahuja [12] enhanced embedding capacity of stego-image using Compressed Sensing Image Stegano-graphy (CSIS) scheme.

3. EXISTING ENCRYPTION ALGORITHMS

The proposed work has implemented and analyzed three most efficient symmetric encryption algorithms: AES, Blowfish, and DES. The proposed work is mainly focused on the analysis of the algorithms on the basis of performance measures in cloud environment.

Data Encryption Standard

The DES was developed in the 1970s by the National Bureau of Standards (NBS) with the help of an American agency named as National Security Agency (NSA). Since DES follows a block cipher model, it encrypts data in block size of 64 bits each and produces 64 bits of cipher text[13]. As DES is a symmetric encryption algorithm it uses same algorithm and keys for encryption and decryption. DES uses a key with 56 bits length for encryption and decryption. The key originally consists of 64 bits; however, only 56 of them are actually used by the algorithm. The remaining bits are used solely for checking parity and are thereafter discarded. Hence the effective key length is 56 bits. The DES algorithm consists of 16 steps, each of which is called as a round[14]. Each round performs the steps of substitution and transposition by the operations such as Key Transformation, Expansion Permutation, S-Box Substitution, P-Box Permutation, XOR and Swap. Initially the algorithm juggles the bit positions of the original plaintext. It suggests how the transposition in IP should proceed. After IP is done the resulting 64-bit permuted block is divided into two 32-bits blocks known as Left Plain Text (LPT) and Right Plain Text (RPT). Then the 16 rounds are performed on these two blocks. At the end of the 16-rounds the final permutation is performed only once. So after 16 rounds getting a 64-bits output which is supplied to the final permutation. After performing the final permutation, only then get a cipher text and it is the actual cipher text.

Advanced Encryption Standard

AES is a symmetric key cryptographic algorithm published by NIST. The algorithm was proposed by Rijindael. It is also known as Rijindael encryption algorithm. In DES algorithm there are some weaknesses it is replaced by the AES. So AES is the perfect replacement of DES. AES works on block cipher technique. As per the principle of block cipher the plain text size and cipher text size must be same. An input key with size same as plaintext size is also required input to the AES algorithm. In AES, the data length (plaintext size) of 128, 192 and 256 bits, and supporting these different key lengths, 128, 192 and 256 bits. AES consists of multiple rounds of processing different key bits like 10 rounds for processing 128-bit keys, 12 round for processing 192 bit keys and 14 rounds for processing 256-bit keys[15]. The plain text (128-bit) converts into 4×4 matrix of bytes. Therefore, the first four bytes of a 128-bit input block occupy first column in the 4×4 matrix of bytes. The next four bytes occupy the second column, and so on. AES operates on a 4×4 column-major order matrix of bytes called as State array. For encryption, each round consists of the four steps: subBytes, shiftRows, mixColumns and AddRoundKey [16]. These steps are called as AES transformation functions. In last round mixColumn is not used.

Blowfish

Blowfish is an encryption technique that is very famous and it is one of the fast secure block ciphers not subject to any patents and hence freely available for anyone to use. In blowfish cipher to perform encryption, a block size of 64 bits is used[17]. The key size must be from 32-bits to 448-bits variable size. The number of sub keys available is 18 (P1 to P18) [18]. The algorithm needs to perform 16 rounds and number of substitution boxes is 4. Initially, the algorithm divides 64-bit input into two halves one of 32-bits Left Hand Side (LHS) and another of 32-bits Right Hand Side (RHS) and then for 16 rounds, the algorithm going to be performing XOR and Summation operations. The 32-bits LHS will be XORed with 32-bits of keys, the output of this XOR is given as the input to the function F and the output of the function F is going to be XORed with the 32-bits of the RHS. The outputs of the first XOR and second XOR are swapped. After performing the swap operation the RHS will become the new LHS which will be XORed with the new key of 32-bits and then again the result will be given as an input to function F. Now inside the function F the 32-bits are going to be divided into four parts each of 8-

bits which are given as inputs to S-boxes. The S-boxes will convert the 8-bits into 32-bits and send them for the summation and the XOR operations.

Table.1 shows the functionalities of symmetric encryption algorithms DES, AES and Blowfish. The algorithms must be analysed based on their performance and security to identify the suitable cryptographic algorithm for an application. The following subsections examine three encryption algorithms on the cloud network. Here the analysis is done with the evaluation measures such as Encryption time, Decryption time, Memory used, avalanche effect, and speeds up ratio under which the cryptosystems can compare

Table 1: Functionalities of DES, AES and Blowfish

Algorithm s	Developed	year	Key (bits)	Block (bits)	rounds	Framework
DES	IBM	1975	64	64	16	Feistel
AES	Joan Daeman and Incent Rijmen	1998	128,192 and 256	128	10, 12, 14	Substitution permutation
Blowfish	Bruce Schneier	1993	32 to 448	64	16	Feistel

4. METHODOLOGY

In this research work, the performance of three encryption algorithms, namely DES, AES, and Blowfish, have been analyzed in a cloud environment using Amazon web services. The methodology includes the following steps:

Step1: An account had created and signed up at the Amazon web service.

Step2: Then, Amazon S3 had launched, and buckets had created at the region Asia Pacific (Mumbai) ap-south-1.

Step3: The cryptography algorithms are applied to image data using Java Cryptography Extension (JCE) to get ciphers.

Step4: Ciphered image is uploaded to s3 buckets using java eclipse IDE SDK.

Step5: Three encryption methods AES, DES, and Blowfish, are compared based on encryption time, decryption time, throughput, avalanche effect, and memory consumption. The algorithms were evaluated in a cloud environment using different sizes of image data. The design of proposed work for image data security at Amazon S3 is given in the Fig 1.

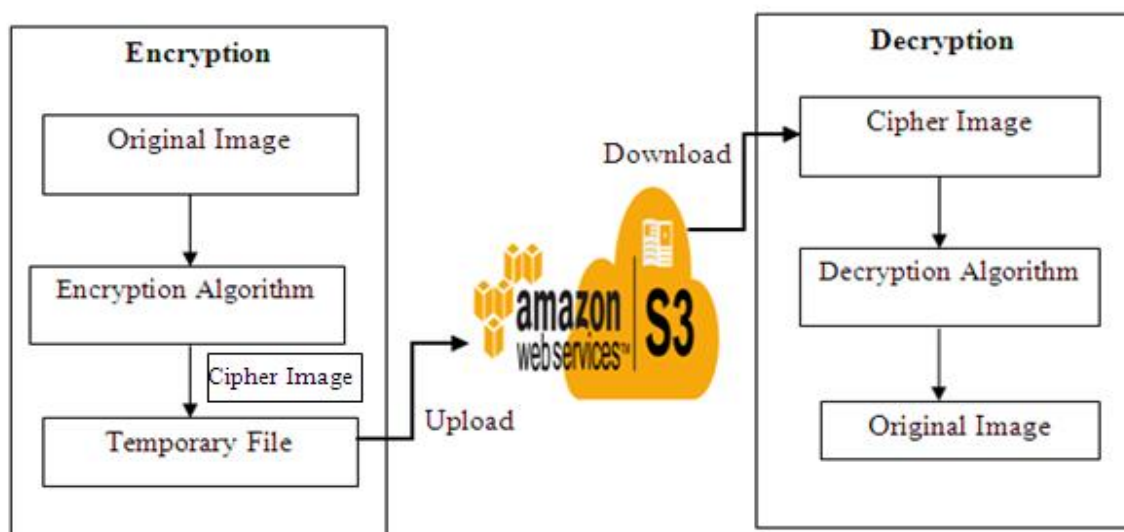


Fig 1: design of proposed work for image data security at Amazon S3

4. EXPERIMENT

The methodology's steps were implemented on laptop (Intel(R) Core (TM) 2.40 GHz CPU, 4.00 GB RAM and 64-bit operating system, x64-based processor) using java language and in cloud computing, Amazon S3 buckets

at the region Asia Pacific (Mumbai) ap-south-1. The proposed work has used different sizes of png images to evaluate the performance of encryption algorithms. First, an image is encrypted using the encryption algorithms DES, AES, and Blowfish one by one and produced three ciphers. The data can be uploaded to Amazon s3 only in the form of files. So before uploaded to s3, the cipher image should be put into a Temporary file. This temporary file containing a cipher image is uploaded to Amazon S3 buckets at the Asia Pacific (Mumbai) ap-south-1. The temporary file is deleted automatically on exit. The encryption time and memory consumption of each algorithm was calculated. At the decryption phase, the cipher image is downloaded from the S3 bucket. It then is decrypted using each algorithm and then calculated the decryption time and memory consumption of each algorithm for decryption. Then the avalanche effect of the three algorithms is calculated as follows. First, some bits in the key for each algorithm were changed, and then using the altered key, steps 3 and 4 in the methodology were repeated for each algorithm. Then new cipher data and original cipher data were compared. Then the percentage of difference was calculated.

5. RESULTS AND DISCUSSION

The experimental results are given at Table 2 and 3 in terms of Encryption Time and Decryption Time for three encryption algorithms at Amazon s3 environment.

Table 2: Encryption Time for Algorithms in S3 cloud

S3 cloud	Encryption Time(S)								
Algorithm Size(MB)	0.098	0.197	0.356	1.01	2.97	5	9.98	20.1	31.3
DES	1.06	1.26	1.58	5.68	7.06	10.62	19.68	37.49	58.12
AES	1.25	1.15	1.56	3.51	6.95	10.42	19.36	37.14	56.57
BLOWFISH	1.04	1.14	1.36	3.50	6.81	10.67	19.44	37.52	57.17

Table 3: Decryption Time for Algorithms in S3 cloud

S3 cloud	Decryption Time(S)								
Algorithm Size(MB)	0.098	0.197	0.356	1.01	2.97	5	9.98	20.01	31.3
DES	0.92	1.23	1.51	2.86	6.79	9.81	18.81	37.12	57.29
AES	0.92	1.16	1.44	2.58	6.07	9.84	18.70	36.89	56.25
BLOWFISH	0.95	1.12	1.49	2.60	6.14	9.83	18.77	36.87	56.79

To show a clear view of the result, three encryption algorithms are compared based on Encryption Time, Decryption Time, and each algorithm's throughput. The Fig.2 and Fig.3 show the comparison of the encryption algorithms based on Encryption time and Decryption time for image data at the Amazon S3 cloud environment. The Figures 2 and 3 reveal that the algorithm AES is consuming less time for encryption than the other two algorithms. However, in decryption, both AES and Blowfish algorithms consume almost the same amount of time for execution. However, in both cases, the algorithm DES has the highest time for execution with lower-size inputs to higher-sized inputs. Table 4 shows the throughput of each algorithm for encryption and decryption of image data. Throughput of an algorithm is calculated by dividing the average input image size by average execution time.

$$\text{Throughput} = \frac{\text{Average size}}{\text{AverageTime}} \quad (1)$$

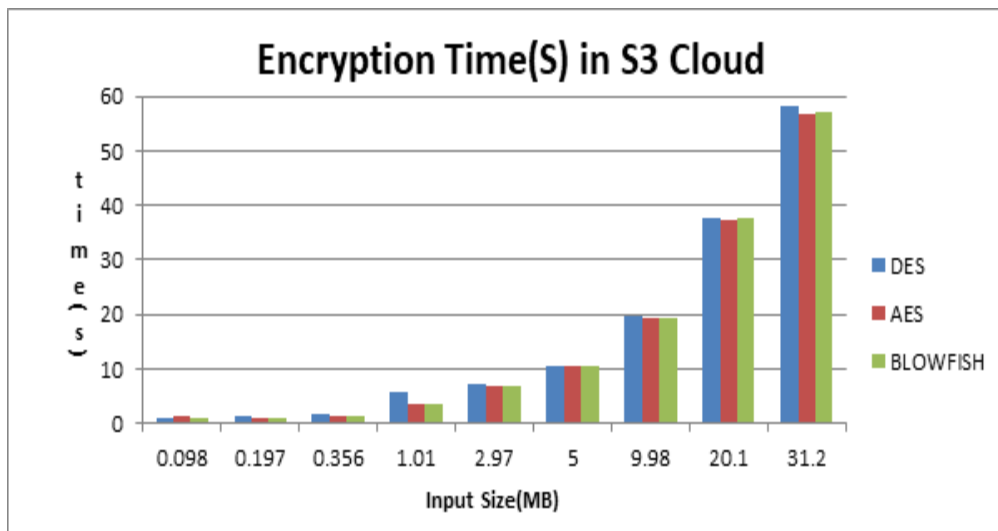


Fig 2: Comparison of DES, AES & Blowfish on Amazon S3 based on Encryption Time

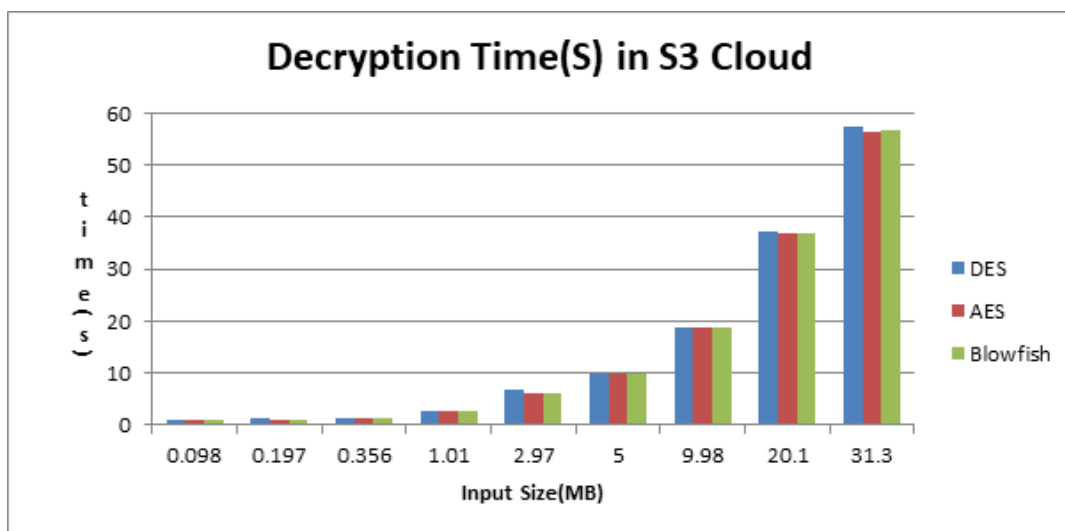


Fig 3: Comparison of DES, AES & Blowfish on Amazon S3 based on Decryption Time

The Table.4 reveals that the algorithm AES has the highest throughput rate at the encryption and decryption process. The highest throughput means that AES is the fastest algorithm for encrypting and decrypting image data in a cloud environment than other algorithms.

Table 4: Throughput for Algorithms in S3 cloud

S3 cloud	Aprx.Throughput (KB/S)	
Algorithms	Encryption	Decryption
DES	510	533.34
AES	527.27	543.24
BLOWFISH	524.45	540.39

Besides, the memory consumption of each algorithm for different input sizes is also taken for analysis. Table 5 shows the memory consumption of each algorithm with different sizes of image data. Three algorithms in s3 cloud are compared based on the memory consumption as shown in figure. 4. The figure reveals that, memory consumption of three algorithms are almost same. But while scrutinizing the figure, the findings resulted that the algorithm blowfish has less memory consumption as compared to other algorithm. Finally, the strengths of the three algorithms were evaluated and analyzed based on the avalanche effect. The Avalanche effect is a very desirable effect of the encryption algorithm. The effect basically means if make small change in the plaintext there is a significant large change in the cipher text or the plain text remaining same if there is slight change in the key then there is a significant change in cipher text. It is required to have a strong cipher.

$$\text{Avalanche Effect, } AE = \frac{C_n}{CN} \quad (2)$$

Where C_n is the number of changed bits in the cipher image and CN is the total number of bits in the cipher image. Table 6 shows the average avalanche effect of the algorithms DES, AES, and Blowfish for different image sizes.

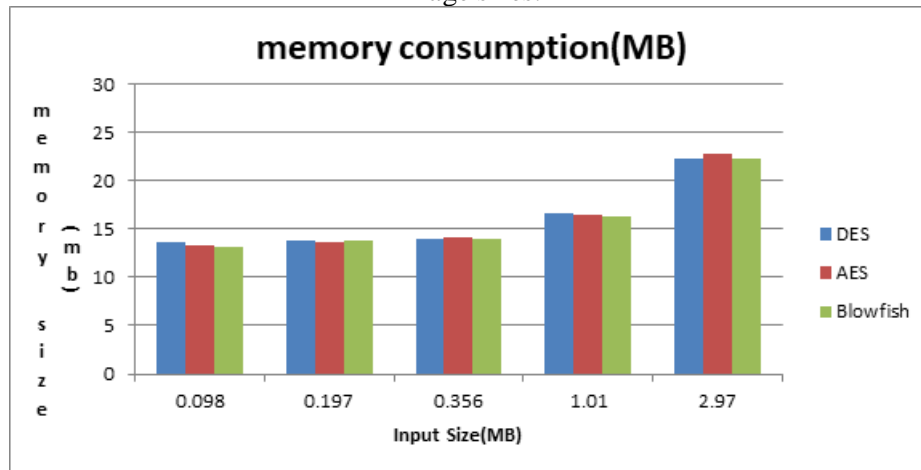


Fig 4: Comparison of DES, AES & Blowfish on Amazon S3 based on Memory consumption

Table 6: Avalanche effect of encryption algorithms

Algorithms	Average avalanche effect (%)
DES	50
AES	75
BLOWFISH	70

Three algorithms are compared based on the avalanche effects, as shown in the Fig 5. The figure reveals that the AES algorithm has the highest avalanche effect. The Blowfish also has a good avalanche effect. However, the DES algorithm shows the lowest avalanche effect.

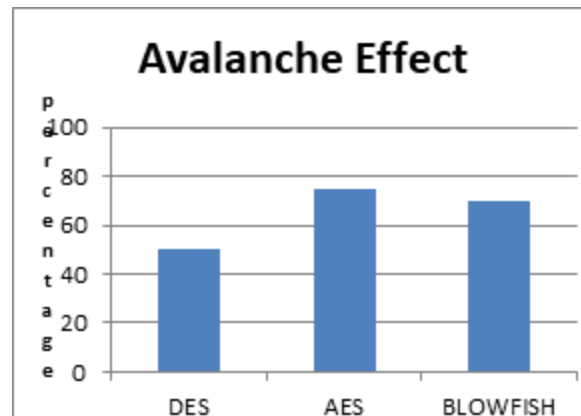


Fig 5: Comparison of algorithms on Amazon S3 based on Avalanche effect

5. CONCLUSION

In this paper, three algorithms' performance in a cloud environment analyzed to an extent. This research concludes that in image cryptography in the cloud environment, the whole selected algorithms do not significantly differ in performance on the measures encryption time, decryption time, and throughput used in the experiment. However, while scrutinizing the results and comparisons, the AES algorithm slightly performs better than other algorithms based on encryption time, decryption time, and throughput. The throughput shows the speed of the algorithm. The performance analysis reveals that compared to DES and Blowfish algorithms, the AES algorithm has the fastest execution speed. Even though AES is fast in execution, the Blowfish algorithm keeps its stability in memory consumption. Compared to AES, the Blowfish has less memory consumption rate with different sizes of inputs. AES has the highest avalanche effect, which means AES is more secure than other algorithms. So the AES can be used for encrypting the data, which needs a higher level

of security and privacy. The Blowfish algorithm also shows a good avalanche effect. However, the avalanche effects of DES show that it is a low secured algorithm.

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PERCEPTION OF SLUM PARENTS WHO BENEFITED FROM THE TAMIL NADU SLUM CLEARANCE BOARD REGARDING FREE ONLINE EDUCATION FOR THEIR CHILDREN DURING THE COVID-19 PANDEMIC

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ABSTRACT

Free online educations are a must during the COVID-19 pandemic period. The present study investigates the slum parents' perception of free online education through Driver Factors, Complacency Factors, and Hurdle Factors. From the 300 Tamilnadu primaries, secondary and higher secondary school students' parents are select as the study sample by adopting a simple random sampling method. The study sample was collect from the slum parents who benefited from the Tamilnadu slum clearance board. The investigators identified 99% of slum parents were preparing to admit their children to government schools during the pilot study. Hence, the findings show that parents were overall disappointed with OER utilization during the pandemic. Parents claim that; insufficient ICT resources and lack of modern technology skills become the significant hurdles for open educational practices.

Keywords: COVID-19, Creative Commons, Open Educational Resources, Open Educational Practices, Parents' Perception

INTRODUCTION

The outbreak of the global pandemic COVID-19 brought many changes worldwide, and because of this, under complete lockdown in March 2020. The COVID-19 pandemic did not allow traditional learning, but the only chaise is the online teaching-learning process. Traditionally, learning materials published under copyright and their use require either payment or permission of the copyright holder. OER are learning materials that are openly licensed, which means the copyright holder has published the material on the Internet under a Creative Commons (CC) license that allows others to 5Rs (retain, reuse, revise, remix, and redistribute) materials. The COVID-19 has influenced the economy, agriculture, manufacturing, tourism, and education, among other things. Furthermore, the pandemic creates a new challenge for many countries in administering the education sector[1]. School closure is one method of reducing social interaction among children, which can aid in the prevention of viral transmission. The COVID-19 has influenced the fundamental level of the school system. Aside from that, educational institutions should provide students' needs for participation in learning by providing management, procedures, techniques, curriculum, and sources. The Indian government temporarily stopped conventional schooling in favor of online education as one of the countries affected by the COVID-19 outbreak. E-Learning has been chosen as one of the instruments to aid in the learning process during the COVID-19 epidemic. However, due to a lack of resources, skills, and expertise, E-Learning is rarely conducted correctly, and many institutions are not equipped for online learning. Aside from that, parents play an essential role in their children's use of E-Learning[2][3]. The positive approach of parents toward E-Learning (e.g., understanding, support, and monitoring) enhances pupils' learning process. Free online education refers to the use of the Internet to facilitate classroom communications free of cost[4]. Teachers using the Internet can utilize such tools as asynchronous discussions, real-time chat, online testing, and document sharing. These Internet tools may sometimes refer to as Web-based or Web-supported technology[2]. Free online education may enhance the educational experience through computer-communications technology, but face-to-face expertise is still required. Furthermore, many parents in India are protesting the online learning strategy during the COVID-19 epidemic, according to the Indian Ministry of Higher Education. Parents pushed for complete control over their children rather than traditional learning. As a result, it is critical to identify the parents' role when their children utilize e-Learning during COVID-19[4]. The purpose of this non-experimental quantitative descriptive survey is to gather the needed data reflecting the slum parents' perceptions of free online education in Tamilnadu schools. The current study addressed the following questions:

Q1: What is slumparents' perception of free online education in Tamilnadu Schools?

Q2: Are there any significant differences in the slum parents"" perception of free online education in Tamilnadu between primary, secondary and higher secondary schools?

Q3:How can free online education improve the quality of students learning according to parents"" perception?

LITERATURE REVIEW (Table 1. Recent related literature review)

Author	Objectives	Methodology		Findings and Future Studies
		Sample Size/ Respondent	Design/ Tool	
Daniel Tan Lei Shek et al., (2018)	This study looked at how parental behavioural control, parental psychological control, and parent-child relationship characteristics influenced teenage internet addiction's initial degree and pace of growth.	Beginning with the 2009 - 10 academic year, 3,328 Grade 7 pupils (Mage = 12.59 0.74 years) from 28 China secondary schools were randomly selected.	Initially, reliability, descriptive, and correlational analyses were carried out.	The findings provide light on the many effects of fathering and mothering that have been overlooked in the scholarly literature[5].
Asma Khaleel Abdallah (2018)	The study's goal is to look at parents' understanding and perceptions of supporting, promoting, and implementing e-learning initiatives.	The core data was derived from the responses of 1520 parents.	The scale was re-tested with (175) parents two weeks following the initial test. Using the Spearman-Brown formula = (0.9)	According to the findings, parents are somewhat happy with instructor computer competency but extremely satisfied with student computer competence[6].
Nahed F. Abdel-Maksoud (2019)	Factors Influencing MOOC Adoption in the Arab World: Investigating Learners' Perspectives on MOOC Drivers and Barriers.	Respondents in this study were 821 students enrolled in one or more of the Rwaq platform's courses.	Participants were recruited to complete a web-based survey designed by the researcher.	According to the findings, participants were generally pleased with their MOOC experience[7].
Jennifer Van Allen et al., (2020)	This article seeks to promote awareness of open educational resources (OER).	Both PK-12 and higher education situations are addressed.	Using a broad research foundation and personal experiences, the authors argue that OER.	The authors identify and discuss the benefits of OER in order to give practical recommendations that educators may use throughout the epidemic and beyond[8].
Andre Hasudun ganLubis et al.,(2020)	Parental attitudes about e-learning during the covid-19 epidemic in Indonesia	A total of 257 participants were surveyed on this problem.	A web-based questionnaire and the descriptive and inferential statistics are utilized for the study.	According to the data, participants were largely dissatisfied with the implementation of E-Learning during the pandemic[9].
Khusni Syauqiet al., (2020)	Students' views about vocational education and online learning were studied during the COVID-19 pandemic.	A selection of 56 Mechanical Engineering Education techniques and data students	This study employed survey methodologies and data collecting instruments using a Likert	According to the findings of this study, teachers' management of online learning is not in accordance with student expectations. Students believe that online learning has not improved

			scale.	their learning experience[10].
Neena Vyas et al., (2021)	During COVID 19 pandemic crisis the management of resources is a serious concern.	The sample was selected randomly. Thus, the total sample constituted of 107 respondents for the survey.	A survey method that included the study area.	The management of resources is a major problem during the COVID 19 pandemic scenario[11].
Abdelsalam M. Maatuk et al., (2021)	This research focuses on adopting and implementing e-learning systems at a public institution during the COVID-19 period.	The study is aimed at the society, which includes students and teachers from the University of Benghazi's faculty.	The descriptive-analytical technique was used, and the data were statistically evaluated.	The teaching staffs feel that e-learning is beneficial, with one of the most important benefits being the development of pupils' technology abilities[12].
Casper Boongaling Agaton et al., (2021)	During the health crisis, this study investigated the lived experiences of parents who served as learning supervisors, tutors, and home-schooling teachers for modular learning.	This research includes 30 parents and guardians of learners from the Philippines as participants.	Inductive Content Analysis was used in this study, which polled parents in the Philippines.	The findings revealed agreement on the success of the established educational measures to limit the epidemic, including countrywide school closures, postponing class reopening, and using multiple teaching modalities[13].

According to this related literature review, the investigators find the current research gap is free online education in the COVID-19 pandemic situation[14][15]. A particularly free online education for slum students is a minimum number of articles only available. The related literature review is seen in Table 1. Then the researcher chooses the current research gap as "Perception of Slum Parents Who Benefited from the Tamil Nadu Slum Clearance Board Regarding Free Online Education for their Children during the Covid-19(SARS-CoV-2) Pandemic." To find out the slum parents perception of free online education through the related literature reviews. The recent literature studies formed a tool with help of the certain factors. The factors are: students computer competence factors, teacher computer competence factor, quality of teaching and learning factor, curriculum factor, school environment factor, students' personal development factor, Learning Process implement factor(Driver), Positive attitude factor(Complacency), and Hurdles factor(Technical and practical issues related).The investigators choose the adopted factors in literature review for this study.

METHODOLOGY

The present study aims at the slum parents' perception of free online education. This study also attempts to determine the student's level of free online education through appropriate methodological and statistical procedures. The present study has employed a "questionnaire" as a tool of the present study developed by Andre HasudunganLubis and ZulkarnainLubis, (2020), Abdel-Maksoud, (2019) and Abdallah, (2018) by the investigator through the systematic and comprehensive procedure in the research design see Fig. 2. The questionnaire consists of 21 items with the following factors: Driver, Complacency, and hurdle. The driver factor has nine statements, the complacency factor contains six statements, and the hurdles factor contains six statements on a five-point scale. A Likert scale of 1 to 5 was applied with response options as strongly disagree, disagree, neutral, agree, and strongly agree. The validity, reliability, and development procedure of the tool are as follows.

The questionnaire was developed for the study in various phases. The items are designed and presented to give scope to the respondents to share their views. A fifty-five research slum parents are interviewed for developing tools for free online education. Based on their views and opinions and based on the collected information from different sources. The investigator initially developed 21 items for the tool. A pilot study is often suggested that before a questionnaire is finalized. The investigator conducted a pilot study in The investigator conducted a

pilot study in Schwartz Higher Secondary School, Ramanathapuram, and collected slum parents' responses on free online education[16]. Their responses are used to determine the need to restrict the questionnaire, resequencing the questions, addition, deleting questions, giving more instruction for filling up, etc. Further, the pilot study will highlight the questionnaire response's weaknesses, and necessary modification is changed. The investigator used the split-half method. The investigator split the odd items and even items. The investigators identified during the pilot study 99% of slum parents prepared to admit their children to government schools. The investigator summed the scores of all the 21 items. Table .2 shows the finalized 21 items.

Table 2. List of items in Questionnaire, Correlation and Coefficients between every Item

Variables & Code	Questions	Coefficient Correlation	p-value
Driver Factor	D ₁ Even if the learning process is carried out via free online education, I believe my child can understand the educational content.	0.74	0.00
	D ₂ When my child learns through free online education, he or she is happy.	0.75	0.00
	D ₃ While using free online education, my child may quickly access learning resources.	0.75	0.00
	D ₄ By utilizing free online education, my child can still focus while learning.	0.82	0.00
	D ₅ My child can improve his or her computer skills by taking advantage of free online education.	0.68	0.00
	D ₆ My children's communication skills can benefit from free online education.	0.71	0.00
	D ₇ My child's study routine may be managed with the guidance of free online education.	0.75	0.00
	D ₈ During the COVID-19 pandemic, free online education is more useful.	0.88	0.00
	D ₉ For my child, free online education is more useful than formal education.	0.69	0.00
Complacency Factors	C ₁ My children's personal growth is being assisted by learning via free online education.	0.79	0.00
	C ₂ My child's skills can be developed through free online education.	0.82	0.00
	C ₃ When my child is involved in free online education, I am always at comfortable.	0.85	0.00
	C ₄ This is a free online education that I would suggest to others.	0.87	0.00
	C ₅ During the COVID-19 pandemic, my children were able to more easily study free online education.	0.86	0.00
	C ₆ In generally, I am happy with my children's free online education.	0.89	0.00
Hurdle Factors	H ₁ The lack of a child's ability to use various types of technology is a barrier for him/her to use free online education.	0.65	0.00
	H ₂ The lack of technological resources is a barrier for my child to utilize free online education.	0.80	0.00
	H ₃ The Internet connection is a barrier for my child to use free online education.	0.83	0.00
	H ₄ The limitations of the electricity are also a barrier for my child to use free online education.	0.83	0.00
	H ₅ Mychild struggled to learn through free online education during COVID-19 situation.	0.81	0.00
	H ₆ The absence of a teacher is a hurdle for my child to use free online education.	0.59	0.00

The Pearson Correlation was used to assess the validity of the instrument by finding the value correlation coefficient between each item and the overall item. The correlation coefficients varied from 0.59 to 0.89, and they were all statistically significant at the 0.00 level. The survey items' validity is shown in Table.2. All of the items have excellent validity and a significant level. The following formula is used to determine the reliability value: (Olivares & Castillo, 2018). Furthermore, the study utilizes Cronbach Alpha (α) scores for each item to assess the instrument's reliability. If the value obtained is between 0.80 and less than 0.90, the instrument may be considered as having very good reliability. If the value obtained is between 0.80 and less than 0.90, the

instrument can be considered as having good reliability. Though the value of alpha (α) is between 0.60 and 0.70, the instrument can still be utilised even if its reliability is low; however, if it is less than 0.60, the instrument is called a unacceptable instrument (Hair Jr et al., 2016). Table 3 displays the testing instrument's reliability assessment.

Table 3. Reliability Test

Variables	Items	Cronbach's Alpha (α)
Driver	9	0.88
Complacency	6	0.89
Hurdle	6	0.79
Survey	21	0.89

Table 3. shows that the Driver variable has an alpha (α) value of 0.88, indicating that it has excellent reliability. Similarly, the Complacency variable has a high level of reliability, with an alpha (α) of 0.89. The Hurdle variable, on the other hand, has a high level of reliability, with an alpha (α) value of 0.79. Furthermore, the survey's reliability test yielded a high degree of dependability ($\alpha > 0.80$), with a result of 0.89. The correlation coefficient value is $r = 2r/(1 + r)$, $r = 0.89$. The investigator visited the 20 districts randomly in Tamil Nadu and obtained prior permission from the authorities for collecting required data from the slum parents. The orientation was administrated to the parents about half an hour the objectives of the study. After the orientation, the questionnaire is given to the respondent to be filled up. Then the answer scripts are collected[17]. The same work is followed in all districts. Thus, the data is collected in 323 sample research scholars from the selected departments in state universities of Tamilnadu. Then completely response 300 samples are included and excluded the 23 incomplete samples. The present study population is the "slum parents from different districts in Tamilnadu." "Sampling method is the methods of selecting a sample from the population." Simple random sampling is the technique that selects a sample from the population (Tella, 2018). Simple random sampling was adopted for the selection of the sample of the present study. From the 300 slum parents of Tamilnadu are selected as the study sample by adopting a simple random sampling method.

RESULTS

i) Driver Factor

Initially, the study analyses the descriptive statistic of the Driver factor with a total of 9 statement of the questions. Table.4 shows respondents' responses to each item of this variable.

Table 4. Driver Factor in using free online education.

Items Code	Respondents' Responses					Mean (M)
	Strongly Unsatisfied	Unsatisfied	Neutral	Satisfied	Strongly Satisfied	
D ₁	14	62	83	82	16	3.1
D ₂	21	73	88	59	16	2.9
D ₃	14	69	67	79	28	3.1
D ₄	27	91	60	62	17	2.8
D ₅	14	36	70	95	42	3.4
D ₆	28	70	70	73	16	2.9
D ₇	24	65	69	75	24	3.0
D ₈	14	36	70	95	42	3.4
D ₉	86	99	53	13	6	2.0
Total						2.9

Table 6 shows that item D₁ has an average mean score as much as 3.1. The majority of parents claimed that students are able to accept the learning material even the learning process is conducted by using free online education. Then, item D₂ has a low mean score (2.9). Most parents are stated that their children were feeling unhappy while using free online education. Item D₃ has a high mean score with a value of 3.1. Despite students are feeling unhappy in using free online education[18], they were easy to get the learning resources from that technology. Similar to item D₂, item D₄ also has a low mean score (2.8). Respondents mostly disagree that the students are able to concentrate while learning through online education. In other words, traditional learning gives a better opportunity for students to be more concentrate in learning rather than using free online education. Meanwhile, item D₅ has the highest mean score with a value of 3.4. Parents are agreed that free online education helps their children to improve their technological skills. Item D₆ has a similar mean score with item D₂ as much as 2.9. Most respondents were expressed the average answer from the question. Hence,

students' communication skill is not overmuch improved while using free online education. Furthermore, item D₇ has a modest mean score with a value of 3.0. Thus, free online education is not very influential to arrange students' learning schedules. Meanwhile, item D₅ has the highest mean score with a value of 3.4. Parents are agreed that free online education is more useful during COVID-19 pandemic. Item D₉ has the lowest mean score with a value of 2.0. Parents are claimed that traditional learning is more beneficial than free online education. Lastly, the overall mean score of the Driver variable is 2.9. Therefore, it can be concluded that parents are resistant to free online education. Respondents agreed that free online education is only helping the students to increase the technological skill. On the learning process aspect, parents stated that free online education is not really boosting the students' performance.

ii) Complacency Factor

The study then analyzes the descriptive statistic of the complacency factor with a total of 6 questions. Table 5 shows respondents' responses to each item of this variable.

Table 5. Complacency factor in using E-learning.

Items Code	Respondents' Responses					Mean (M)
	Strongly Unsatisfied	Unsatisfied	Neutral	Satisfied	Strongly Satisfied	
C ₁	30	91	79	49	8	2.7
C ₂	25	63	76	82	11	2.9
C ₃	26	64	76	72	19	2.9
C ₄	33	71	88	79	16	2.8
C ₅	25	63	76	82	11	2.9
C ₆	30	72	90	51	14	2.8
Total						2.8

Based on Table 5, item C₁ has the lowest mean score (2.7). Most parents said that students' personal development cannot be improved by using free online education. Then, the mean score of item C₂ is also classified as a low rank with a value of 2.9. Despite free online education is able to improve the students' technological skill, their general skills is unable to be upgraded. Parents are assumed that formal learning in the classroom general is the right place to enlarge skill for their children. Similar to item C₂, item C₃ has a low mean score with a value of 2.9. The majority of respondents were feeling uncomfortable while their children are using free online education rather than traditional learning in school. Item C₅ has a low mean score with a value of 2.9. The majority of respondents were feeling uncomfortable while their children can't able to easily study during the COVID-19 pandemic. Moreover, item C₄ and item C₆ have an equal mean score, namely 2.8 and 2.8. Parents were not recommending free online education to others to use to replace traditional learning, and they also dissatisfied with free online education. The overall mean score of the complacency variable is at 2.8. Thus, the result pointed out that parents are feeling dissatisfied while their children using free online education as a replacement for formal learning.

iii) Hurdle Factor

The last step in this study is to analyze the descriptive statistic of the hurdle factor with a total of 6 questions. Table 6 shows respondents' responses to each item of this variable.

Table 6. Hurdle factor in using free online education.

Items Code	Respondents' Responses					Mean (M)
	Strongly Unsatisfied	Unsatisfied	Neutral	Satisfied	Strongly Satisfied	
H ₁	9	38	55	104	51	3.6
H ₂	14	26	33	94	90	3.9
H ₃	14	19	31	78	115	4.0
H ₄	17	26	42	77	95	3.8
H ₅	14	26	33	94	90	3.9
H ₆	8	21	47	83	98	3.9
Total						3.8

According to Table 6, item H₁ has the mean value of 3.6 and the lowest score among hurdle factor instruments. However, it also said that students' failure to use technology is a major hurdle to using free online education. Despite the fact that item D₅ states that free online education is a technical skill enhancer[19], parents are concerned that free online education cannot function correctly without ICT literacy. Then, item H₂ has the mean

score as much as 3.9 and shows that parents are considered the pros and cons of free online education regarding the ownership of the digital devices. Respondents claimed that the lack of digital devices (cell phones, smart phones, laptops, tablets, etc.) is a barrier for students to use free online education[20]. Item H₃ has the highest mean score with a value of 4.0. Most of the respondents strongly agreed that the main problem for the free online education implementation is the Internet connection. Furthermore, item H₄ has the mean score as much as 3.8 and indicates that the limitations of the electricity also a significant issue besides the Internet connection. The majority of parents claimed that power outage is recently occurred and causing the learning process interrupted. Then, item H₅ has the mean score as much as 3.9 and shows that parents are said that child struggled to learn free online education during COVID-19 situation[21]. In line with this, item H₆ also has a high mean score with a value of 3.9. Thus, it explains that the availability of a mentor/instructor is crucial. Parents are agreed that the learning process is running optimally with guidance from the teacher physically not in a cyber-manner. The overall mean score of the hurdle factor is at 3.8 and shows the anxiety of parents for the free online education usage to their children.

DISCUSSIONS

According to the study's findings, slum parents are concerned about their children's use of free online education as a substitute for conventional schooling during the COVID-19 epidemic. Although parents believe that free online education offers the advantages of improving their children's technical skills and making learning resources more accessible, online education also has downsides in the overall learning process. They argued that online education is inadequate in organizing students' learning schedules, supporting their emotions[22], delivering learning content, and assisting students in concentrating on learning. Furthermore, they stated that conventional learning is more valuable than free internet education. On the other hand, blended learning is a viable alternative for delivering flexible and scalable learning to students. A combo of traditional education with free online education is an excellent approach to increase students' performance through free online education[23]. There are several advantages to free online education, including the capacity to record lectures, readily available learning information, quick lesson delivery, high consistency, and scalability.

Nonetheless, during the COVID-19 epidemic, kids favour conventional schooling. Students reported that a shared classroom learning technique is more authentic and actively engages with teachers and peers. The study provides an unexpected finding of parents' satisfaction with free online education during the COVID-19 epidemic. According to parents, internet education has little ability to promote kids' personal growth or general skill. Similarly, parents feel that studying through free online education cannot drive them to encourage their children to continue utilizing it. They are uneasy about their children's use of internet education rather than regular school learning. As a result, they would not suggest online education to others as a replacement for traditional knowledge. Parents are disappointed with their children's use of online education as a substitute for conventional schooling. The study also states some hurdles to adopting free online education during the COVID-19 epidemic, notably the capacity to utilize technology, ownership of digital equipment, bad Internet connection, energy issues, and the unavailability of a mentor/instructor[24]. Parents agree that free online education is more useful during the COVID-19 pandemic. Many researchers asserted that ICT literacy has a significant impact on how this technology use. As a result, it is critical to improving students' ICT literacy to make good use of free online education. By this, student ownership of electronic devices is also essential to the successful operation of free online education. According to the Indian Minister of Education, India has an unequal distribution of technology, including ownership of cellular communication equipment. Inequality may also be seen in the internet connection. During the COVID-19 epidemic, the most significant obstacle to free online education utilization is a lack of an Internet connection. As a result, a sufficient ICT infrastructure is necessary to better the implementation of free online education. Indian government recommended some primary open educational resources website for developing the teaching-learning process in the COVID-19 situation[25].

CONCLUSION AND RECOMMENDATIONS

During the COVID-19 era, free online education has been a prominent component for educational institutions. Despite its benefits for pupils, there are numerous flaws in adopting free online education in Tamilnadu government schools, particularly from parents' standpoint. As a result, it is critical to improving students' ICT literacy to make good use of free online education. During this epidemic, parents are dissatisfied with the substitution of OER-Learning for their children. They asserted that conventional learning in a real classroom is more successful than cyberlearning. Parents said that free online education is more useful during the COVID-19 pandemic. However, because of the pandemic scenario, typical learning cannot take place. Many studies have projected the end of the COVID 19 pandemic in all nations, including Indonesia, using various techniques, but

it has yet to find the point. As a result, the Tamilnadu government should be concerned about this issue due to the education sector's importance, among others.

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DEVELOPMENT AND VALIDATION OF SENSITIVE HPLC METHOD FOR ESTIMATION OF IMATINIB MESYLATE IN ITS PHARMACEUTICAL DOSAGE FORM**S. N. Meyyanathan^{1*}, Sudarvizhi.T² and M. Kalaivani³**^{1,2}Department of Pharmaceutical Analysis, JSS College of Pharmacy, JSS Academy of Higher Education & Research, Ooty-643001, The Nilgiris, Tamil Nadu, India³Indian Pharmacopoeia Commission, New Delhi**ABSTRACT -**

A new simple, accurate and precise HPLC method has been developed and validated for estimation of Imatinib mesylate in its pharmaceutical dosage form. In RP-HPLC method, a C₁₈ column and methanol: acetonitrile (3:2) and water in the ratio 55:45, pH adjusted to 2.5 using orthophosphoric acid were used at a flow rate of 1.0 mL/min and detected at 254 nm. The retention time for Imatinib Mesylate was found to be 6.1 min. The developed method was validated for linearity, precision, accuracy, specificity, LOD and LOQ as per ICH guidelines. Linearity was observed in the range of 5-100 µg/mL for Imatinib Mesylate and correlation coefficient was found to be 0.998. LOD and LOQ for Imatinib Mesylate were found to be 1.5 µg/mL and 5.0 µg/mL respectively. The % recovery was found to be 99.1%. The method was applied for estimation of Imatinib Mesylate in its pharmaceutical dosage form. The assay result was found to be 98.3% of percentage label claim of Imatinib Mesylate.

Keywords - Imatinib mesylate, High performance liquid chromatography, Tablets, Validation

1. INTRODUCTION

Imatinib mesylate (IMA) is a protein-tyrosine kinase inhibitor used for the treatment of patients with Philadelphia chromosome positive chronic myeloid leukemia in chronic phase. Several methods for the estimation of Imatinib mesylate have been described in the literature which include spectrophotometric method [1-4], High-Performance Liquid Chromatography (HPLC) method [5-14]. The reported methods in the literature suffered from disadvantage of poor sensitivity and the present study reports the development and validation of a liquid chromatographic method with better detection ranges in pure form and its dosage forms. The developed method was validated for linearity, precision, accuracy, specificity, LOD and LOQ as per ICH guidelines.

II. MATERIALS AND METHODS**2.1 Materials**

Methanol and Acetonitrile of HPLC grade by Sigma Aldrich, Ortho phosphoric acid and Sodium dihydrogen orthophosphate of AR grade by Rankem Fine Chemical Limited and Water from Milli-Q RO framework (Millipore, Bedford, USA) were used. Working standard of Imatinib mesylate was obtained as a gift sample from Indian Pharmacopoeia Commission (IPC), New Delhi, India.

2.2. Instrumentation

Shimadzu Prominence HPLC system LC-20 AT-VP solvent delivery system (pump) Hamilton injector with 20 µl loop SPD M-20AVP Photo Diode Array detector Lab solution CS software for data management was used. Isocratic separation was achieved using Shimpack C₁₈ (250 x 4.6 mm i.d, 5µ) as a stationary phase and the mobile phase consists of (0.5 mM) Ammonium acetate (pH 3.5): acetonitrile (30:70 V/V) with a flow of 1.0 mL/min and methanol: acetonitrile (3:2) and water in the ratio 55:45, pH adjusted to 2.5 using orthophosphoric acid were used at a flow rate of 1.0 mL/min and detected at 254 nm.

2.3. Preparation of standard solutions

IMA solution was prepared by dissolving accurately about 10 mg in mobile phase and making up the volume to 10 mL with mobile phase and this solution was refrigerated at 2-8°C. From stock solution of IMA, aliquots of 0.5, 1.5, 2.5, 5.0, 7.5, 9.0 and 10.0 mL were transferred in series of 100 mL volumetric flask and diluted up to mark with mobile phase to get the concentration range of 5, 15, 25, 50, 75, 90 and 100 µg/mL of IMA.

2.4. Preparation of sample solution

Twenty tablets of marketed formulation of IMA (GLIVEC) were weighed accurately, powdered and a weight of the powder equivalent to 100 mg of Imatinib mesylate was transferred to 100 mL volumetric flask, dissolved the contents with mobile phase and filtered. The filtered solution was made up the volume with mobile phase to obtain a concentration of 1000 µg/mL of Imatinib mesylate. The above solution was further diluted with mobile phase to achieve concentrations of 100 µg/mL.

2.5. Method Validation

Validation of the method for specificity, linearity, accuracy, precision, range, quantitation limit, and detection limit, robustness and system suitability as per the ICH guidelines,

2.5.1. Specificity

The analyte response measurement in the presence of excipients to demonstrate the specificity.

2.7.2. Linearity

The average of six determinations at seven concentration levels covering the range of 5-100 µg/mL for IMA, the evaluation of linearity was performed.

2.7.3. Accuracy

Determination of accuracy was demonstrated for standard addition method from recovery studies according to ICH guidelines. The pre-analyzed samples were spiked with standard drug IMA.

2.7.4. Precision

Evaluation of precision was carried out by inter-day and intra-day comparison study samples consisted of the concentration (six replicates) of 100 µg/mL.

2.7.5. Limit of detection (LOD) and limit of quantification (LOQ)

Determination of LOD and LOQ was assessed by the signal-to-noise ratio. LOD ratio was 3:1 whereas LOQ of the drug could be quantified with minimum peak area in the ratio of 10:1.

2.7.6. Ruggedness and Robustness

The alteration in the condition of the experiment like operators, the source of reagents, similar type column and optimized conditions like pH, mobile phase ratio and flow rate were used as assessment tool for the ruggedness and robustness monitoring.

III. RESULTS AND DISCUSSION

3.1. Specificity

No peaks were eluted along with the retention time of IMA hence, the developed method was specific for the determination of IMA in the formulation (**Figure 1**).

3.2. Linearity

The evaluation of the method to be linear was by six determinations at seven concentration levels with a range of 5-100 µg/mL for IMA (**Figure 2**).

3.3. Accuracy

The accuracy of the method was carried for the quality control samples by standard addition method, and the accuracy was found to be 99.1 % (**Table 1**).

3.4. Precision

Calculation of the method for precision was carried by the intra-day and inter-day precision studies at the concentration of 100 µg/mL and they were found to be within the limits.

3.5. Limit of detection and Limit of quantification

The lowest limit detected for the method for IMA was at 1.5 µg/mL based on the signal-to-noise ratio 3:1. Due to the increase in the sensitivity of the method, quantification was done at 5 µg/mL for DLP.

3.6. Ruggedness and Robustness

When alteration in the condition of experiment was done, no notable changes in the parameters of chromatograph were observed, proving that the developed method was found to be highly rugged and robust.

3.7. Assay

Estimation of Imatinib mesylate in dosage forms by HPLC method was carried out using the optimized chromatographic conditions. The sample solution was prepared and the chromatogram was recorded.

The percentage of the drug found in formulation, standard deviation was calculated and presented in **Table 2**. The result of analysis shows that the amount of drug was in good agreement with the label claim of the formulation.

IV. CONCLUSION

An accurate, precise, rapid, selective and cost-effective method has been established for the quantitative estimation of selected drug in commercial formulation by HPLC. The developed and validated method is suitable for the analysis of IMA in commercial formulations.

CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest

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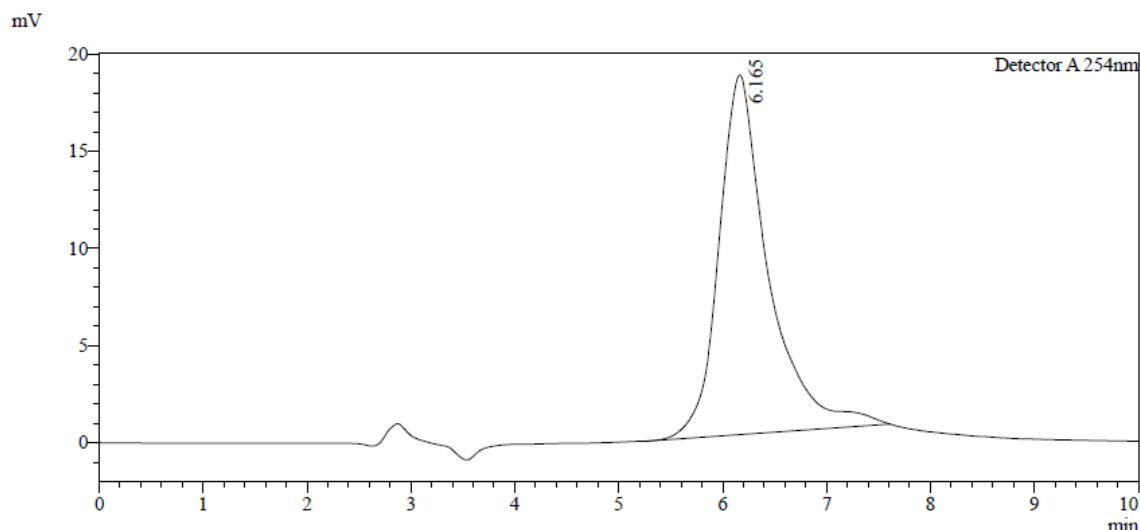


Figure 1 HPLC chromatogram of Imatinib mesylate standard

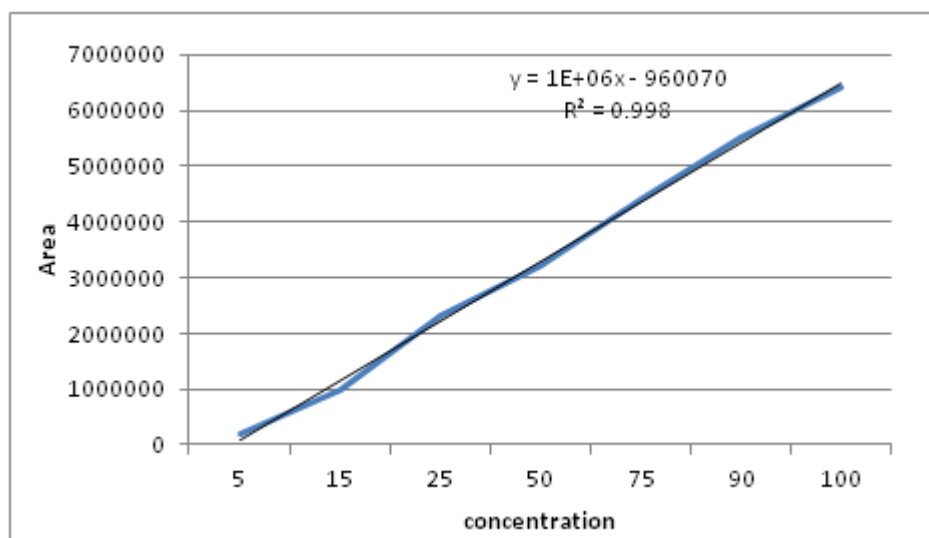


Figure 2 Calibration curve of Imatinib mesylate

Table 1. Accuracy and Precision studies of Imatinib mesylate

Sample ($\mu\text{g/ml}$)	Amount found ($\mu\text{g/ml}$) \pm SD*	Intra day		Inter day	
		Accuracy	Precision (% RSD) **	Accuracy	Precision (% RSD) **
100	98.9 \pm 1.76	98.7	1.97	99.1	2.00

*SD: Standard Deviation

**RSD: Relative Standard Deviation.

Table 2. Assay and recovery studies for Imatinib mesylate formulation

Formulation	Label claim	Amount taken for assay($\mu\text{g/ml}$)	Amount found \pm SD (N=6)	Found mg/cap	Recovery %
S ₁	100 mg	100	99.2 \pm 1.79	98.3	99.1

*S₁: Imatinib mesylate Tablet from market

TRUSTWORTHINESS PROGRAMS OF CUSTOMERS IN TELECOM INDUSTRY

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This study is carried out to assess the customer trust worthiness programs of telecom companies in India. Responses were collected from telecom subscribers of select companies namely, Airtel, Vodafone, BSNL and Reliance, based on the active subscriber base and responses were collected from the subscribers of the said four telecom companies in India. The estimation of hypothesis is done and confirmed by using the statistical tools such as Validity and Reliability, Confirmatory Factor Analysis, and Multiple Linear Regression.

From the study it is found that, customer value, customer satisfaction, perceived quality, customer service, customer relationship management and price are the factors impact on customer trust worthiness. Customer awareness about SMS, 'Call rate cutter' and full balance loyalty programs is good among the customers of all the four brands in India, whereas the awareness about internet loyalty programs (3G and 4G) is poor. When it comes to usage of loyalty programs, SMS loyalty programs and full balance loyalty programs are used by good number of customers of all the brands, but the usage of internet and call rate cutter loyalty programs is less due to poor awareness and mismatch of its benefits with customer needs. However, most of the customers of Reliance are using internet loyalty programs. Majority of the customers of Airtel and Vodafone are not using customer trust worthiness programs as they are costlier than other brands.

Key words: Trust Worthiness Programs, Customer Service, Customer Relationship Management, Perceived Quality, Customer Value.

INTRODUCTION

As companies start working to come out of tough times and work for getting more sales, one aspect is always prioritized: acquiring new customers to maximize the market share. Gaining new customers means gaining new sales. Companies need to be clear about their objectives on whether they need more market share or more profits. Therefore, companies wanted customers to purchase repeatedly from them, which mean they wanted customers to be loyal. But according to the book "managing the customer experience", in order to make customers loyal to the company, first, company must be loyal to the customers. This mean, loyalty can be earned by paying the customers that extra benefit which makes them happy.

Companies can gain loyalty by way of developing and implementing various customer trust worthiness tools like relationship marketing, sales promotions etc. One such very important tool is to develop customer trust worthiness programs . A customer loyalty program does not mean to offer the product or service to customer at a lowest price. But, what if your competitors also follow the same low pricing strategy? Once the competitor follows the same rule, immediately those loyal customers will start purchasing from someone else that provide similar or better benefit. Therefore, customer trust worthiness programs must be viewed either as relationship based or transaction based. The real trust worthiness programs are not those which provide additional discounts, rather they are those that give special attention to customer needs.

LITERATURE REVIEW

Gounaris, Tzempelikos and Chatzipanagiotou(2007) studied about the relationships of customer-perceived value, satisfaction, loyalty and behavioral intentions from 1050 car owners in Greece. The results suggested that delivering superior customer value enables a firm to achieve favorable intentions.

Aydin and Ozer (2006) conducted a research to analyze the significant relationships among customer loyalty, customer satisfaction, trust and switching costs' sub-constructs in the mobile phone market.

Jae-Hyeon, Sang-Pil Han and Yung-Seop Lee (2006) conducted a study on customer churn analysis in Korean mobile telecommunications service industry investigates determinants of customer churn. Results indicated that call-quality related factors influence customer churn.

C Ranganathan, DongBack Seo and Yair Babad (2006) examined the switching behavior of mobile users who are not under any contractual obligations to stay with a provider. They found that there are significant

associations between mobile users' service usage, service bundling and their switching behavior. Support was also found for the influence of age and gender on mobile user switching.

Souki (2008) examined the perceived quality, satisfaction and customer loyalty in regard to three cellular telephone operators. Results shown that perceived quality in customers can be evaluated with regard to the following factors: the quality of the product, the quality of the connection, stores, coverage areas, customer service and price.

Ki-Joon Back and Sara C. Parks (2003) investigated the mediating effects of attitudinal brand loyalty on the relationship between customer satisfaction and behavioral brand loyalty. The results of their investigation suggested that customer satisfaction had a significant indirect effect on behavioral brand loyalty when mediated by attitudinal brand loyalty.

Athanassopoulos and Iliakopoulos(2003), focused on the customer satisfaction function of residential customers of a major European telecommunications company. Customer satisfaction was seen as the overall performance of the telecommunications company stemming from adequate service provision, value for money, loyalty, and relationship management.

Zeithaml, Berry, Parasuraman(1996), research demonstrated that a perception of high service quality leads to favourable behavioral intentions and loyalty which affects profits positively.

Amzad Iqbal and Sazid Bashir(2009), study focused on estimating and comparing the perceived expectation and the actual satisfaction level of prepaid cellular service users in Pakistan. Perceived quality, perceived value and perceived expectations are leading variables for customer satisfaction: while purchase likelihood, customer complaints and price tolerance are dependent on actual satisfaction. Findings suggest that customers have high expectations that are fulfilled by the cellular service providers to some extent.

Martin and Molina (2007), conducted a study on "integrated model of price, satisfaction and loyalty in airlines industry". Results suggested that perceived price fairness is an important Bitner (2017), stated that high perceived quality has a positive effect on behavioral intentions of the customers and the overall satisfaction of the customers is the key for customers to be loyal to the company and so companies need to do anything for making their customers happy.

NEED FOR THE STUDY

No study was found on assessing the dimensions of customer trust worthiness programs and its impact on customer usage and buying behavior in Indian telecom industry. In telecom industry, where trust worthiness programs change quite often from time to time and by person, it is the need of the day to understand whether telecom companies were able to reach out to their customers through the customer trust worthiness programs. The present study is taken up to throw light on the existing customer trust worthiness programs in the telecom industry and how they impact the trust worthiness of the customers.

RESEARCH GAP

The studies on customer trust worthiness programs are limited in India and especially in telecommunication sector, studies are very few. These studies focused more on impact of customer trust worthiness programs on customer behavior. Still, there are few areas about customer trust worthiness programs in telecom industry that were not researched. Mainly, impact of customer awareness levels on customer trust worthiness programs, influence of word-of-mouth publicity and collaborative customer relationship management practices on average revenue per user etc., is not researched. Hence this study on the customer trust worthiness programs in Telecommunications sector is chosen.

STATEMENT OF THE PROBLEM

Customer trust worthiness programs of the companies are not fixed and are not published anywhere. Therefore identifying the customer trust worthiness programs of telecom operators is possible only through customer interaction. Customer trust worthiness programs can be assessed only if the customers are aware of them and have used them at least once.

OBJECTIVES OF THE STUDY

- To explore the confirmatory factors of customer trust worthiness
- To measure the impact of customer trust worthiness factors on customer loyalty
- To analyze the consumers positive word-of-mouth on their favorite companies

- To compare the customer trust worthiness programs of different companies with respect to average revenue per user

HYPOTHESES OF THE STUDY

H01: There is no significant relationship between customer trust worthiness factors on customer loyalty

SOURCES OF DATA

- Primary data is collected from the pre-paid telecom subscribers through a well-designed structured questionnaire
- Secondary data are collected from different books, magazines, newspapers, company reports and websites

SAMPLING METHODOLOGY A multistage sampling technique has been adopted. A sample size of 352 respondents of various network customers of telecom industry of India was taken up for the study. All the samples were validated before being considered for analysis.

STATISTICAL TOOLS

Validity, Reliability, Confirmatory Factor Analysis, and Multiple Linear Regression Model.

STATEMENT OF THE PROBLEM

Customer loyalty programs of the companies are not fixed and are not published anywhere. Therefore, identifying the customer loyalty programs of telecom operators is possible only through customer interaction. Customer loyalty programs can be assessed only if the customers are aware of them and have used them at least once. customer value, customer satisfaction, perceived quality, customer service, customer relationship management and price.

LIMITATIONS OF THE STUDY

- The study is restricted to a limited number of customer trust worthiness programs which the customers are aware.
- Assessment of customer trust worthiness programs is possible only if the customers have used them at least once which restricted the analysis.
- The results of this study cannot be generalized for all the places in India.

DATA ANALYSIS & RESULTS

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	352	100.0

a. Listwise deletion based on all variables in the procedure.

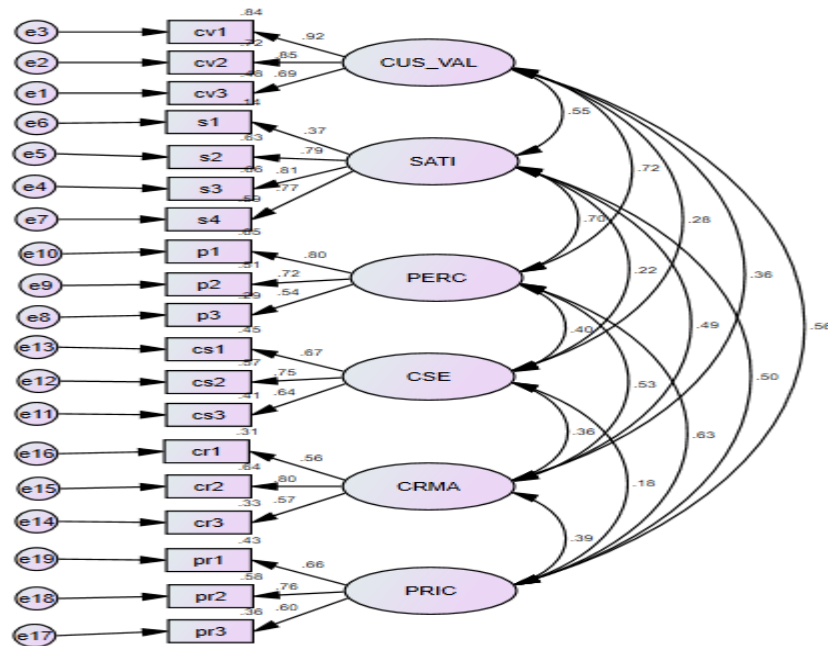
Reliability Statistics

Cronbach's Alpha	N of Items
.909	25

The internal consistency of the questionnaire of 25 questions with a value of the Cronbach's Alpha is 0.909, which shows that data is 90.9 per cent reliable.

Confirmatory Factor Analysis of Customer Trust Worthiness

The measures adopted to study the customer trust worthiness factors have already been validated by other researchers as mentioned earlier. So, we have only conducted a confirmatory factor analysis in order to establish the valid factor structure of Customer Trust Worthiness. The proposed six-factor model (see Figure 1) was found to fit the research study. The model with a chi-square of 547.250, df = 137 CFI = 0.848, TLI = 0.811, AIC = 691.250, RMSEA = 0.071. Good fit values that are generally acceptable for CFI and TLI should be near to 0.95 and for RMSEA should be less than 0.08 (Hair et al., 2010).



Selected Variables Expansion

CUS_VAL (Customer Value), SATIS (Customer Satisfaction), PERC (Perceived Quality), CSE (Customer Service), CRMS (Customer Relationship Management) and PRIC (Price).

Table 3. Confirmatory Factor Analysis of Alternative Models

Model	χ^2	Df	χ^2/Df	TLI	CFI	RMSEA
Six-Factor Model	547.290	137	3.994	.811	.848	.071

Customer Trust Worthiness (Customer Value, Customer Satisfaction, Perceived Quality, Customer Service, Customer Relationship Management and Price). Figure 1 shows a significant inter-factor correlation between Customer Value and customer satisfaction at a significant level ($r = 0.55$, $p < 0.05$), Customer Value and perceived quality ($r = 0.722$, $p < 0.05$), Customer Value and customer service ($r = 0.28$, $p < 0.05$), Customer Value and customer relationship management ($r = 0.36$, $p < 0.05$) and Customer Value and price ($r = 0.56$, $p < 0.05$), Customer Satisfaction and perceived quality ($r = 0.70$, $p < 0.05$), Customer Satisfaction and customer service ($r = 0.22$, $p < 0.05$), Customer Satisfaction and customer relationship management ($r = 0.49$, $p < 0.05$), Customer Satisfaction and price ($r = 0.50$, $p < 0.05$) Perceived Quality and Customer Service ($r = 0.40$, $p < 0.05$), Perceived Quality and Customer relationship management ($r = 0.18$, $p < 0.05$), Perceived Quality and price ($r = 0.68$, $p < 0.05$) customer service and customer relationship management ($r = 0.36$, $p < 0.05$), customer service and price ($r = 0.18$, $p < 0.05$) customer relationship management and price ($r = 0.39$, $p < 0.05$). The result of the confirmatory factor analysis of alternative models is displayed in Table 3.

Multiple Linear Regression

In order to test hypothesis 1, we performed a regression analysis. In the regression analysis technique, we have regressed six customer trust worthiness factors on customer loyalty.

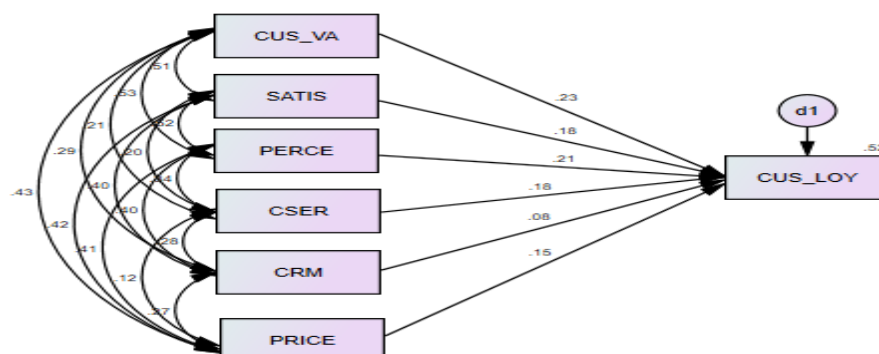


Figure: 2. A Structural Equation Model Showing Impact of customer trust worthiness factors on customer loyalty.

Structural Model Fit Estimation

Figure 2 indicates the standardized path regression coefficients and the relationship between unobserved and observed variables with respect to the path diagram. Structural model Fit Indices:

Table: 4. Structural Model Fit Estimation

Indices	Recommended Value	Model Fit Indices
CMIN/Df	< 3	1.175
p-value	≥ 0.05	0.000
GFI	≥ 0.90	1.000
AGFI	≥ 0.80	0.326
NFI	≥ 0.90	1.000
CFI	≥ 0.90	1.000
RMSEA	≤ 0.08	0.019
P Close	≥ 0.05	0.000

The structural model fit is checked based on CMIN/Df, p-value, Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), NFI, Comparative Fit Index (CFI), Root Mean square of approximation (RMSEA) and P Close. The Model fit indices for the constructs have been found and the summary of the result is shown in the above table where the obtained Model fit indices are compared with the recommended value. We have not considered the actual chi square value as the chances of model rejection will be high when the sample size increases. Hence we have divided the chi square value with the degrees of freedom so that we can overcome the sample size issue. The result of chi square value divided by the degrees of freedom is shown in the table as 1.175 which is below than the acceptable limit 3. The obtained p-value is 0.00 which is less than the recommended value. The obtained GFI value is 1.000 which is above the recommended value of 0.9. The obtained AGFI value is 0.326 which is above the recommended value of 0.8. The obtained NFI value is 1.000 which is greater than the recommended value of 0.90. The obtained CFI value is 1.000 which is greater than the recommended value of 0.90. The obtained RMSEA value is 0.019 which is lesser than the recommended value of 0.08. The obtained P-close value is 0.000 which is lesser to the recommended value of 0.05. Hence we can find the overall model fit indices are within the acceptable recommended values as proposed by the researchers, so we can conclude that the hypothesized model fits with the sample data. All the 245 parameters have met all the other recommended value to verify fitness of the Model. Hence we can conclude that the Model is perfectly fit.

Ho1: There is no significant relationship between customer trust worthiness factors on customer loyalty.

The regression weights of customer trust worthiness factors on customer loyalty is presented in Table 5.

Table: 5. Regression Coefficients of customer trust worthiness factors on customer loyalty

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Remark
		B	Std. Error	Beta			
1	(Constant)	.522	.174		3.008	.003	
	Customer Value	.186	.038	.230	4.853	.000	Significant
	Customer Satisfaction	.162	.043	.181	3.749	.000	Significant
	Perceived Quality	.183	.043	.213	4.292	.000	Significant
	Customer Service	.162	.036	.180	4.482	.000	Significant
	Customer Relationship Management	.075	.038	.085	1.990	.047	Significant
	Price	.130	.038	.150	3.461	.001	Significant
a. Dependent Variable: Customer Loyalty.							

Table 5. represents standardized regression coefficients which show the strength of impact and its positive/negative direction. It also comprises of t and significant values to validate the hypothesis framed to measure the significant impact of customer opined customer trust worthiness factors on customer loyalty.

The multiple regression equation of this model is:

Y (Customer Loyalty)

$$= 0.230 (\text{Customer Value}) + 0.181 (\text{Customer Satisfaction}) + 0.213 (\text{Perceived Quality}) \\ + 0.180 (\text{Customer Service}) + 0.085 (\text{Customer Relationship Management}) \\ + 0.180 (\text{Price}) + .0522 (\text{Constant})$$

The study investigated the impact of key factors of customer trust worthiness on loyalty of the customers concluded that customer value had the highest impact on the loyalty of the customers followed by customer satisfaction, perceived quality, customer service, customer relationship management and price.

OUTCOMES

1. When the customers approached the company, majority of the customers were dissatisfied some or the other time with the reply from the company. Majority of those dissatisfactory replies were due to In-Experience problem with the executive of the company, sometimes due to server problem, sometimes due to un-availability of the information and sometimes customers got dissatisfactory reply due to in-courteous staff.
2. Majority of the customers agree that interaction points are always available for them to contact/approach the company for various reasons. Some customers are undecided and some disagree. This is due to the reason that most of the customers are using mobile phones as touch points to contact the company and customer care works 24x7. Few feel that touch points are not always available because at peak times customer care will be busy and it takes a while for the call to get connected which few customers feel unavailability of interaction point.
3. With the slight increase in price of the current network, less than half of the customers are still willing to continue with the current network. All the other customers are not willing to continue with their favourite network when the prices of the network increase a little. This means majority of the customers are price sensitive.

IMPLICATIONS

1. In spite of huge customer base, most of the customers of Airtel are not using loyalty programs offered by the company and so Airtel company need to offer more customized loyalty programs to its customers by considering their usage history such that customers will be offered with a loyalty program that matches their needs to higher extent. Similar process may be adopted by BSNL and Vodafone also, as few of their customers are also not using customer loyalty programs. Instead, telecom companies are offering those customer loyalty programs that are least preferred by customers. Such loyalty programs may not be successful as customers do not need them. While doing so, companies need to offer those loyalty programs which the customers tend to use more.
2. In order to maximize the use of customer loyalty programs of telecom companies by the users, telecom companies need to incentivize their retailers more on their selling of telecom services. This type of incentives may be given to the retailers by observing the number of customized recharges done by the retailer. More the number of customized recharges, more need to be the additional revenue for the retailer.
3. All the telecom companies need to properly manage their customer care process by training the executives to be patient and courteous with the customers as majority of the customers are willing to approach customer care whenever they have a problem. In addition to USSD code, companies need to enable easy customer interaction with customer care executive which is highly complicated at present.

CONCLUSION

There is no referral system followed by telecom companies and customers are dissatisfied with the reply they get when they approach the company. When the four telecom companies are assessed in terms of their performance with respect to collaborative customer relationship program, interactive communication and word of mouth, it is observed that all the four companies are effectively executing all of them. However, Jio is performing very high when compared to other telecom operators.

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MATHEMATICS IN FINANCE IN DAY-TO-DAY LIFE

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ABSTRACT

Mathematical finance is a branch of applied mathematics. Mathematics affects daily financial decisions. Mathematics organizes our lives and prevents chaos. We use mathematics for budgets, expenses, savings and investments. In each case, a good understanding of the mathematical concepts will be beneficial for your personal financial gain. There is no doubt that mathematical concepts play an important role in the planning and success of your financial life. This paper explains the importance of mathematics in the business and finance in day to day life.

Keywords and phrases: Financial Mathematics, investment, planning, risk management.

INTRODUCTION:

Quantitative finance is related to itself as a subfield of economics. Mathematical finance largely overlaps with computational finance and financial engineering. Financial mathematics has wide applications in all commercial activities where the flow and exchange of goods and services, the transfer of currency, and companies pay their employees, in brief, are of crucial concern in our day-to-day work. Concepts and computer methods serve as primers in economic mathematics, focusing on the conceptual understanding of models and problem-solving. This includes the mathematical background required for risk management, such as probability theory, optimization, and the like. The main purpose of this paper is to underline the basic nature of mathematics in finance in day-to-day life.

Meaning of Mathematical Finance:

Mathematical finance is also known as quantitative finance. This is the field of applied mathematics, which deals with the mathematical modeling of financial markets. It works on probability, statistics and economic theory. Mathematical finance is a product of applying mathematics to portfolio selection theory and option pricing theory. Mathematical finance mainly overlaps with the areas of computational finance and financial engineering.

Why do we learn financial mathematics?

Financial mathematics understands how human beings make decisions in times of uncertainty and then establishes how to make good decisions. Economic mathematics not only has a direct impact on the innovation of financial instruments and the financial market runs efficiently Financial Mathematics offers an attractive, scaffolding course that introduces the main topics and principles required for financial literacy.

Research Hypotheses and Methodology:

The methodology of this research paper is based on a theoretical framework and is intended to achieve research objectives.

Objectives and Importance of Mathematical Finance in day-to-day life with common examples:

Mathematical finance is very useful in daily life. Mathematics is backbone of Finance. It can help you do many necessary things in your day-to-day life. Relevance in the world of business has made financial mathematics important in modern times. Here are some daily tasks for which mathematical finance is important.

- To analyze the Purpose and Aims of Mathematics in Finance in day-to-day life.
- Managing money.
- Treading in share market.
- Risk management.
- Understand the costs and benefits of large purchases versus reliability ratings.
- Adjust the checkbooks.
- Shopping for the best price.
- Finding distance, time and cost for travel.

- Understanding loans for cars, homes, or other purposes.
- Figure out insurance premiums.
- Forecasting of Financial Time-Series.
- Taking care not to invest too much in fixed assets.



Figure shows importance of mathematical finance.

Stock Market: Using Mathematics in Finance:

Mathematics is everywhere. Not just in the stock market. The stock market is a place where shares of public listed companies are traded. The stock market works on supply and demand. Trade needs to be smart but it doesn't have to be more difficult. Instead, the necessary skills, rather than financial mathematics, are the ability to understand market movements and how people perceive value. All the signs you use are based on some mathematical formula. Everyone has a clear idea of financial risk. Investors who experience a stock market crash may lose money if they sell their positions instead of waiting for it to rise. Financial benefits were designed a few decades ago to provide insurance against such incidents. Many chart examples and trading planning are based on primary mathematical approaches.

Scope of Mathematical Finance:

There is no science without mathematics. Mathematics has become more diverse in the 20th century. The scope of financial mathematics has changed over the years. Each expert subject is being studied in more depth and the advanced work in some areas is beyond the comprehension of researchers in other fields. Financial mathematics is based entirely on the background and foundation of economic theory. Financial mathematics is an ideal field to provide a broad view of mathematical sciences. Financial mathematics has changed the teaching and research of mathematics. Given the internal complexity in finance and related fields, many mathematical and statistical applications still need to be improved. Financial mathematics graduates are in great demand in countries like the United States, which has many financial companies and which are quantitative analysts. The objective of financial mathematics programs is to create high quality professionals who will deal with the issues related to financial markets, development of economic transactions, expansion of labor market, development of banking. Mathematical finance is an integrative study of financial markets. It helps the economist / dealer to make decisions and formulate policies for his benefit. Financial mathematics degree provides good arrangement for future careers not only in the field of finance but also in many areas that require quantitative skills. Given the internal complexities in finance and related fields, many mathematical and statistical applications still need to be improved.

The following are the statements made by eminent finance educators / individuals in the field of finance.

1. "The Nobel Prize-winning "modern portfolio theory" is now over 50 years old and suffering from undue risk. Using MPTs with more realistic risk measurements and re-balancing costs will be the right challenge for any aspiring financial mathematician" — Moore, 1997.

2. "An investment in knowledge pays the best interest." — Benjamin Franklin.

3. "I will tell you how to become rich. Close the doors. Be fearful when others are greedy. Be greedy when others are fearful." — Warren Buffett.

Great career option:

There is no business in the whole world that does not use mathematics. Mathematical finance provides students with great career opportunities. If you are good at mathematical finance and have the ability to solve complex problems, you will have the ability to apply for many jobs. Students with degrees in financial mathematics and statistics are offered a wide range of career options, including banking, corporate finance, financial planning, government sector, investment banking, money management and real estate, agriculture or research.

CONCLUSION:

Mathematical finance is inevitable. This is a deep basic thing. The present study is applied in terms of its purpose and is analytical-mathematical in terms of its methodology. Financial mathematics is an important branch of finance. That is why it is very important for your business administrator to have knowledge of financial mathematics, to know the basics for your development in the workplace and even to overcome the symptoms of inflation in your daily life.

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COSTS AND BENEFITS OF ESTABLISHMENT OF NGARAMBE-TAPIKA WILDLIFE MANAGEMENT AREA TO LIVELIHOODS OF ADJACENT COMMUNITY

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ABSTRACT

Establishment of wildlife management areas (WMA) may have costs and benefits depending on the underlying arrangements. This study was carried out to assess costs and benefits of establishment of Ngarambe-Tapika WMA, in Rufiji District, Tanzania. The data were obtained through interviews with key informants, questionnaire survey and focus group discussions and analyzed by content analysis and benefit-cost evaluation. The study revealed that cultivation and firewood collection were the major livelihood activities carried out before establishment of Ngarambe-Tapika WMA and which were not allowed after the establishment. The benefit-cost ratio is less than 1, implying that the benefits they were receiving is low as compared to the costs they were generated before establishment of WMA. Most respondents depend on agriculture activities as a major economic activity and source of income but this activities had been interfered with wild animals that raid their crops hence increases cost of living of adjacent community. The incidences of crop damage increase yearly due to increasing number of wildlife as a result of better conservation afforded by WMA establishment. It is recommended to address problem of resource access within the WMA. The village governments should set aside special days to allow local communities to harvest dead trees and/or medicinal plants under the supervision of village government. A long-term solution is to advocate the establishment of community forests in each village or households to have forest lots around their farms which could save the multi-purpose role of provision of firewood/timber and also act as farm boundaries. The responsible authorities should find a way of compensating those who are affected by wildlife especially when come into issue of crop damage. To minimize some costs of living and increase benefits it is recommended to improve relationship among investors, local communities and WMA staff, the need to involve local communities in major decisions affecting their livelihood, improvement of business contracts, need for investors to follow village rules and regulation, awareness education and empowerment of local communities should be adhered. Furthermore, the study recommends that efforts should be made to ensure that income generating from Ngarambe-Tapika WMA trickle down to household and/or individual level because most who are affected is individuals. And this can be achieved through increased employment of local community and better pay for the employment in activities related to WMA.

Keywords: agriculture, employment, fair compensation, firewood collection, revenue sharing

1. INTRODUCTION

In the 1990s, the governments and influential donor organizations came to realize that the

Long-term integrity of protected areas in low-income nations depended critically upon the support of rural communities that lived adjacent to them. Despite the recognized need for understanding the costs and benefit of conservation borne by rural communities adjacent to protected areas is crucial (Ferraro, 2006). Many academics and practitioners have therefore argued that detailed ex ante assessments of the local impacts of protected area establishment are a critical missing component in the debate over international conservation policies (Indrani, 2005; IUCN, 2008). Without such assessments, it is impossible to discuss the costs and benefits of ecosystem protection in a global context. Kramer and Sharma (1997) have noted, just as the failure to measure the total benefits of biodiversity protection can lead to suboptimal development policies, the failure to measure the full costs of protection may lead to unworkable conservation strategies (Berman and Bui, 2001 and Lovell and Sunding, 2001)

In Tanzania most of core WPAs are not ring-fenced, consequently allows some of wildlife be found outside WPAs wandering close to areas of agriculture, pastoralist and other socio-economic activities are taking place (Maganga *et al.*, 2007) resulting in human-wildlife conflicts and increasing cost of living close to wildlife habitat (Roselyne, 2007). While this problem exists, as an important natural resource, wildlife needs to be managed in integrated bases as to benefit the communities, government and environment (URT, 2005; Nyakaana and Edroma, 2008). The situation forced the government of Tanzania to adopt new wildlife conservation approach that involves local communities known as Wildlife Management Areas (WMAs)

(Patricia, 2005; Kaswamila, 2012) which are established within the village land where local community uses the land to obtained basic need for their livelihood. Establishment and management of these newly protected areas had substantial negative and positive effects on the livelihoods of residents who lived in and around protected areas and thus undermined local support for conservation or improve their response to conservation (Ferraro, 2006; Formo, 2010). Other critics of protected areas have pointed to the unfairness of excluding local people from access to protected area and natural resources they have used for centuries. Anne (2005), among others; argue that the lack of economic compensation to local people for loss of access has led to a failure of protected areas. They argue that it is necessary to correct this distortion in order to promote wildlife conservation, and suggest that this is achievable through revenue sharing in wildlife related activities. They believe that local people will respond to such benefits by reducing the exploitation of wildlife.

WMAs are the mechanism established for implementing community wildlife management in Tanzania (URT, 2012) its consist of portions of village land set aside for purposes of wildlife conservation and the development of wildlife-based enterprises such as tourism and tourist hunting. However, in many cases, the establishment of WMA has unsuccessful to achieve the desired outcomes, due to a poor recognition of local peoples' rights and practices (IRA, 2007). Ngarambe-Tapika WMA was established in 2003 with the aim to combine wildlife conservation, tourism and rural development by diverting wildlife management and benefits to local level (IRA, 2007). Coppolillo and Dickman (2007) reported that establishment of WMA may significant affects livelihood of adjacent community positively and also negatively. Positive effects is a benefits that community accrued from managing wildlife resources while negative effects is a costs that local community receive by being adjacent to WMA. *Despite its establishment little is known on their development performance in regard to cost and benefit of it to livelihood of the community.*

Many WMAs have been relatively slow to develop faced with the number of challenges which impair them to full fill their objectives of establishing it which is improving the livelihoods of the local people around the WMA (Nelson *et al.*, 2006; IRA, 2007; Igoe and Croucher, 2007; Benjaminsen and Svarstad, 2010)). This thought was necessitates the need to undertake study on costs and benefits of establishment of Ngarambe Tapika WMA on livelihood of adjacent community.

The main aim of this study was to assess the effect of establishment of Ngarambe Tapika WMA on livelihood of adjacent community. Specifically the study focused to assess costs and benefits of establishment of Ngarambe-Tapika WMA on livelihood of adjacent community and

2. MATERIALS AND METHODS

2.1. Location and Description of the study area

This study was conducted in Rufiji district in Coast Region. Rufiji districts is located in the Southern part of the region at latitude 7.28° and 8.23° South and longitude between 37.47° and 39.30°. The district has only one WMA exist so far which is Ngarambe- Tapika WMA. The WMA is located south of the district at the southeast edge of the Selous game Reserve (767sq.km). Ngarambe-Tapika WMA lies between latitude 8.076° -8.503° south and 38.413° -38.717° east of the district. The WMA received the AA and User right in 2003 and the association is called MUNGATA ("Muungano wa Ngarambe na Tapika"). It comprises two villages Namely Ngarambe and Tapika (LUP, 2012)

2.2. Methods

Respondents for this study came from Ngarambe and Tapika villages in Rufiji district, Coast region, Tanzania. The multi stage simple random sampling technique was used to draw the sample of the villages that and respondents that were involved in the survey. The first sampling stage employed the purposive to select two villages which were involved in establish of WMA Ngarambe and Tapika wards were selected. The next stage was the sampling of respondents. The sampling process required the development of a sampling frame, which in this study was the current list of all people involved in establish of WMA contained in the household list in the government office in collaboration with the Village Executive Officer (VEO) in each village. The simple random selection technique was used in order to increase validity and reduce bias. Based on the number of the people involved on establishment of WMA in villages, a sample of 90 Respondents was selected, 60 from Ngarambe and 30 from Tapika

A structured survey instrument was developed. A respondents was requested to answer the questions independently which was interviewed by the researcher. The information collected was the costs and benefits of WMA on livelihood. Data collected were coded and analyzed. The financial profitability consists of the "benefit-cost ratio (B/C Ratio)". The financial indicators were annual cost due to WMA establishment which include resources which were harvest/collect from the Ngarambe-Tapika WMA, cost of WMA establishment

incur due to establish of WMA from agriculture, depression of livestock and benefits due to WMA which includes employment, meat and sugar.

3. RESULTS AND DISCUSSION

3.1. Costs and benefits of WMA establishment to livelihoods of adjacent community

3.1.1. Livelihood activities carried out in Ngarambe-Tapika WMA before its establishment

Cultivation, hunting, firewood collection, settlement, charcoal burning and wood making were the major activities carried out in Ngarambe-Tapika WMA before demarcating as a protected area. The results shows that cultivation was the major leading (92.2%) livelihood activities carried in Ngarambe-Tapika WMA before its establishment, the other livelihood activities were firewood collection (60.0%), hunting (15.6%). It was further reported that charcoal burning were the least kind of livelihood activities carried out in Ngarambe-Tapika WMA. This was because most of residents in Ngarambe and Tapika villages use firewood for cooking and some time use as a source of income. Also low response of charcoal burning might be influenced by the fact that transportation of these goods to nearly township was difficult due to rough road.

Furthermore the study found that 13.3% of the respondents were settled in the area meaning that they livelihood were totally depending on resources available. Kingalawe and Noe (2012), reported that local livelihoods Mgombasi and Nambecha villages (community living adjacent to Mbarang'andu WMA) depend heavily on natural resources. However, the level of dependency on biodiversity resources such as game and forests products, fisheries, and agro diversity varies from one resource to another and is determined by the availability and access to the resource in question.

3.1.2. Activities carried out in Ngarambe Tapika WMA after its establishment

The study revealed that majority of the respondents stop continuing with the livelihood activities that were carried out before establishment on WMA (Table I). This is due to reason that establishment of protected areas goes hand in hand with formulation of by laws that impose some restriction on accessing resources. Also the policies and regulations that governing establishment of WMAs has documented which activities are legally allowed in the WMAs and other are illegal. According to the Ngarambe Tapika By law, Settlements, cultivation, charcoal burning and wood making activities were totally prohibited activities in the WMA, hunting and firewood collection were allowed with written permission from AA.

The Policy calls for local communities to be given responsibility and rights for wildlife management on village lands so that they can benefit and value wildlife as a form of land use (URT, 2002). Establishment of WMA ensures local communities to manage and benefit from the wildlife on their lands is through creating Wildlife Management Areas (WMA's). Due to local people participation as well as realizing advantages of conserving WMA it influences them to stop continuing with those livelihood activities which threaten sustainability of the wild animals.

It was found that very few of the respondents (3.3%) continue with cultivation activities though always facing problem with wild animal laid their crops. These were attributed to the fact that even those who shifted their activities to other area outside the WMA were not compensated and were supposed to start again by clearing bushes. Also the study revealed that 4.4% of respondent continues with hunting activities but with permission from WMA authority. Although illegal hunting is prohibited to ensure conservation of wild animals some continues due to basic livelihood needs and values and perceptions of what is beneficial, as well as community norms on appropriate and legitimate use of local wildlife resources (Arjunan *et al.*, (2006), Tomicevic *et al.*, (2009) and Manfredo (2008)).

Restriction of local community from accessing basic livelihood needs increase costs of living to those people because they livelihood were totally depend on natural resource. Anne, (2005) and Paul, (2006) among others; argue that the lack of economic compensation to local people for loss of access has led to a failure of protected areas. They argue that it is necessary to correct this distortion in order to promote wildlife conservation, and suggest that this is achievable through revenue sharing in wildlife related activities. Kidegesho, (2008) narrates that costs of living adjacent to PA is a cost resulting from forfeiting a use or value for the sake of backing an alternative use or value. Conservation is a choice that requires rural communities to sacrifice their values and uses for the sake of sustaining wildlife. These values or uses include arable lands, grazing lands, plants of medicinal value, bush meat, fuelwood and sacred shrines. Very often, under conventional conservation approach, these sacrifices are not voluntary. They normally take a form of coercive and forcefully eviction of people from their traditional lands and strict prohibition of resource use (Baldus et al 2001).

Table 1: Livelihood activities carried out in Ngarambe-Tapika WMA before and after WMA establishment

Activities	Before WMA				After WMA			
	Yes		No		Yes		No	
	N	%	n	%	n	%	n	%
Cultivating	83	92.2	7	7.8	3	3.3	87	96.7
Hunting	14	15.6	76	84.4	4	4.4	86	95.6
Firewood collection	54	60.0	36	40	0	0	90	100.0
Settlement	12	13.3	78	86.7	0	0	90	100.0
Charcoal burning	1	1.1	89	98.9	0	0	90	100.0
Wood making	29	32.2	61	67.8	0	0	90	100.0

3.1.3. Resources harvested/collected before and after Ngarambe Tapika WMA establishment

The finding revealed that Wild fruits, Timbers, Game meat, mushroom, Honey and fish were resources collected by few respondents in the study area before establishment of Ngarambe Tapika WMA (Table 2). 37.8% of the respondents were collecting honey while 31% were mainly engaged in timber making, meaning that they were harvesting timber and transport it to the nearest township. Also few people were engaged in fishing (12.2%)

The principal natural resources in WMAs include forest, wildlife and fish. Although highest priority is currently given to wildlife utilization as the main activity, all other natural resources should also be considered in the utilization schemes of the WMAs (Wilfred, 2010). However, a study on economic opportunities in WMAs identified, among others, four main economic openings through which rural communities can optimize the use of W MAs. These are: subsistence hunting, non- consumptive tourism, beekeeping, and utilization of forest resources (Christophersen, (2000) and Arntzen, (2003)). To make effective use of these opportunities calls on the local communities to be equipped with resource utilization technologies and entrepreneurial skills. Similar finding revealed from this study that honey collection was the major resources continue to be done by most of the respondents after establishing the WMA and it was done traditionally making it difficult to get profits. This was due to reason that honey making was associated with conserving the environment and hence led into conservation of wild animals. Beekeeping in Uyumbu and Ipole WMAs, for example, has been one of the important economic activities among the villages involved in the WMA projects (Kaswamila, 2013). Yet in order to enable local communities to expand their beekeeping enterprises, training and firm market structures are needed (Carol, 2002)

Timber making was only resource restricted to be collected in the WMA after its establishment due to the facts that, it course deforestation hence degradation of wildlife habitat. Other resources were allowed with specific permit approved by the AA to be collected but people were feared due to increase number of dangerous wild animals (LUP, 2012). Restriction to access timbers increases costs of living among respondents as some were total depending on these activities to run they live. One of the respondent claimed that since they were restricted to access timber in the WMA none of the youth generation has managed to build and roof house by iron most houses which were roofed by Iron they were there before establishment of WMA. Therefore they were claiming that WMA establishment increases burden of living. To overcome these situation sustainable natural resources accessibility plans should also be developed and clearly documented in WMA. To enhance resource accessibility and reduce conflicts, all the stakeholders in WMA projects are obliged to observe important roles played by all the institutions involved. Institutions provide “rules of the game. Proper institutional arrangement s will provide a good link between WMAs and local communities (Norfolk, 2004).

Table 2: Resources harvested/collected from the Ngarambe-Tapika WMA before and after WMA establishment

Activities	Before WMA				After WMA			
	Yes		No		Yes		No	
	N	%	n	%	n	%	n	%
Fish	11	12.2	79	87.8	6	6.7	84	93.3
Game meat	17	18.9	73	81.1	6	6.7	84	93.3
Mushrooms	17	18.9	73	81.1	0	0.0	90	100

Honey	34	37.8	56	62.2	20	22.2	70	77.8
Fruits	1	1.1	89	98.9	0	0.0	90	100
Timber	28	31.1	62	68.9	0	0.0	90	100

3.1.4. Cost due to establishment of Ngarambe-Tapika WMA to the livelihood of adjacent community Crop damage

The results shows that, on average local community loose 479,000.00 Tsh from agricultural activities per year (Table3). It is evidenced that agriculture is the principal lifeline support entity to rural Tanzanians. It contributes to over 90% of food security and 60% of the household income of the rural people (NBS, 2002; URT, 2008; Lambert *et al.* 2012). However, a plethora of factors such as low soil fertility, insect pests, low technological inputs, unpredictable weather and lack of credits and markets constrain the sector. Some of these factors were not applicable in Ngarambe and Tapika Villages during study period as it was reported that local community do not use fertilizer due to natural fertility that land has. It was also reported that the big enemy in agriculture to the communities living side by side with wildlife suffer the extra losses due to damage wild animals inflicts on croplands. The finding is in line with (Kidegesho, 2008) who reported that Wild animals may result up to over 90% losses in crops.

Crop damage was there even before establishment of WMA but the rate destruction was minimal as compared to the situation when this study was conducted. This was attributed with facts that before WMA establishment local communities were able to kill and chase animal when they entered into their field. So animals were always running aware. After WMA establishment the rate of crop damage has increases due to the facts that the number of wild animals has increase due to protection and local communities were restricted by WMA by law from killing animals, they were only allowed to inform VGS. But due to the adequate conservation instrument like vehicle and guns it takes time for the VGS to reach area of effects. And some time they were support to inform DGO for more assistance. Respondents claimed that they have to stay in their farm chasing wildlife for the whole period form time when plants germinate to harvesting. This finding is in line with Kidegesho (2008) narrates that in addition to direct economic losses resulting from crop damage, there is also an element of foregoing other social and economic activities as substantial amount of resources and time are directed on guarding crops against vermin.

Kangalawe and Noe (2012), conducted a study in two villages in Namtumbo District that have wildlife resources and have been involved in conservation for the past two decades, they found that wildlife resources have not contributed to the household needs, either for cash or food security. Instead, wild animals were reported to very often destroy standing crops and prey on livestock, causing economic losses to farmers. Thus the evident need for agricultural expansion seems to be in conflict with the need for expansion of wildlife areas (Anne, 2005). Already wild animals are locally considered a concern that touches on issues of safety a food security. The evidence suggests that wildlife damage can cause a loss of up to approximately 60% of total crop yield or income. For example, during a 30 day study in Ghana an average of 48% of crops were lost to elephants (Dyson, 2010)

Table 3: Cost due to establishment of Ngarambe-Tapika WMA

Sources	Cost (in which units)*	
Agriculture lost	479,000.00	+21,890.00
livestock depredation	132,000.00	+33,530.00
Hunting	729,000.00	+110,700.00
Collecting timber	2,650,000.00	+219,800.00

*Mean + one standard error of the mean Cost from Timber

The result shows that on average respondents who livelihoods were depending on natural resource especially on timber making loss Tshs 2,650,000.00 annual (Table3). Before Ngarambe Tapika WMA establishment local community were used to make timbers in an area and transport to nearest town for selling though it was illegal none were responsible for that. They are used to generate more money from timber than in other economic sector like agriculture due to the fact that timber and non timber products are expensive hence people engaging on making timber they earn more income. After WMA establishment this activities were stopped and prohibited so local community were no longer generating income from Timber. Babulo and Muys (2008), reported that among forest communities, dependence on the forest and its resources ranges from partial to full, according to wealth. They further argued that with increasing poverty people depend more on the forest resources to provide incomes since they do not have the means or skills to find more profitable sources of income (FAO, 2014). The anecdotal evidence has shown that the displacement (physical and resource)

caused by PAs has led to various types of impoverishment through landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity and mortality, loss of access to common property resources, and social disarticulation (Cernea and Soltau, (2006); Mombeshora and Le Bel (2009)).

Denial to harvest forest and non-forest products from the WMA was also seen as a cost. The village by-laws prohibit local communities to enter into the conserved area without permission from the village government. This has made local communities unable to freely access forest (poles, timber, charcoal etc.) and non-forest (grass, honey, wildlife etc.) as they used to do before the area attained the WMA status. Denial of local communities to harvest forest products has accelerated deforestation in areas outside the WMA. This is due to the fact that firewood is the only source of domestic energy and the only place to fell trees are those outside the WMA. In addressing the problem of resource access within the WMA, the village governments should set aside special days to allow local communities to harvest dead trees and/or medicinal plants under the supervision of VGS (Kaswamila, 2012)

Cost due to livestock depredation

Livestock plays a vital role in the local economy of rural Tanzanians. It is an important source of protein, income or commercial asset. Other than economic role, livestock also plays an important social role. It is a symbol of status in many tribes and it serves as a commodity that can be exchanged for a wife i.e. bride price. So a loss of livestock implies not only economic loss to rural communities, but also a huge social cost (Kidegesho, 2008). The findings from this study revealed that in average local community loss Tshs. 132,000.00 per annual from livestock (Table3). Most livestock kept in Ngarambe and Tapika Villages are Chickens and Ducks. Local communities do not keep cattle and goat because of wildlife. One of the respondent said that they do not keep cattle because if they do that they have invited lion and cheater to live with them. This finding is in line with Coppolillo and Dickman, (2007), reported that the costs of living with wildlife for pastoralists in the Ruaha Landscape are that most pastoral households reported losses of their cattle to carnivores. Reports varied from 0 to 12 cattle, but households averaged 0.34 animals lost during the year

Cost due to hunting

The result shows that after Ngarambe Tapika WMA establishment local community loss TShs. 729,000.00 per annum from game hunting. This mean before WMA establishment the area was free accessible and local community were able to hunt numbers of wild animals though was no allowed. But after WMA establishment hunting is no longer for free is for specific permit issued by Wildlife Division and the permit depends on availability number of animals.

3.1.5. Benefits due to establishment of Ngarambe-Tapika WMA

It was found the major benefits gained after establishment of WMA were meat and employment with an annual income equivalent to 700,000.00 and 443,000.00 for meat and employment respective. Game meat includes meat soled to local community by investors (Frontier). The investor was allowed to hunt wild animals and sell to local community at very low charge in such a way that every community was able to afford to buy such meat. This was termed as a profit to local community. Low income from employment might influenced by the fact that most of the respondents are employed on the unskilled labour associated with low salary of 30,000/= TShs per month. Most of employees were working as a security guide to a investor who has been brought in by the central government not the WMA association which is contrary to the Wildlife management area regulation. This finding is in line with that of Kaswamila (2012) who reported that a total of 39 people were employed (permanent and casual) by seven investment companies as cooks and security guards in Minjingu and Vilima Vitatu with an average monthly wage of TZS.90,000. Formo, (2010) and URT (2012)) insist use of Village Game Scout (VGS) to assist the tourist hunting company while on safari to assess whether the company is abiding their hunting prescription. This might have forced the investors to pay VGS good wages as opposed to the current situation.

What this means is that the only employment the game scouts had with the hunting company was as security guards at the tourist camp. When asked about the cooperation between the hunting company and the villages, the camp manager at the Game Frontiers tourist camp was somewhat reluctant to specify whether or not they used the village game scouts or district game scouts for tourist hunting. He did, however, confirm that the camp sometimes employed the village game scouts as security guards. In addition to providing the scouts and their families with extra cash income, this would give the MUNGATA a means to calculate the percentage they should receive from the Wildlife Division at the end of each hunting season. This was unfortunately not the case in Ngarambe and Tapika. At the time of the fieldwork, game scouts from the district rather than the village were supervising the trophy hunting. Both the MUNGATA and the village game scouts

were well aware of this and especially the scouts were unhappy with not being employed by Game Frontiers. One game scout from Tapika expressed his frustration in this way: “ Instead of supervising the hunting, we are only allowed to supervise the luggage of the tourists. Other individual benefits gained as a result of WMA establishment was aid of Maize flour and sugar from investors which was happened once since its establishment (Table 4).

Coppolillo, P. and Dickman, A. (2007), reported that a common misperception is that the protected areas of the Ruaha Landscape “lock up” resources. Closer examination reveals that these areas hold tremendous economic potential and that the perceived lack of benefits actually reflects a structural problem: the diversion of conservation revenues to central government and private entrepreneurs. It is understandable for local people to think there are no financial benefits from conservation because they are quickly whisked out of the landscape and disappear into the central treasury. This is an important distinction because it means that protected areas and conservation have the potential to contribute to local livelihoods, but at present they are not doing so.

Table 4: Benefits due to establishment of Ngarambe-Tapika WMA

Sources	Mean +SEM	
Buying meat	700,000.00	0.00
Employment	443,000.00	+90,810.00
Maize flour	142,000.00	+4,735.18
Sugar	138,000.00	+2,105.26

3.1.6. Benefit Cost ratio

Since the benefit cost is less than 1 (Table 6), the benefit of the investment is less than the annual cost of the income generated before establishment of Ngarambe-Tapika WMA. This implies that after the establishment of WMA the annual income of local community goes down. This could have negative impact on the livelihood of the local community. The preceding discussion has shows that although local people obtain tangible benefits, that act as an incentive to conservation initiatives but is low as compared to what they use to gain before establish of WMA. When asked about their income whether similar to the income used to get before WMA establishment 90% of respondents replay that their income after WMA establishment is less compared to before. The effects of changing their income were ranked between 10-50%. This means that most of the respondents were totally negatively affected by WMA establishment.

Table 5: Benefit and Cost due to WMA establishment Ngarambe-Tapika WMA

Parameter	Mean +SEM
*Average annual cost due to WMA establishment	2,651,111.11+ 154,234.56
Average annual benefits due to WMA establishment	449,766.67+ 56,457.23
Average benefit cost ratio	0.32

***average annual cost and benefits is calculated per individual**

3.1.7. Community received benefits due to establishment of WMA

Findings in Table 6 show that 54.4% of the reported that, due to WMA there were able to repair three classroom in village school. During an interview, some of the households reported that their schools in the village receive support from WMA. It was found that WMA have contributed a desks and construction of school buildings such as four class rooms and teachers' house as well as providing teaching materials in the study area. The findings are in line with the study conducted by Igoe, and Croucher. (2007) found improvement in education was due to support by tourist industry. Also the finding is in line with Kaswamila (2012) reported that, local communities were asked as to whether they are aware of the use of revenues paid to the WMA by investors and its uses in socio-economic development at village level. Results indicate that the funds were mainly used for provision of social services (construction of classrooms, dispensary and village government offices), payment for allowances to WMA staff during meetings and seminars, bursary to students, and in supplementing to village government revenues

Findings in the Table 6 show that majority of the respondents (51.1%) reported well construction. While very few (10.0%) opened the small business to sell food to tourist. This is small number compared to the number of households in the area. This is due to reason that it is expensive to open the restaurant which tourist they can attend and eat food which low quality. Furthermore, the study found that only 14.4% of the respondents reported that WMA created jobs. It was found that most of the respondents employed work in unskilled jobs.

Table 6: Community benefits received after establishment of WMA

Benefit	N	%
Repair school	49	54.4
Open food business	9	10.0
Water pump	46	51.1
Electricity	4	4.4
Provide school facilities	50	55.6
Employment	13	14.4
Repair dispensary	33	36.7
Well construction	28	31.1

4. CONCLUSIONS AND RECOMMENDATIONS

The study revealed that cultivation and firewood collection were the major livelihood activities carried out before establishment of Ngarambe-Tapika WMA. It was further revealed that most of the respondents' stops carrying out the livelihood activities which impair conservation of wildlife. The study concluded that;

- Although local community stop engaging on the livelihood activities which affect conservation of wild life but they benefit cost ratio is less than 1, implying that that the benefit they were receiving is low as compared to the income they were generated before establish of WMA
- Most respondents depends on agriculture activities as a major economic activities and source of income but this activities had been interfered with wild animals that raid their crops hence increases cost of living of adjacent community. This has been incidence are increasing yearly due to increase number of wildlife as a result of conservation.

Recommendation

- To address problem of resource access within the WMA, the study recommend that, the village governments should set aside special days to allow local communities to harvest dead trees and/or medicinal plants under the supervision of VGS. A long-term solution is to advocate the establishment of community forests in each village or households to have forest lots around their farms which could save the multi-purpose role of provision of firewood/timber and also act as farm boundaries
- The AA should find a way of compensating local community who are totally affected by wildlife especially when come into issue of crop damage.
- To minuses some costs of living and increase benefits it is recommended to improved relationship among investors, local communities and WMA staff, the need to involve local communities in major decisions affecting their livelihood, improvement of business contracts, need for investors to follow village rules and regulation, awareness education and empowerment of local communities should be adhered.
- Furthermore, the study recommends that efforts should be made to ensure that income generating from Ngarambe Tapika WMA trickle down to household and/or individual level because most who are affected is individuals and when households or individuals benefit that local communities are likely to conserve. And this can be achieved through increased employment of local community and well paid.

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MELANOMA DETECTION FROM SKIN IMAGES USING IMAGE PROCESSING

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ABSTRACT

To design a method for identifying Malignant or Non-Malignant melanoma in early stage. To improve the effectiveness of melanoma detection in existing work. The objective of this research is enhanced classification of skin lesion (Malignant or Non-Malignant). Retrieving the result with good accuracy and the melanoma can be detected as Harmful or Harmless. Melanoma is a serious type of skin cancer. It starts in skin cells called melanocytes. There are 3 main types of skin cancer. Basal cell carcinoma and squamous cell carcinoma are more common. But melanoma is more likely to spread to other parts of the body In this paper, an image processing method that has been initially developed for plant disease recognition is appropriately adapted for the detection of skin disorders. The image analyzing results are visually examined by the skin specialist and are observed to be highly accurate. The visual results are presented in the description and the accuracy of mathematical analysis is 94.88 percent. This system will give more accuracy and will generate results faster than the traditional method, making this application an efficient and dependable system for dermatological disease detection. Furthermore, this can also be used as a reliable real time teaching tool for medical students in the dermatology stream.

Keywords: Malignant Melanoma, Non-Malignant Melanoma, Skin Lesion, Basal cell Carcinoma, Squamous Cell Carcinoma,.

I. INTRODUCTION

Cancer is a collection of diseases that includes unusual cell development with the possibility of attacking or spreading to different organs in the body. These present themselves differently from cancers of the good heart, which do not spread. Possible signs and side effects include a lump, strange death, delayed hacking, unexplained weight loss, and stool adjustment. While these side effects can manifest as cancer, they can have other causes as well. Over 100 types of cancer affect people. Skin cancer is the strange growth of skin cells. [1] It forms regularly on skin exposed to the sun. Regardless, this normal type of cancer can also occur on areas of the skin that are normally not exposed to daylight. There are three main types of skin cancer, basal cell carcinoma, squamous cell carcinoma and melanoma. Skin cancer mainly develops on the scalp, face, lips, ears, neck, chest, arms and hands, and on the legs in women. For example the palms of the hands, under the fingernails or toes and the genital area.

Skin cancer affects people of all skin tones, including those who have a darker appearance. By the time melanoma occurs in people with dark complexions, it is inevitable that it will occur in areas that are not usually exposed to the sun, such as the palms of the hands and the soles of the feet. Non-melanoma skin cancer responds constantly to treatment and sometimes spreads to other skin tissue. Melanoma is riskier than most of the different types of skin cancer. If not recognized early, it is quickly attacked by nearby tissues and spreads to different parts of the body. A formal determination strategy for the detection of skin cancer is the biopsy technique. [2] A biopsy is a technique to remove a piece of tissue or sample cells from the tolerant body so that it can be very well studied in a research facility. It is a clumsy strategy. The biopsy method is boring even for tolerant people like a specialist as it requires some investment for testing. A biopsy is completed by expelling skin tissue (skin cells) and this example is experimenting with the research facility's test arrangement. It is plausible to spread the disease to another part of the body. It's more dangerous. As the number of patients increases, it becomes more and more difficult for radiologists to complete the indicative procedure in the limited time available. The inspiration for this work is to help radiologists increase the speed of rapid and accurate detection of skin cancer using Deep Learning (DL)

Early detection of skin cancer is a basis for improving outcomes and is associated with 99% in general endurance (GE). %. However, with proper progress and reasonable evaluation, current electronic innovation could improve the accuracy of the demonstration. There is no doubt that the artificial intelligence (AI) algorithms that sort photos of lesions have recently been shown to be equipped to sort melanoma with a virtually identical degree of skill as dermatologists.

For some time now, the question of the characterization of skin diseases has also been at the center of the concerns of the group of people with artificial intelligence. Robotic ulcer placement can both aid clinicians in

their daily clinical schedule and enable fast, modest, and life-saving access to analysis, even outside of the doctor's office, by creating apps on mobile phones. [4] Prior to 2016, generally continued to examine the old-fashioned AI work process: preprocessing, segmentation, feature extraction, and ranking. Either way, a high level of explicit user skill is required, especially for feature extraction, and determining sufficient features is very tedious. [5] Similarly, errors and data loss in the main phases of management affect the quality of the arrangement. For example, a poor segmentation result regularly requires poor results in feature extraction and, therefore, low clustering accuracy.

Considering each of the above mentioned cases, recognition of skin cancer using SVM is proposed. This procedure uses an advanced method of handling images and SVM for grouping. [6] This procedure has boosted the early identification of skin cancers and does not require the application of oil to the skin to obtain clear, crisp images of moles. In that sense, it's also a faster and cleaner approach. Anyway, mainly due to its greater amplification, detecting skin cancer using SVM can prevent unnecessary removal of beautifully harmless moles and skin lesions. The remainder of the article is organized as follows: Section II examines related work. Section III explains the proposed segmentation model. Section IV presents a detailed analysis of the results. Section V concludes the work

II. RELATED WORKS

Ho Tak Lau, Adel Al-Jumaily proposed an Automatically Early Detection of Skin Cancer Study Based on Neural Network Classification, in which, an automatically skin cancer characterization framework is created and the relationship of skin cancer image crosswise over various kind of neural network are contemplated with various kinds of preprocessing. The gathered images are feed into the framework, and crosswise over various image handling strategy to improve the image properties. [7] At that point the normal skin is removed from the skin affected area and the cancer cell is left in the image. Valuable data can be separated from these images and pass to the classification system for training and testing. The recognition accuracy of the 3- layers back-propagation neural network classifier is 89.9% furthermore, the auto-associative neural network is 80.8% in the image database that incorporates dermoscopy photograph and a digital photograph

Mahmoud Elgamel proposed an automatic skin cancer images classification technique, the basic concept is similar to the previously mentioned study, the difference is which includes three stages, namely, feature extraction, dimensionality reduction, and classification. In the first stage, we have gotten the features related to images utilizing discrete wavelet transformation. In the subsequent stage, the highlights of skin images have been decreased using principal component analysis to the more essential features. In the classification stage, based on supervised machine learning has been developed. The primary classifier based on feed-forward back-propagation artificial neural network and the subsequent classifier dependent on a k-closest neighbor. [8] The classifiers have been utilized to classify subjects as normal or abnormal skin cancer images. Order with an achievement of 93% also, 93.5% has been gotten by the two proposed classifiers and respectively.

There is a proposal on Methodology for diagnosing skin cancer on images of dermatologic spots by spectral analysis was by Esperanza Guerra-Rosas and Josué Álvarez-Borrego. This depends on utilizing Fourier spectral analysis by using filters such as the classic, inverse and k-law nonlinear. [9] The sample image was acquired by a quantitative measurement and another spectral technique is created to acquire a quantitative estimation of the complex pattern found in cancerous skin spots. At long last, a spectral index is determined to get a range of spectral indices characterized by skin malignant growth. The result will appear atan accuracy level of 94.5%.

A new advanced method on Detection and Analysis of Skin Cancer from Skin Lesions was proposed by Nidhal K. [10] EL Abbadi and 2Zahraa Faisal images are filtered to remove undesirable particles, at that point another technique for programmed segmentation of lesion territory is done dependent on Markov and Laplace filter to identify lesion edge, trailed by convert picture to YUV shading space, U channel will be processed to remove thick hair and concentrate lesion region. Finding skin cancer accomplished by utilizing ABCD rules with a new strategy for deciding asymmetry dependent on the rotation of lesion and divide lesion to two sections horizontally and vertically at that point check the number of pixels confounded between the two sections based on union and intersection between the two parts. A new strategy to decide the quantity of the number of colors based on the suggestion of color regions for each color shade was suggested in this paper.

A Deep learning-based skin lesion diagnosis was proposed by D.A. Gavrilov, N.N. Shchelkunov, A.V. Melerzanov. State-of-the-art solutions in the field of image processing and machine learning allow creating intelligent systems based on artificial convolutional neural network exceeding human's rates in the field of object classification, including the case of malignant skin lesions. [11] This proposal presents an algorithm for

the early melanoma diagnosis based on artificial deep convolutional neural networks. The algorithm proposed allows reaching the classification accuracy of melanoma at least 91%.

An innovative study on Automating Skin Disease Diagnosis Using Image Classification was conducted by Damilola A. Okuboyejo, Oludayo O. Olugbara, and Solomon A. [12]Odunaike. which focused on designing and modeling a system that will collate past Pigmented Skin Lesion (PSL) image results, their analysis, corresponding observations and conclusions by medical experts using prototyping methodology. The information will be used as a library. A part of the system would use computational intelligence techniques to analyze, process, and classify the image library data based on texture and possibly morphological features of the images. Trained medical personnel in a remote location can use mobile data acquisition devices (such as cell phone) to generate images of PSL, supply\ such images as input to the proposed system, which in turns should intelligently be able to specify the malignancy (life-threatening) or benign (non-threatening) status of the imaged PSL.

Automated detection of non-melanoma skin cancer using digital images mainly based on Computer-aided diagnosis, but its application to non-melanoma skin cancer (NMSC) is relatively under-studied. The study by Arthur Marka, Joi B. Carter, Ermal Toto & Saeed Hassanpour is aiming to synthesize the research that has been conducted on automated detection of NMSC using digital images and to assess the quality of evidence for the diagnostic accuracy of these technologies. [13] The method follows Eight databases were searched to identify diagnostic studies of NMSC using image-based machine learning models. Two reviewers independently screened eligible articles. The level of evidence of each study was evaluated using a five-tier rating system, and the applicability and risk of bias of each study were assessed using the Quality Assessment of Diagnostic Accuracy Studies tool.

III. PROPOSED SYSTEM

The proposed system has two phases namely the Training and testing phase. In the training phase, the images are undergoing several steps they are normalization, image enhancement, image segmentation, and feature extraction. Fig.1 shows the proposed system.

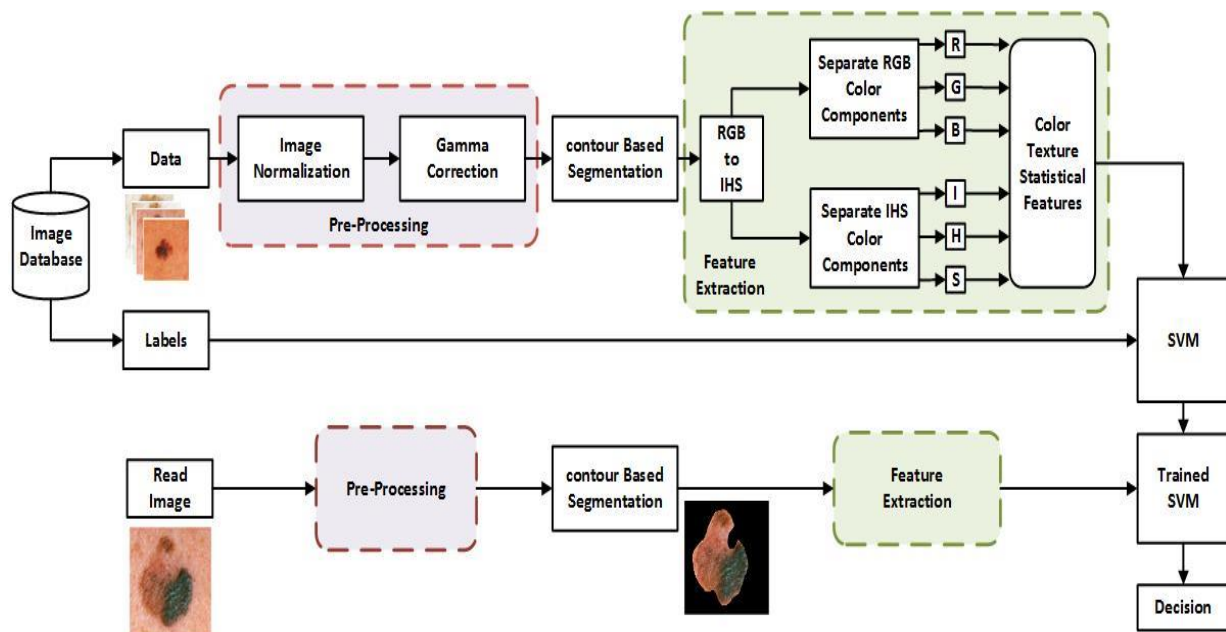


Figure.1. Block Diagram

A. Preprocessing

In image processing, standardization is a procedure that changes the extent of pixel intensity. Standardization is in some cases called differentiate extending or histogram extending. In increasingly broad fields of information handling, for example, computerized signal preparing, it is referred to as powerful range expansion. The motivation behind powerful range extension in the different applications is, for the most part, to bring the picture, or another kind of sign, into a range that is increasingly natural or typical to the faculties, henceforth the term standardization. Frequently, the inspiration is to accomplish consistency in a powerful range for a lot of information, flag, or pictures to stay away from mental interruption or exhaustion. [14] For instance, a paper will endeavor to make the entirety of the pictures in an issue share a comparative scope of grayscale.

Normalization convert k dimensional gray image $P: \{M \in F^I\} \rightarrow \{J, \dots K\}$ with intensity values into a new image $P_{new} : \{M \in F^I\} \rightarrow \{J_{new} \dots \dots, K_{new}\}$.

The linear normalization of a gray image is given by the following formula.

$$P_{new} = (P - J) \frac{K_{new} - J_{new}}{K - J} \quad (1)$$

a. Gamma Correction

Gamma correction, or regularly basically gamma, is a nonlinear activity used to encode and interpret luminance or tristimulus values in video or still picture systems. [14] Gamma correction is, in the least complex cases, characterized by the accompanying force law articulation:

$$I_{out} = KI_{in}^\gamma \quad (2)$$

Where, the non-negative genuine info esteem I_{in} is raised to the power γ and duplicated by the consistent K , to get the yield esteem I_{out} . In the regular instance of $K = 1$, information sources and yields are commonly in the range 0–1.

b. Contour Based Segmentation

An active contour or snake is a curve defined in an image that is allowed to change its location and shape until it best satisfies predefined conditions. It can be used to segment an object by letting it settle much like a constricting snake around the object boundary. A snake C is usually modeled as a parameterized curve $C(s) = (x(s), y(s))$, where the parameter s varies from 0 to 1. So, $C(0)$ gives the coordinate pair $(x(0), y(0))$ of the starting point, $C(1)$ gives the end coordinates, and $C(s)$ with $0 < s < 1$ gives all intermediate point coordinates. The movement of the snake is modeled as an energy minimization process, where the total energy E to be minimized consists of three terms:

$$E = \int E(C(s)) ds \quad (3)$$

$$= \int E_i(C(s)) + E_e(C(s)) + E_c(C(s)) ds$$

The term E_i is based on the internal forces of the snake; it increases if the snake is stretched or bent. The term E_e is based on external forces; it decreases if the snake moves closer to a part of the image, we wish it to move to. For example, if we wish the snake to move to edges, we may base this energy term on edginess values. [15] The last term E_c can be used to impose additional constraints, such as penalizing the creation of loops in the snake, penalizing moving too far away from the initial position, or penalizing moving into an undesired image region. For many applications, E_c is not used, i.e., simply set to zero. Common definitions for the internal and external terms are:

$$E_i = c_1 \left\| \frac{dc(s)}{ds} \right\|^2 + c_2 \left\| \frac{dc(s)^2}{ds^2} \right\|^2 \quad (4)$$

$$= -c_3 \|\nabla f\|^2$$

Where the external term is based on the assumption that the snake should be attracted to edges of the original image f . By using other external terms, we can make use of different image features, making the snake follow ridges, find corner points, etc. The constants c_1 , c_2 , and c_3 determine the relative influence of each term on the movement of the snake. [15] Fig.2 shows the object image and snake evaluation towards the object. The first one shows the initial snake position and in further images shows the further evaluation of snake towards object boundary. In the last image snake completely tracks the object boundary which gives the shape of the object perfectly.

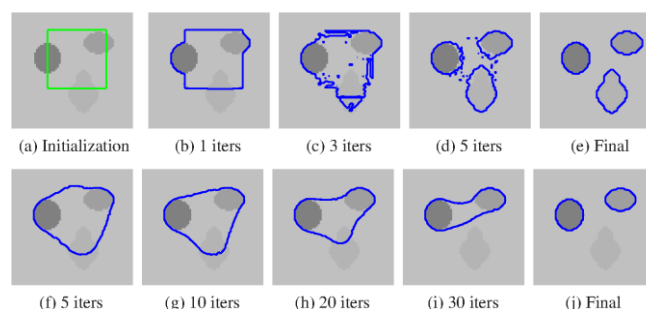


Figure.2. Contour Based Segmentation

c. IHS Color Feature

The Intensity-Hue-Saturation (IHS) transformation decouples the intensity information from the color carrying information. The hue attribute describes a pure color and saturation gives the degree to which pure color is diluted by white light. This transformation permits the separation of spatial information into one single intensity band. There are different models of IHS transformation. The models differ in the method used to compute the intensity value. Smith's hexacore and triangular models are two of the more widely used models. The hue and saturation values are computed based on a set of complex equations.

While converting color from RGB to IHS following transform is used.

$$\begin{bmatrix} I \\ V_1 \\ V_2 \end{bmatrix} = \begin{bmatrix} 1/3 & 1/3 & 1/3 \\ -1/\sqrt{6} & -1/\sqrt{6} & 2/\sqrt{6} \\ 1/\sqrt{6} & -2/\sqrt{6} & 0 \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix} \quad (5)$$

$$S = \sqrt{V_1^2 + V_2^2} \quad (6)$$

$$H = \tan^{-1} \left(\frac{V_2}{V_1} \right) \quad (7)$$

The advantage of the IHS is that large volumes of data can be processed quickly and sharp images are generated. The disadvantage is that it might result in a spectral distortion from the original multispectral image.

d. Color feature

Color is a significant and the most straight-forward element that people see when seeing a picture. The human vision framework is progressively delicate to color data than dim dimensions so the color is the primary competitor utilized for highlight extraction. A color histogram is one normal technique used to speak to the color substance.

RGB color space is the most widely recognized one utilized for pictures on PC since the PC show is utilizing the mix of the essential colors (red, green, blue) to show any apparent color. Every pixel on the screen is made out of three which is animated by red, green and blue electron gun independently. [16].

In any case, RGB space isn't perceptually uniform so the color separate in RGB color space does not compare to color divergence in observation. [19] Along these lines we like to change picture information in RGB color space to other perceptual uniform space before highlight extraction. In our method, the RGB components of the image are extracted separately.

e. Texture Feature

i. Local Binary Patterns (LBP):

LBP is a sort of visual descriptor utilized for characterization in PC vision. LBP operator is frequently utilized to the grayscale picture, where a code is performed for every pixel. But in our proposed system the LBP operator is used for color image for that initially the R, G and B component of the image is extracted separately and stored in a matrix after that the LBP is applied to the R, G, and B components separately. For instance, when thinking about a cell of 3x3 pixels, the focal pixel is looked at to neighbor pixels. Any order of pixels is conceded, be that as it may, thus the begin is the upper left pixel, when utilizing clock-wise course. In the event that the estimation of the center pixel is littler than or on the other hand equivalent to the estimation of the neighbor then an "1" will be taken into the record, generally a "0" is considered. [17] [19] The resulted value is a binary number that is associated with a pattern. A weight is doled out to every digit of the got double number and a comparing thing can be determined.

ii. Compound Local Binary Pattern (CLBP)

The original LBP operator discards the magnitude information of the difference between the center and the neighbor gray values in a local neighborhood. As a result, this method tends to produce inconsistent codes. [18] One example is shown in Figure 3. Here, the 8-bit uniform LBP code (11111111) corresponds to a flat area or a dark spot at the center pixel [16], which is not correct in this case. As the LBP operator considers only the sign of the difference between two gray values, it often fails to generate appropriate binary code. Being motivated by this, we propose CLBP, an extension of the original LBP operator that assigns a 2P-bit code to the center pixel based on the gray values of a local neighborhood comprising P neighbors. Unlike the LBP that employs one bit for each neighbor to express only the sign of the difference between the center and the corresponding neighbor gray values, the proposed method uses two bits for each neighbor in order to represent the sign as well as the magnitude information of the difference between the center and the neighbor gray values. Here, the first bit

represents the sign of the difference between the center and the corresponding neighbor gray values like the basic LBP pattern and the other bit is used to encode the magnitude of the difference with respect to a threshold value, the average magnitude (M_{avg}) of the difference between the center and the neighbor gray values in the local neighborhood of interest. [19] The CLBP operator sets this bit to 1 if the magnitude of the difference between the center and the corresponding neighbor is greater than the threshold M_{avg} . Otherwise, it is set to 0.

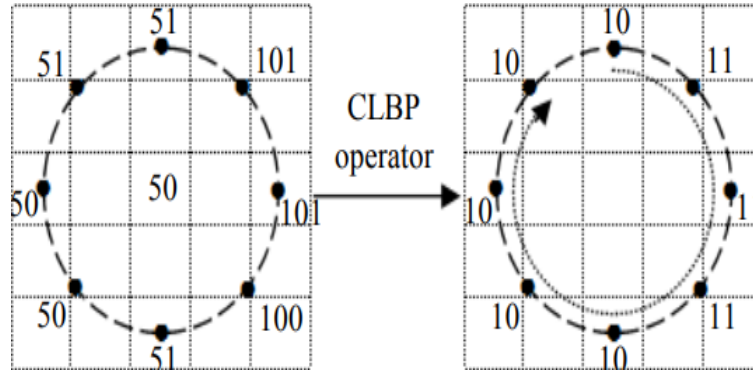


Figure.3.Illustration of the basic CLBP operator. Here, the generated CLBP code is 1011111110101010.

Thus, the indicator $s(x)$ of (2) is replaced by the following function:

$$s(i_p, i_c) = \begin{cases} 00 & i_p = i_c < 0, |i_p - i_c| \leq M_{avg} \\ 01 & i_p = i_c < 0, |i_p - i_c| > M_{avg} \\ 10 & i_p = i_c \geq 0, |i_p - i_c| \leq M_{avg} \\ 11 & \text{Otherwise} \end{cases} \quad (8)$$

Here, i_c is the gray value of the center pixel i_p is the gray value of a neighbor p , and M_{avg} is the average magnitude of the difference between i_p and i_c in the local neighborhood.

f. Static Feature

i. Mean

Mean is the average of all pixels of an image. The arithmetic mean filter, otherwise called averaging filter, works on a sliding 'm×n' window by ascertaining the normal of all pixel esteems inside the window and supplanting the middle pixel esteem in the goal picture with the outcome. Its numerical definition is given as pursues as given by

$$MEAN = \frac{1}{mn} \sum_{i=0}^{M-1} \sum_{j=0}^{N-1} f(i, j) \quad [19] \quad (9)$$

ii. Standard Deviation (Std):

It is the most widely used measure of variability or diversity used in statistics. As far as picture handling it indicates how much variety or "scattering" exists from the normal (mean, or anticipated esteem. [19] A low standard deviation demonstrates that the information directs incline toward being very near the mean, while elevated expectation deviation shows that the information calls attention to spread out over an enormous scope of qualities. Mathematically standard deviation is given by

$$\tilde{f} = \sqrt{\frac{1}{mn-1} \sum_{(r,c) \in W} \left(g(r, c) - \frac{1}{mn-1} \sum g(r, c) \right)^2} \quad (10)$$

A standard deviation filter calculates the standard deviation and assigns this value to the center pixel in the output map. As it has the capability in measuring the variability, it can be used in edge sharpening, as intensity level gets changes at the edge of the image by a large value. Standard deviation filters can be useful for radar images. The interpretation of radar images is often difficult: you cannot rely on spectral values because of backscatter (return of the pulse sent by the radar). This often causes a lot of 'noise'. By using a standard deviation filter, you may be able to recognize some patterns.

iii. Variance

Variance is used to classify into different regions by calculating how each pixel varies from the neighboring pixel (or center pixel) and is used in classify into different regions. [19]

$$VARINACE = \frac{1}{MN} \sum_{i=0}^{M-1} \sum_{j=0}^{N-1} f(i,j) - \bar{f}(i,j) \quad (11)$$

Where, $\bar{f}(i,j)$ is the mean of the image block

iv. Kurtosis

$$\begin{aligned} & \check{f}(x,y) \\ &= \frac{1}{mn-1} \sum_{(r,c) \in W} \left(\frac{1}{mn-1} \sum_{(r,c) \in W} g(r,c) - \frac{1}{mn-1} \sum_{(r,c) \in W} g(r,c) \right)^4 \\ &= \frac{1}{mn-1} \sum_{(r,c) \in W} \left(\frac{1}{mn-1} \sum_{(r,c) \in W} g(r,c) - \frac{1}{mn-1} \sum_{(r,c) \in W} g(r,c) \right)^2 \end{aligned} \quad (12)$$

In statistics, kurtosis [9] is a measure of the shape of the probability distribution of a real-valued random variable. [14] It is closely related to the fourth moment of a distribution. A high kurtosis is distribution has longer, fatter tails, and often (but not always) a sharper peak. A low kurtosis distribution has shorter, thinner tails, and often (but not always) a more rounded peak. Mathematically kurtosis is given as follows

g. Support Vector Machine

In AI, SVM are coordinated learning models that ought to have related learning figuring should use the data and see structures for portrayal and backslide examination SVM can perform either straight or non-direct arrangement. Shows how basic leadership is performed in SVM. In supervised training, the preparation information comprises an arrangement of preparing cases, where every illustration is a couple comprising of information and expected yield esteem. [20] A regulated learning algorithm investigates the preparation information and after that predicts the right classification forgiven informational index input. For example, the teacher teaches the student to identify orange and lemon by giving some features of that. Next time when the student can see lemon or orange can easily classify the object based on his gaining from his educator, this is called directed learning.

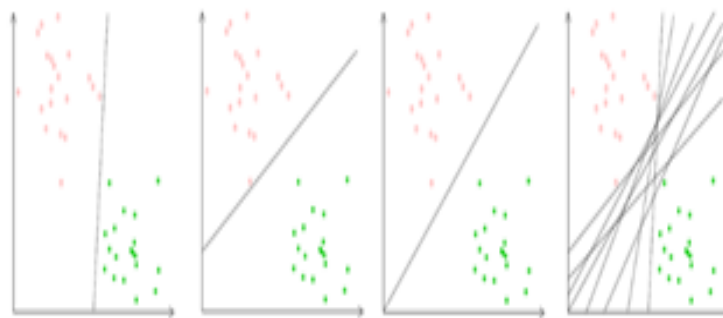


Figure.4. SVM

One can perceive the article just if it is lemon or orange, yet if the given inquiry was grapes the understudy can't recognize it The Margin of a quick classifier has the width by which the length of the purpose of imprisonment can be reached out before hitting the information explanations behind a substitute course of action. The line is protected to pick having the most astounding edge between the two datasets. The information focuses which lie on the edge are called Support Vectors. The subsequent stage is to discover the hyperplane which best isolates the two classes. SVM plays out this by taking an arrangement of focus and part them utilizing diverse application-particular scientific recipes. From that, we can locate positive and negative hyperplane. Figure 4. Shows how support vectors are represented in SVM. The numerical equation for discovering hyperplane is

$$(p,q) + r = +1(\text{positive labels}) \quad (13)$$

$$(p,q) + r = -1(\text{negative labels}) \quad (14)$$

$$(p,q) + r = 0(\text{hyper labels}) \quad (15)$$

We can find the values of P and r using the above equation and linear algebra. Thus, we get the answers for p and r with a margin value of $2\sqrt{(k.k)}$. The margin is calculated as follow

$$\text{Margin} = 2/2\sqrt{(k.k)} \quad (16)$$

In SVM, this model to categorize new data. With the above functional solutions and calculated marginal value, new data can be categorized into a different category level. The following figure demonstrates the margin and SV for linearly separable data.

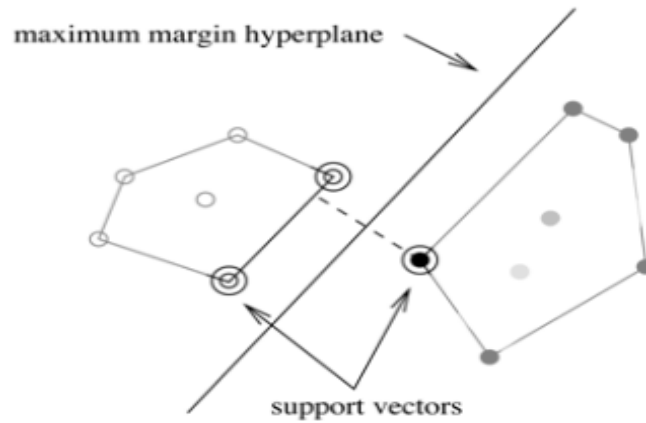


Figure 5. Maximum margin and support vectors for the given datasets.

IV. RESULT AND DISCUSSION

The proposed skin cancer detection model is implemented in MATLAB 2018a in an i5 system with 4 GB RAM. In this work, we have used the PH² database. Performances of the model are measured in terms of Total Accuracy (TAcc), sensitivity (San), specificity (Spec), Positive Predicted Value (PPV) and Negative Predicted Value (NPV). For the analysis purpose, our method is analyzed with the existing methods. The resultant graphs with respect to detection performance are given below. Additionally, Fig 6 shows the sample images used in the Image retrieval model.

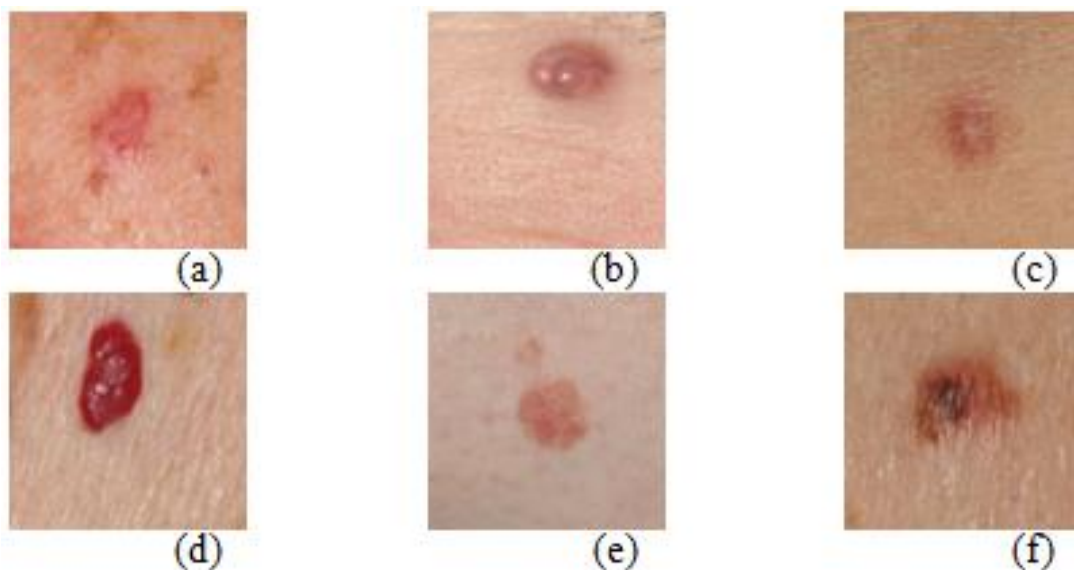


Figure. 6. (a)-(f) Sample input images

a. Dataset

This image database contains a total of 200 dermoscopic images of melanocytic lesions, including 80 common nevi, 80 atypical nevi, and 40 melanomas. The PH² database includes medical annotation of all the images namely medical segmentation of the lesion, clinical and histological diagnosis and the assessment of several dermoscopic criteria. The assessment of each parameter was performed by an expert dermatologist.

b. Evaluation Metrics

i. Accuracy

Accuracy of a system is defined as the ratio between a number of correct predictions to the total number of predictions. Table –I show that the proposed system yields high accuracy rather than the other methods.

$$\text{Accuracy} = \frac{Tp + Tn}{(TP + TN + FP + FN)} \quad (17)$$

ii. Sensitivity

Sensitivity is defined as the ability to respond to affective changes in the input data. From the table, it is clear that our proposed method has more sensitivity than the other existing methods

$$\text{sensitivity} = \frac{Tp}{Tp + Fn} \quad (18)$$

iii. Specificity

Specificity is defined as the ability of a system to correctly segment the images is called specificity. The proposed system produces the maximum specificity of 91.

$$\text{specificity} = \frac{Tn}{Tn + FP} \quad (19)$$

iv. Positive predictive value

Positive predictive value is the probability that subjects with a positive screening test truly have the disease.

$$PPV = \frac{\text{number of True Positive}}{\text{number of Positive Calls}} \quad (20)$$

v. Negative predictive value

Negative predictive value is the probability that subjects with a negative screening test truly don't have the disease.

$$NPV = \frac{\text{number of True Negative}}{\text{number of Negative calls}} \quad (21)$$

c. Results

Color is the most important feature of the colored image, and when you deal with colored images to extract some information the image must be split the colored image according to its type of representation (e.g. RGB or HSV, etc.) to process the pixel intensity values. Fig.7. shows the separated Red Component (a), Green component (b), Blue Component (c) in RGB color space and Hue Component (d), Saturation component (e) and Intensity Component (f) in HIS color space.

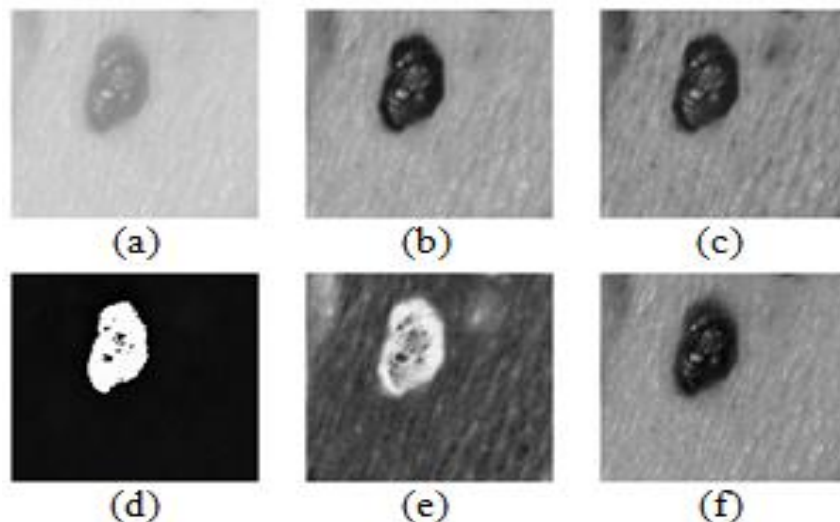


Fig.7. (a) Red Component, (b) Green component, (c) Blue Component(d)Hue Component, (e) Saturation component, (f) Intensity Component

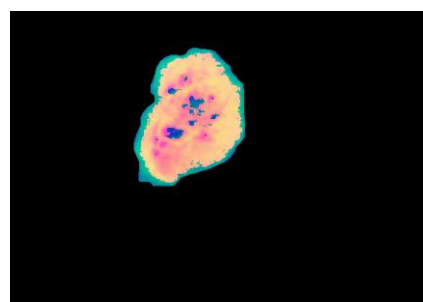


Fig. 8. HIS color component of Segmented image

Table I. shows the segmentation performance of the proposed method for the input melanoma images our proposed method is compared with another existing method. Among all the method proposed method performs better than other methods. Fig.8. shows the segmented input images which have melanoma.

TABLE-I SEGMENTATION PERFORMANCE					
Methods	Sen	Spec	PPV	NPV	TAcc
[20]	84	72	70	87	77
[31]	82	71	67	85	76
ANN	80	69	68	84	75
Prop	93	91	93	23	95

V. CONCLUSION

In this paper, a highly accurate Melanoma Detection and classification are performed by using multiple feature extraction and SVM classifier. The input image is preprocessed by using normalization to scale the image. Adaptive gamma correction is applied to improve the contrast of the image. Multiple feature extractions such as color, texture and statistical features are estimated to train the support vector machine. Training and testing are performed separately by using collected sample data. From the evaluation result, it is clear that the proposed algorithm obtained the highest accuracy of 95% percentage it is higher when compared to the conventional algorithms.

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REFLECTION OF FEMININE SENSIBILITY IN KAMALA DAS'S POETRY

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ABSTRACT

Kamala Das is experiment with a feminine sensibility, strongly demands equality with men, and examines love and life from a woman's point of view. Cultural, social, mythical, and familial past of herself and her country are stuff in prose and poetry. Her poetry is not merely Indian but a passionate expression of the universal experience of love, despair, anguish, and failure apprehended through a feminine Indian sensibility. Her poetry is characterizes by extreme sincerity and integrity, she speaks out of her love- longings, frustration and disillusionments with a disarming frankness. She writes, it seems, for therapeutic purposes. It is a kind of psychological striptease that she enacts in her poetry. It shows that in a male dominated world, she tried to assert her individuality to maintain her feminine identity and from this revolt arose all her troubles, psychological traumas and frustrations. Her poem focuses on conventional, weakness and strength as a poet. The poem has three structural units. The first is an address of a female voice to her male counterpart. It spells out her story from freedom to imprisonment, a girl dwindling into a wife. The second enumerates her diurnal duties as wife, her becoming a dwarf under the inflated male ego. It also stresses the loss of her naturalness in the artificial context. The third unit etches out her present predicament of despair and loneliness. The image of a swallow forgetting her home and her instinctive urge to fly reflects most transparently the girl's loss of freedom and identity. The weakness is demonstrated in the most obvious fact that many of the poems in the collection are tale- they have appeared in numerous places again and again. The very few poems that are new in the volume demonstrate another weakness – her penchant for dwelling on the theme of sensuality. In poem after Kamala Das is interested only talking about her sexual exploits, her physical life, and the mood of her body. She attempts to covert her weakness into her strength, she makes up for the lack of depth of experience by her flamboyant reference to her sexual encounters, her more than daring treatment of her unorthodox private life.

Key words: Love, Sex, feminine, sensibility, suppression, frustration, dominated and exploitation

INTRODUCTION:

Kamala Das started writing at first in Malayalam. Being a member of a family with much literary heritage her attempts to project her views were encouraged. She has written on a variety of themes, she is widely known as a poet of love. She has dealt with various facets of love and her tone throughout is purely feminine. It expresses her anguish, deep concern, and pronouncements on life, love and literature Her short stories were widely admired as they presented a girl in her teens in the most realistic way and in the true social and emotional perspective

Her short stories were widely admired as they presented a girl in her teens in the most realistic way and in the true social and emotional perspective. Kamala Das, who has published only three slender volumes of poetry, *Summer in Calcutta*, *The Descendants* and *The Old Play House and other poem*, has stabilized “ her reputation as the Femme fatale” of Indian English poetry. In her poetry we find the best expression of feminine sensibility. Being a woman and wife, she has a minute and through knowledge of feminine sensibility, its exploitation, its hurts, its anguishes and its suppression in a male-dominated society. So her poetry is confessional and autobiographical to a great extent but at times she universalises what is personal. K.N. Daruwalla remarks; “In a manner Kamala Das has shown the way to the women poets in India”. He again says: “A writer of undoubted talent, Kamala Das was an instant success with the publication of *summer in Calcutta*, her first and best book so far. The intensity of feeling, ably controlled in her better poems, and the uninhibited manner in which she treated sex, immediately won for her a big audience.” (Mina Surjit Singh, 77)

Love and Sex- Love and sex form the main theme in Kamala Das poetry. K.N.Daruwall writes, “ Kamala Das is pre-eminently a poet of love and pain, one stalking the other through a near neurotic world. There is an all pervasive sense of hurt and humiliation is the warp and woof of her poetic fabric. She seldom ventures outside this personal world.” (Mina Surjit Singh, 77)

Love is the central emotion in woman's heart. She craves for union with man for the fulfillment of love but she is disillusioned and frustrated when it degenerates into sheer lustfulness and bodily pleasures. Her poetry deals with unfulfilled love and the celebration of sex. K.R.S. Iyengar says: “Under the Indian sun, although sensuality

lures irresistibly, yet it fails to satisfy; feeling and introspection but sounds the depths of oceanic frustration; and the calm of fulfillment eludes forever. Love is crucified in sex, and sex defiles itself and again and again.”(Iyengar, Srinivas, 288)

Kamala poetry is a recordation of her own experience and observations, her own unfulfilled love and her now sexual exploitation, frustration and disillusionment that she had to suffer in a male dominated society. She creates a world which is emotionally sterile and unproductive, a world where outward ecstasy conceals inner vacuity. It within, In them the poetess finds an objective correlative for her own unfulfilled love longings,. The dance of the eunuchs symbolizes the dance of the sterile and, therefore, the unfulfilled and insatiable love of the woman in the poet. The poetess reveals her own frustration and disillusionment in love through the dancing eunuchs. She always focuses her eyes on the pathos of her own predicament:

“Their voices

Were harsh, their songs melancholy; they sang of

Lovers dying and of children left unborn....

Some beat their drums; tigers beat their sorry breasts

And wailed, and writhed in vacant ecstasy” (Eunice De Souza, 12)

In poem after poem Kamala das is preoccupied with love, sex and frustration. Married at the early age of sixteen, Kamala das could not find the fulfillment of love in married life, a bond that she could not untie. Love proved to be a pretension. She was tied to the tedium and monotony of sexuality:

I was child, and later they

Told me I grew, for I became tall, my limbs,

Swelled and one or two places sprouted hair when

I asked for love, not knowing what else to ask

For, he drew a youth of sixteen into the

Bedroom and closed the door. He did not beat me

But my said woman-body felt so beaten

The weight of my breasts and womb crushed me

(“An Introduction”)

She reveals the quest of a woman for love in general terms. It is her intense longing to find fulfillment in love. The weakness is demonstrated in the most obvious fact that many of the poems in the collection are tale- they have appeared in numerous places again and again. The very few poems that are new in the volume demonstrate another weakness – her penchant for dwelling on the theme of sensuality. In poem after Kamala Das is interested only talking about her sexual exploits, her physical life, and the mood of her body. She attempts to covert her weakness into her strength, she makes up for the lack of depth of experience by her flamboyant reference to her sexual encounters, her more than daring treatment of her unorthodox private life.

I met a man, loved him. Call

Him not by any name, he is every man

Who wants a woman just as I am every

Woman who seeks love, In himthe hungry haste

Of rivers, in me.....the ocean’s tireless

Waiting.

(“An Introduction”)

The uninhibited and frank description of sex characterizes her poetry. In “*Freaks*” she presents a glaring contrast between woman whose mind is willed “to race towards love” where the mind of man only trips “idly over puddles of Desire”, i.e., sexual desire and act. He always satiates “skin’s lazy hungers” In such callous and loveless atmosphere Kamala Das’s heart (the heart of every woman)is

An empty cistern, waiting

Through long hours, fills itself

With coiling shakes of silence....

I'm a freak. It's only

To save my face, I flaunt at

Times a grand, flamboyant lust ("*Freaks*")

How frankly and clearly she describes the sex-act!(Eunice De Souza, 10)

The repartition of "loved and loved" reveals the woman's intensity for love but she is not able to realize it, as her male partner is loveless sex personified. In "*The Sea Shore*" the poetess bewails the loss of love in the male-dominated world:

I see you go away from me

And feel the loss of love I never once received.

Another facet of love that Kamala das expresses in her love poetry is dual relationship, i.e. a strong sense of belonging to one and uniting with another. In her pursuit of realizing love a woman, even though married, runs from one man to the other. In "*The Testing of the Sirens*" the feeling is strongly communicated:

"I am happy, just being with you. But you....

You love another" (Eunice De Souza, 13)

The ephemeral, elusive nature of this thing called love between man and woman, the longing to find it and the inevitable disappointment of that longing, are drawn out through this metaphor of relationships being no more than role-playing. The poem beautifully sustains the tone of joyous-sad felling that haunts a deep relationship between a man and women. In the end, the lingering sadness prevails. But none of her male companions gives her love. She feels disillusioned and frustrated:

"Shut my eyes, but inside eye-lids, there was

No more night, no more love, or peace, only

The white, white sub burning, burning, burning.....

And why does love come to me like pain

Again and again and again." (Eunice De Souza,14)

It mixes the personal and the autobiographical elements and is not merely subjective. There is greater play of conscious awareness of the objective world on the part of the poet, larger scope for technical variety, resulting in poetry of a richer texture. Kamala das has failed to achieve this complexity, either because her experiences have lacked variety or because her artistic technique has not been so ambitious.

The drying up of the creative fecundity of the poet is evident much too soon. The development strength that one looks for in a poet's successive work is missing in these new additions. The theme of lust is once again the preoccupation of the poet and it has not deepened into the intensification of love or the extension of a self-quest.

How poignantly Kamala das expresses the agony of a disillusioned woman who belongs to the one but cherishes the memory of another in "*An Apology to Gautama*"!

Another's name brings tears, yours

A calm, a smile, and yet Gautama,

That other own me, while your arms

Hold my very soul.(Eunice De Souza, 15)

In "*The Stone Age*" the wife, craving for love which her husband denies her, rebels and in her husband's absence knocks "at another's door". Through peep-holes the neighbors watch her "come and go like rain". The sexual union is described with full frankness:

"Ask me, everybody, ask me

What he sees in me, ask me why he is called a lion;
A libertine, ask me the flavor of his
Mouth, ask me why his hands sway like a hooded snake
Before it clasps my pubis. Ask me why like
A great tree, felled, he slumps against my breasts,
And sleeps, ask me what bliss is and what its price" (Eunice De Souza, 15)

The poet draws attention to her role-playing techniques and represents the tension in the poem is once again set up on the opposition of the man-woman relationship. The complaint of the woman continues against the inadequacies of love, the intolerable sexual tyrannies. The poem ends on a note of protest against these impositions, with the assertions that love.

In "*Conflagration*" lust is pictured with a brutal realism. A man who indulges in sheer loveless sex lets his wife go astray. In her pursuit of finding love she goes from one man to the other but to her utter dismay and disappointment she finds all of them to be loveless sexual beasts. All men are cast in the image of her husband:

".....you let me toss my youth like coins
Into various hands, you let me mate with shadows,
You let me sing in empty shrines, you let your wife
Seek ecstasy in other's arms. But I saw each
Shadow cast your blurred image in my glass, some how
The words and gestures seemed familiar" (Eunice De Souza, 15)

Feminine Sensibility and Rebellion – Kamala das is a singer of feminine sensibility and rebels against the conventions and restraints of society, which are meant to exploit womankind in a manmade world. K.R.S. Iyengar writes: "Kamala Das is a fiercely sensibility that

Dares without inhibitions to art culture the hurts it has received in an insensitive largely man-made world." (Iyengar, Srinivas, 299) In her poetry she is intensely conscious of herself as a woman. Her vision is vitally particularized by woman's point of view. Men do not see women as women but as objects or playthings. She says:

".....these men who call me
Beautiful, not seeing
Me with eyes but with hands" (Eunice De Souza, 16)

The complaints against a man and marriage or the happiness of womanly fulfillment in childbirth and housewifery are all there as the inevitable raw material, but the poets invariably grow towards a new awareness and a deepening strength of their identity as woman and artists as they handle this material and progress from one creative efforts to another.

Kamala das feminine sensibility craves for fulfillment in love. She is deeply hurt when love is denied to her. Mere sexual union, devoid of love, tries and sickness her:

"Who can
Help us who have lived so long
And have failed in love?" (Eunice De Souza, 16)

The most recurrent theme in Kamala Das's poetry , as pointed out in the forgoing pages is love, rather the failure of love or the absence of love in woman who strives for it in a loveless male world, for she can realize her being only through love. Like most of her poems on love and sex, this poem is characterized by an emotional intensity arising from a deep sense of betrayal, from the feeling that she has been damned to a life of imprisonment in a male-dominated world. Kamala Das has been accused of indifference to structure and syntactical order but in this poem one finds a conciseness and tightness of structure achieved by a network of concrete images which account for the success of the poem and also make the experience recorded in the poem transcend the personal level and become one with which every reader can empathies.

Feminine sensibility is badly bruised and tortured by masculine callousness, heartlessness and sexuality:

“ Even now his

Killings are unintentional;

Each hurting word a stone that did not mean to

Kill, but killed all the same and each kindness

A snake that reared only to hiss,

But struck” (Eunice De Souza, 17)

The stifling, crippling atmosphere of her husband’s house with its male –dominated setting has made her loose zest for life. Her life has now become an old playhouse where with all its light put out, the zest for life has gone.

“ for , love is Narcissus at the water’s edge. Haunted

By its own lonely face, and yet it must seek at last

An end, a pure, total freedom, it must will the mirrors

To shatter and the kind night to erase the water” (Kamala Das, 87)

Love is perhaps no more than a way of learning about one’s self and its reward an insight not into another’s being but really into one’s own. Narcissus was the legendary youth who fell in love with his own image reflected in a fountain it to be the nymph of the place. His fruitless attempts to approach this beautiful object drove him to despair and death.

The poet could not read all the books in her ancestral house as she was too young then to read them. Now, after her grandmother’s death, the books have fallen into disuse. The windows in the old house, through which one could see nothing. Kamala Das deeply loved and admired her Grandmother. Kamala Das laments over the death of her “grandmother and decline of her ancestral place.

Darkness to bring it here to lie

Behind my bedroom door like a brooding

Dog....you cannot believe, darling,

Can you, that I lived in such a house and

Was proud, and loved.....I who have lost” (Kamala Das, 85)

The poetess got love from her grandmother in her girlhood. Now she yearns for love and begs it even from strangers, but fails to get it .she is hungry of love. Unfortunately, nobody fills her heart with the life-nourishing emotion of love.

“My way and beg now at strangers’ doors to

Receive love, at least in small change?” (Kamala Das, 85)

It is to be conscious of the air around the ancestral home; frozen because the air seemed dead and motionless and a black dog curled up and silent. The Grandmother’s House is a symbolic retreat for the poetess to a world of innocence; purity; love and simplicity form a world of corruption, sterility exploitation and cunningness. It is a sanctuary of love which is conspicuous by its absence in the harsh world of reality

CONCLUSION:

In her poems of love theme we have seen how her feminine sensibility has suffered poignantly in want of love. There are various poems of Kamala das which illustrate her feminine sensibility, particularly those poems which she writes in the garb of Radha waiting for Krishna to redeem her suffering love. The poem is compact and well- knit so far as its structure is concerned. The poem is justly famous as one of Kamala Das’s poetic achievements. She speaks of her misfortune in not having received true love or affection from any man

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**INVESTIGATION AND PERFORMANCE OF FULLY AUTOMATIC PIPELINE SYSTEM
DISCOVERY ACUTE STROKE SEQUENCE USING DEEP LEARNING IN CLOUD ENVIRONMENT**

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ABSTRACT

The assessment of multivariate circulations of from high dimensional information with low example size is at the center of many picture examination applications. The proposed framework gauges a multivariate Gaussian conveyance of dissemination tensor highlights in a bunch of mind areas. This conveyance is utilized to distinguish the imaging irregularities in subjects with mind injury.

Considering optical scattering signal given by the scattering imaging, it fostered a solitary, united processing stage drawing in the evaluation of change in the blood transfusion, circulatory framework, erythrocyte's speed, and the lightning decrease inside the cortical tissues, central brain in a whole model. When going through the limit stage (5 minutes to generally couple of hours followed by blood obstruction), the multi parameters of OCT images are uncovered unmistakable hemodynamically and the tissues scattering reactions in the tunnel, includes cerebral circulatory framework deficiencies, thin not perfusing, ejection of entering vessel, and expanded lightning incapacitating in the cortical tissues in hazard which are space related along with the local area, as coordinated by after death stained with TTC.

I. INTRODUCTION

Deep learning changes the era of human invention. It's a big revolution which changes the view of the entire world. To know about the deep learning, much knowledge required in Machine Learning and Artificial Intelligence. Deep Learning is a subset of Machine Learning, where ML is the of Artificial Intelligence.

AI is the technology which imitates the human behavior. i.e the machine will be designed to act like a human being.

Machine Learning is considered to be applying much, many algorithms to the machine in order to make them as especially useful for some purpose.

Types of Machine Learning

The main types of Machine Learning are listed below, in order to know the introduction of Random Forest Algorithm

(i) Reinforced Learning

Trial and error method is engaged here to make the specific decision.

(ii) Unsupervised Learning

Indulge of user is required. i.e users has to see the data and divide it based on algorithms. Here the training portion is not there.

(iii) Supervised Learning

User will train the models using lots of data. Supervised algorithm is again classified as classification and regression. [12]

Deep Learning coins the meaning of applying algorithm called Neural Network. It is predictable object.

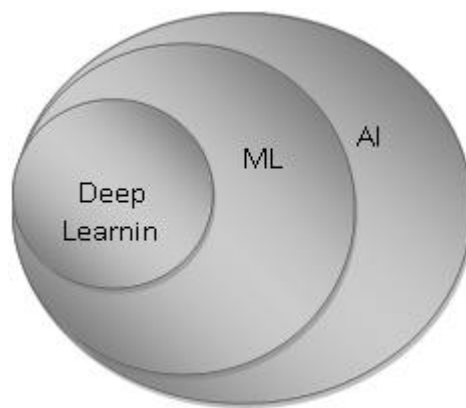


Fig 1. Connection among three fields

Neural Network

Cerebral Cortex structure drives the neural networks. The very fundamental level is the perceptron; it acts as the mathematical representation of a biological neuron. As like in the cerebral cortex, there are many layers of interconnected perceptrons.

The inputs are fed into the network of hidden layers, which penetrates through many layers and reach the output layer. The output layer is termed as prediction. Each circle represents the neurons. Each node has a weight, and it multiplies its input value by that weight.

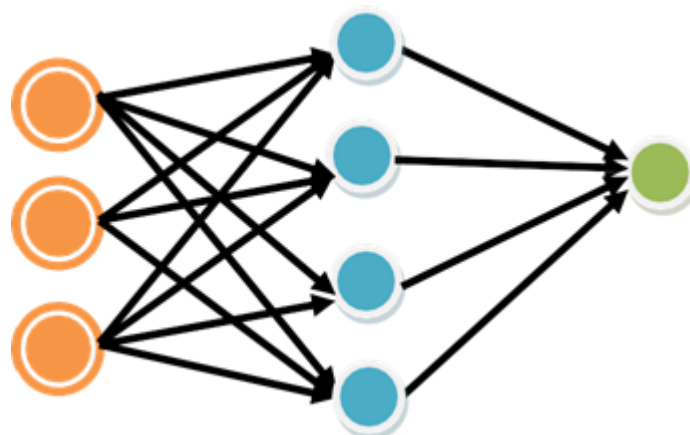


Fig 2. Neural Network Structure

Basic Steps:

Step 1: The first orange color circle represents the input neurons. Step 2: Weight is represented at each synapse.

Step 3: At each neuron in the next layer, the weights in each layer will be summed up and sigmoid function will be applied until it reaches the output layer.

Step 4: The output of the function at each layer will act as the input to the next layer. Step 5: This summing up and the above steps will be continued until it reaches the output.

Remote sensing and image processing are the most prevalent domains in many industries. The neural network is mostly used for categorization in these fields. It is one of the most important patterns learning paradigms, and it is based on a variety of data and information variables. CNN is commonly measured when it is applied to data that can be viewed, such as photographs. The network, which is made up of several layers (such as pooling, conversion, total connectivity, and normalisation), aims to transform raw data (original input) into higher-level syntactic patterns. For humankind, it is easy to visualize inspections in order to find out which objects are in the form of an image, and how it interacts in a very rapid and right way, it allows to perform the most important and tough tasks.

Compared with optical remote sensing, satellite SAR imaging appears more suited for maritime traffic surveillance in operational contexts, as it is not critically affected by weather conditions and night-day cycle. In this context, open source SAR Sentinel data are particularly appealing.

Almost all coastal zones and shipping routes are covered by Extra-Wide SwathMode (EW), while the Interfering-Wide SwathMode (EW) which acquired information, it provides a world-wide coverage of the models. Such images, combined with the Automatic Identification System (AIS), represent a large amount of data that can be employed for training deep learning models.

The combination of these two data sources could leverage new application the Detection and estimation of ship parameters from SAR images, which remains a very challenging task. In operational contexts, the approaches used so far still rely on manual visual interpretations that are time consuming, possibly error prone, and definitely irrelevant to scale up to the available datastreams.

Random Forest Algorithm

Random Forest is an algorithm which contains a number of decision trees on various subsets on the given dataset. [17]

Working of Random Forest Algorithm

The two-phases are; First phase is to create the random forest by combining N decision tree; second phase is to make predictions for each tree created in the first phase.

The following are the steps to be followed for the implementation of random forest algorithm. Step :1 Select K data points at random from the training set

Step 2: Create the decision trees based on the selected data points (Subsets). Step 3: Pick the number N for decision trees that want to build.

Step 4: Repeat step 1 & 2

Step 5: Find each decision tree's recommendations for new data points and allocate them to the category that receives the most votes.. [17]

II. LITERATURE SURVEY

Visual information of the human body which helps the physicians to make diagnostics and treatment sketches the definition of medical imaging. The more efficient treatment can be provided by applying technologies to diagnose the problem in early stage. The important application of Deep Learning is the medical image processing. The CNN architecture makes this possible. The physicians will analyze the medical image manually. Delay in diagnose or incorrect diagnose may affect the health of the human in worse. Hence, automatic, accurate and efficient image analysis which helps the physician for their research is being widely developed in this field by many research scholars. [10]

Random forest machine learning algorithm is the famous algorithm which helps in analysis purpose. This technique can be used in classification and regression problems. The nature of the algorithm is that it will combine the multiple classifiers to solve the complex problems which give good performance too. It is based on ensemble learning. [11]

The dense and variety of forest gives higher accuracy. i.e The greater number of trees with wide range of trees in the forest gives best result. It does not rely on single decision tree, instead it predicts from each tree. Random forest is the supervised algorithm.

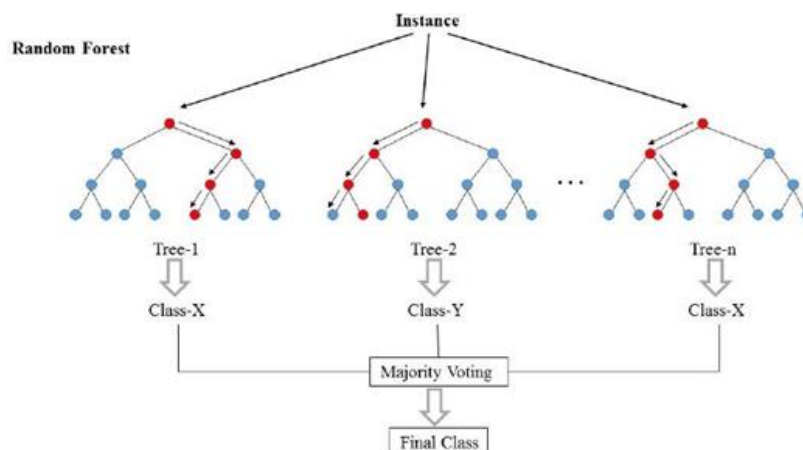


Fig. 3. Working nature of Random Forest Algorithm

Random forest is the group of decision trees.

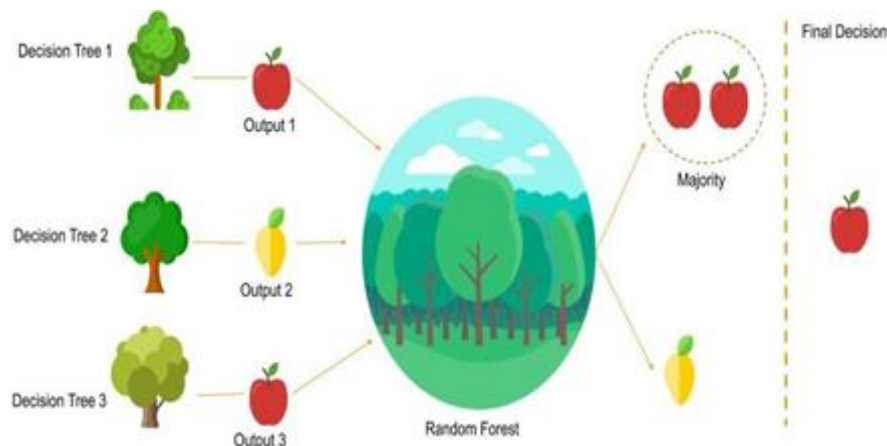


Fig 4.Example for working of Random Forest Algorithm

Improved Adaptive Random Forest Algorithm (ARF) algorithm is implemented by the authors instead of Random Forest algorithm in their study. The choice of parameters and the interferences of noises, range of threshold makes the research work different. With the major development of machine learning, industry and academia released lot of machine learning frameworks based on computing platform. [13]

This paper focused on the employee turnover based on the improved random forest algorithm. The weighted quadratic random forest algorithm is applied to the data with many characteristics. The random forest algorithm was first applied over the features in order to reduce the dimensions. F-measures were calculated over the extracted feature. The random forest algorithm was compared with C4.5, logistics, BP. The proposed algorithm shows improved performance in F-measure, Recall and the performance indicators than the other algorithms. The monthly income and overtime of the employee were the two most important factors considered by the authors. [14] This algorithm can be applied in the following industries like education, medical, finance and many other fields. This algorithm predicts which employee will turnover; so that the company can have a plan and take necessary measures like replacement of not equipped employee with the new one. HR can apply WQFR approach to predict the employee better for the turnover of the company and for the timely action. The proposed algorithm can be applied for cancer screening, abnormal testing fields. Compared with other algorithms, WQRF algorithm has a higher recall rate for minority class.

The robust and efficient algorithm which handles feature selection with high number of variables is the random forest algorithm. This algorithm can deal with missing data, classification and regression related problems. The random forest algorithm was applied on the feature subset selection and classification and regression in their study. [15]

In this paper, the random forest and J48 algorithms were applied over twenty versatile datasets. The dataset was taken from UCI repository and the variance is from 148 to 20000. The parameters of classification were correctly classified instance and incorrectly classified instance, F- measure, Precision, Accuracy and Recall. The classification using random forest gave better result for large models and large data sets than the decision tree (J48). Here the breast cancer data sets were taken for research. The accuracy percentage is of 69.23% to 96.13% for random forest. [16]

III. EXISTING SYSTEM

With the innovation of data progression, the information of the medical business is also continually growing quickly, and medical information is developing altogether. Concerning "Big Data C", people started to consider the use of the data depiction to medical information. Data depiction can use the human significant visualization construction to organize the consumers through data evaluation and presented data looked for cover behind the data in a trademark and easy to use way. The paper presents the work of the DBN, a critical learning assessment, and adds up the calculation characteristics of the assessment.

The depiction work is changed over into a structure expert utilizing a course set-based low- level enrolling create, and the program is reviewed for execution. In addition, thinking about the Hadoop clusters, the paper investigates the BDMISS, for the structure of the gigantic information clinical information sharing. Considering the design's necessities and important orchestrating, from the medical data assortment and publication, data mining and information the boss level, the huge information medical benefit framework is developed. Thinking

about the semantic affiliation and cosmology hypothesis, tremendous data mining advancements and the game plan of "clinical cloud", the asset sharing section is poor down. Considering the Spring MVC structure, utilizing Charts and other data knowledge advancements, as demonstrated by the plan of express modules, the depiction and show of clinical information is perceived, which influences the creative work of clinical gigantic data depiction assessment.

Exactly when the patients are enrolled, the codes are based to stash code and is made by utilizing a SC also as it is required by the SHA-512, which are utilized for using the checks of the patients. In midst of insistence, the worker maintains if the patients are supported one by utilizing the code made at the selection stage. In the event that the patient is the perfect individual, access is allowed.

After enrollment, the patients could move to past and the present clinical reports. Altered MHA calculation is utilized for compacting the result, and it can well be dealt with on the CS for additional utilization of the resources. The sensor that is fixed to the body (human) gathers the whole information comparatively as moves the information to the cloud through a section. Utilizing the PDH-AES system, the sensor information as of the sensor gadget is encoded; later this data is transported off the cloud. At the same time, the clinical focus CS achieves the blended sensor information and unscrambles it. DLMNN classifier begins plan zeroed in, cultivates the sensory information for the explanation of conceiving the HD.

In arranging, processing is being done, and strategy is being performed on the pre dealing with information. In the wake of setting up, the sensor data as of the CS is endeavored and allotted:

i) standard and ii) amazing. On the occasions of the unprecedented result, the alert messages are bestowed to the masters to send to the patients. The proposed system, fundamentally based on endorsement, DPS close by Monitoring and high privacy.

IV. PROPOSED SYSTEM

This design proposes another calculation and a great deal of highlights to assist clinicians with figuring out which of the patients have been assessed for Traumatic Brain Injury needs a head Clinical Test check utilizing costs of touchy inconsistent backwoods classifier. We show that irregular timberland territory and CSRF are helpful methodology for perceiving patients slanted to have a positive CT review for head.

In ending frameworks, the information is rethought utilizing a system called re- investigating by substitution (boot-tying) and in this way innumerable the trees are built with the ultimate objective that all the trees are freed from the generally speaking made trees. Each of the tree figures a reply (vote) and last measure will be taken care of ward on bigger part projecting a surveying structure.

Notwithstanding utilization of various boot- lash test of info information, RF additionally utilize an alternate method to develop the arrangement trees. RF picks the best parted in every hub among every one of the subsets of the factors that arbitrarily chose by then, while in the standard technique, the best parted determination depends on best split on the all factors.

V. ADVANTAGES OF PROPOSED SYSTEM

- a. It is quite possibly the most precise calculations learning algorithm.
- b. Runs productively on enormous data sets. It deals with a large numbers of data factors without parameters cancellation.
- c. It gives out results based on the parameters and are of large in orders.
- d. Quick Prediction/Training Speed
- e. Robust to Outliers and Non-straight Data

VI. ALGORITHM - NEURAL NETWORK

A neural organization is a series of calculations that are attempted to receive hidden connection in a bunch of data via an interaction that mirrors the way in which the human's cerebrum works. In this manner, neural organizations make the framework of neurons, which is natural or fake. Neural organizations can adapt to evolving raw data; so that organization creates the maximum ideal output without updating the output models. The nature of the neural organizations has the underlying foundations laid by man's consciousness, is rapidly acquiring notoriety in the improvement of exchanged framework.

The neural organizations, in the scope of account, aids the advancement of the cycles as time-arrangement gauging and protections, exchanging, algorithmic, credit, grouping, hazard depicting and developing restrictive pointers and the subordinates.

The neural organization work for the human cerebrum's internal organization. A neuron inan organization is a numerical capacity that gathers and characterizes data as indicated by a particular design. It bears a hollow likeness to factual assumptions, for example, bend fits and relapses investigation.

An organization of neural veins contain layers of internally connected hubs. Each hub is a preceptor and it is in the form of a different relapse. The perceptor receives and handles sign createdby a various straight relapses in an actuation that are generally not linear.

The advantages of the algorithms are:

- Automatically detects the important features
- Computationally efficient
- Captures the spatial features from an image
- Increase receptive field size

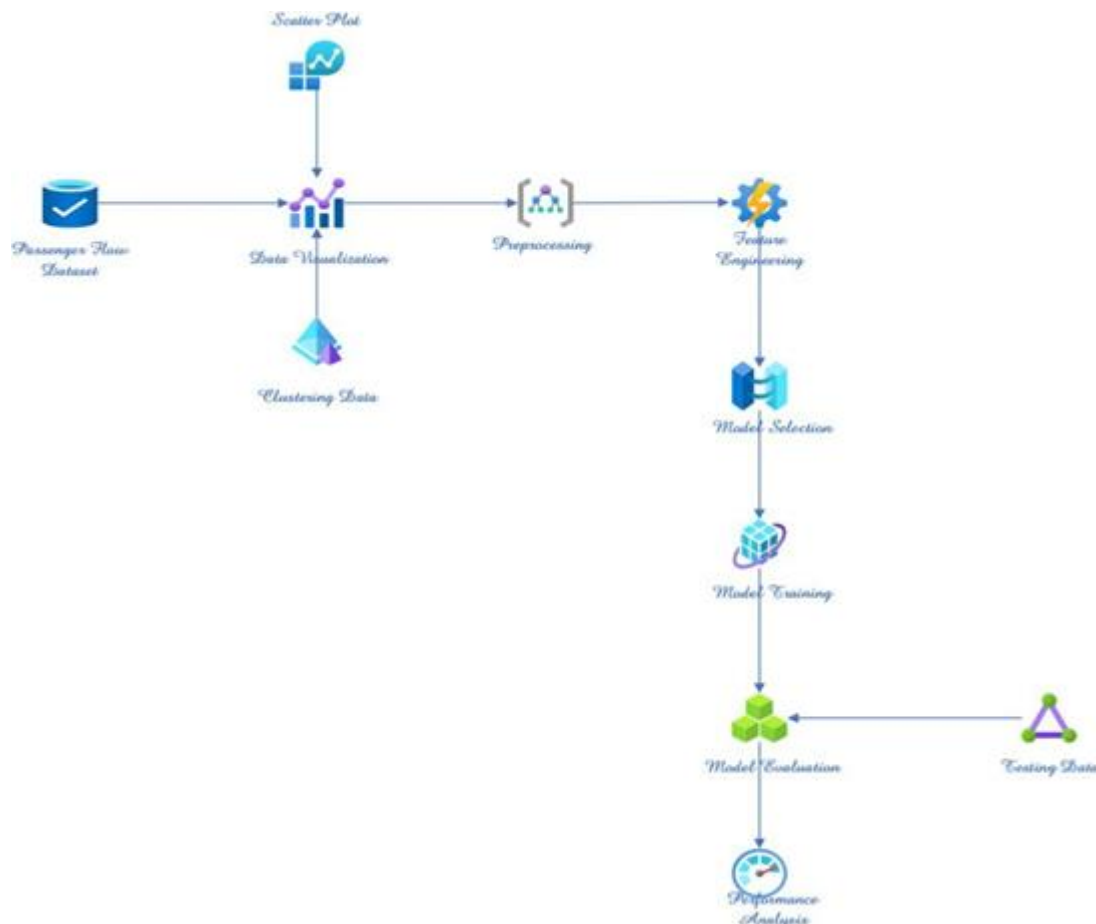


Fig 5. Architecture Diagram

VII. MODULES

1. Data Analysis:

Information examination (DA) is an analytical cycle where you utilize rundown measurements and graphical devices to become more acquainted with your information and comprehend what you can gain from it. With DA, you can reveal designs in your information, comprehend expected connections among factors, and discover oddities, like anomalies or uncommon perceptions. The objective is to produce fascinating inquiries or speculations that you can test utilizing more formal measurable techniques.

It is in every case better to investigate every informational index utilizing different exploratory methods and think about the outcomes. When the informational index is completely perceived, it is very conceivable that

information researcher should return to information assortment and purging stages to change the informational index as per the ideal business results. The objective of this progression is to become certain that the informational collection is fit to be utilized in an AI calculation.

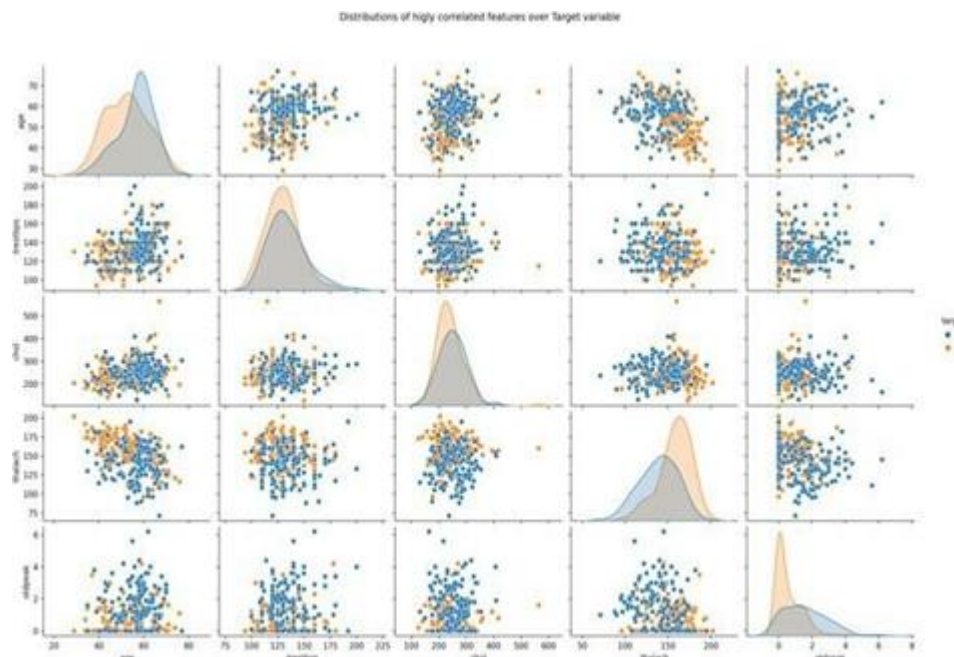


Fig.6 Statistical Analysis of age, trestbps, chol, thalch, oldpeak

2. Feature Engineering

It is a data mining method that is used to include important change in the data into a reasonable organization. Most useful data (real time data) is consistently fragmented and that information cannot be sent using a model. That may include certain mistakes. This is the reason we need to process the information prior to using it within the model.

Information cleaning alludes to methods to 'clean' information by eliminating exceptions, supplanting missing qualities, smoothing boisterous information, and adjusting conflicting information. Numerous methods are utilized to play out every one of these undertakings, where every strategy is explicit to client's inclination or issue set. Underneath, each undertaking is clarified as far as the strategies used to beat it.

To manage missing information, numerous methodologies can be utilized. We should take a gander at every one of them. Utilizing focal propensity (mean, middle, mode) for characteristic having a place with same class to supplant the missing worth: This is equivalent to strategy 4, then again, actually the proportions of focal inclination are explicit to each class.

Eliminating the preparation model: You can overlook the preparation model if the yield mark is missing (on the off chance that it is an order issue). This is generally debilitate as it prompts loss of information, as you are eliminating the quality qualities that can enhance informational collection too.

Filling in missing worth physically: This methodology is tedious, and not suggested for gigantic informational indexes.

Utilizing a standard worth to supplant the missing worth: The missing worth can be supplanted by a worldwide consistent, for example, 'N/A' or 'Obscure'. This is a basic methodology, yet not idiot proof.

Utilizing focal inclination (mean, middle, mode) for characteristic to supplant the missing worth: Based on information dissemination, mean (in the event of typical circulation) or middle (for non-ordinary dispersion) can be utilized to fill in for the missing worth.

Utilizing focal propensity (mean, middle, mode) for quality having a place with same class to supplant the missing worth: This is equivalent to strategy 4, then again, actually the proportions of focal inclination are explicit to each class.

Utilizing the most plausible worth to fill in the missing worth: Using calculations like relapse and choice tree, the missing qualities can be anticipated and supplanted.

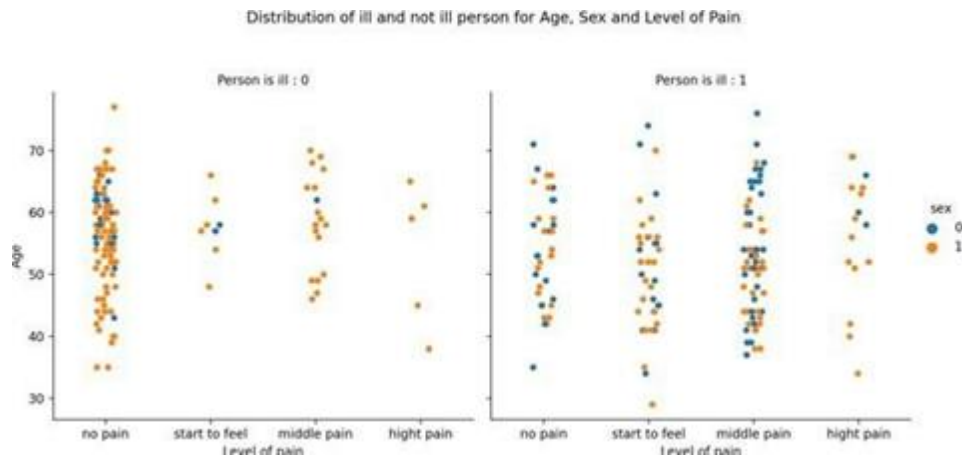


Fig. 7 Visualization of disease information data

3. Feature Extraction:

Highlight Selection is the center idea in AI which majorly impacts the result of the model. The data that are used to prepare the models impact the result to accomplish from the nature of the data used as input. Unimportant or most important highlight can highly affect the way model is executed. Highlighting determination and cleaning the data ought to be the most important step of planning the model.

Highlight Selection is the cycle where we reasonably or physically choose the highlights which contributes the most of the forecast parameter or output where-in we are concentrating on. The superfluous highlights of our information could be diminish exactness of the model and causes the models to actively learn which is dependent on insignificant highlights. How to choose highlights and what are Benefits of performing highlight determination prior to showing the data? Decreases Overfit: Least important data implies lesser freedom to search on options dependent on commotion.

Improves Accuracy: Less false data means displaying exactness improves.

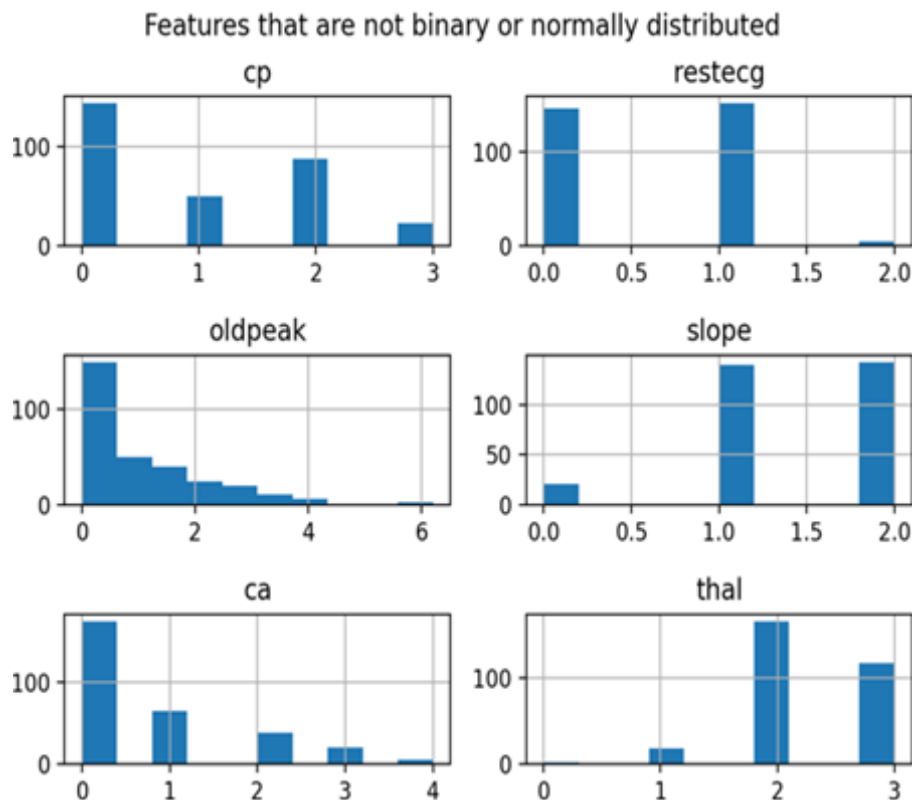
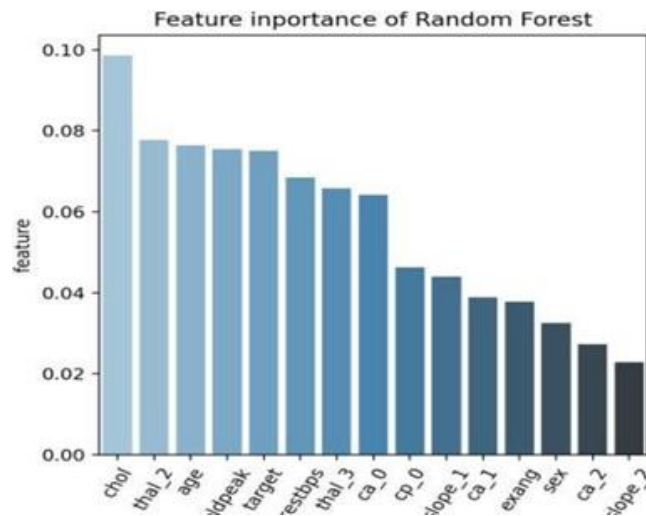
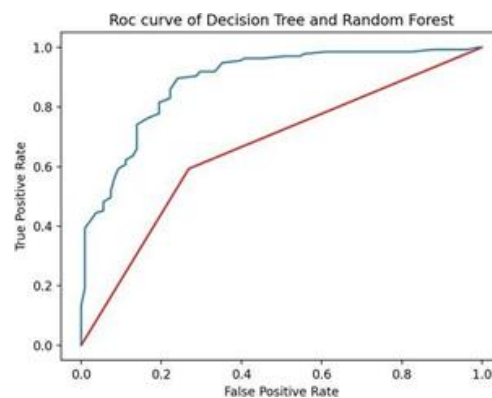
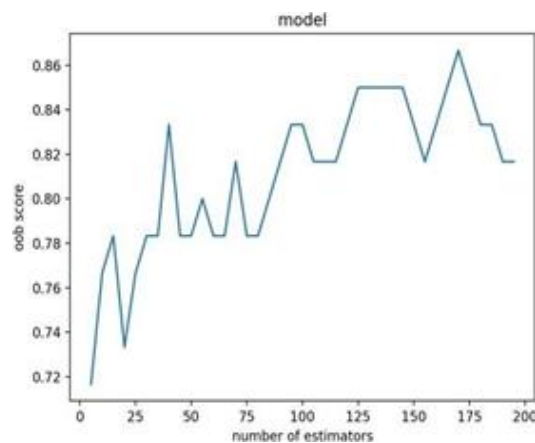


Fig 8. Visualization of features that are not binary or normally distributed

4. Prediction:

Models have what are known as "hyperparameters." These are the boundaries that administer the model, they characterize how the model is made. Changing these can give us better (or maybe more regrettable) results.

Fig. 10 Visualization of Logistic Regression

Fig. 11 Visualization of Random Forest

Fig.12 ROC Curve

Fig.13 Visualization of Model

IX. CONCLUSION

Head CT examines is all the more frequently utilized for assessing patient with suspected Traumatic Brain Injury. It addresses significant expense and less worth undertaking. It is built up a calculation for assisting clinicians with figuring out the patients who are diagnosed for Traumatic Brain Injury needed a head Clinical Test filter. The calculation has better analytic exactness with the correlation than CCHR calculation, presently the best used and generally utilized calculation to figure out the Traumatic Brain Injury patient necessities a CT examine for head.

Utilizing promptly accessible clinical data, our calculation is equipped for assisting clinicians with keeping away from multiple instances the quantity of CT for the head filters that which could be stayed away from CCHR calculation used.

Medical execution of the calculation can help to decline monetary expenses related with ED assessments for awful brain stroke, with diminishing patient's openness to the avoidable ionization. Albeit the calculation right now uses just effectively reachable clinical information

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**SKILL DEVELOPMENT PROGRAMME AND NON- FORMAL EDUCATION: A STUDY IN
MANIPUR UNIVERSITY, INDIA**

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ABSTRACT

The current study attempted to find out the success stories of eradication of illiteracy in Manipur (one of the seven states of North East India) through adult literacy education programmes conducted by the Department of Adult Continuing Education and Extension (ACEE), Manipur University (MU), Manipur, India. The Department of ACEE was established as a Project Cell in 1986 before it got the status of a Department in January, 2007. Since its inception, the Department had conducted adult literacy education programmes every year till now in different adopted areas of five districts out of the sixteen districts of Manipur. In this paper all the adult literacy education programmes conducted by the Department of ACEE, MU will be studied. Participants of this study include programmes of literacy, life-skill trainings, vocational training, computer literacy programme and continuing education. The study adopted analytical method. Results revealed that the adult literacy programmes conducted by the Department are successful so far and this led the adopted villages to declare a total literate area. It is also found that the life-skill training, vocational training, and basic computer literacy programme given to the neo literates is up to satisfaction. However, continuing education programme for the neo literates are not successful due to the lack skill- development programme in adult literacy programme .

Keywords: Adult, non-formal, university, skill -development, students- volunteers.

INTRODUCTION

Literacy is defined as the ability to read, write and do simple arithmetic. Literacy is a process by which one expands one's knowledge of reading and writing in order to develop one's thinking and learning for the purpose of understanding oneself and the world. The concept of literacy is expanding across countries to include skills to access knowledge through technology and ability to assess complex contexts. Adult Literacy Education is generally provided to adults who because of one reason or another are not reached by the formal system of education and to those who would like to enhance their education and skills. The Adult Literacy Education Programmes are based on eradicating illiteracy of the adults. In addition such programmes promote life skill training of the adults. Adult literacy rates have increased at a constant pace since 1950. Literacy data published by UNESCO displays that since 1950; the adult literacy rate at the world level has increased by 5% points every decade on average, from 55.7 per cent in 1950 to 86.2 per cent in 2015. However, for four decades, the population growth was so rapid that the number of illiterate adults kept increasing, rising from 700 million in 1950 to 878 million in 1990. Since then, the number has fallen markedly to 745 million in 2015, although it remains higher than in 1950 despite decades of universal education policies, literacy interventions and the spread of print material and information and communications technology (ICT).

Review of literature

Claudio (1987) studied on the formal, non-formal and informal education concepts and applicability. The investigator highlighted the educative system classification proposal, comprising formal, non-formal and informal education, their features and relations at the level of concepts and practical utilization. The aspects relating to the creation of non-formal systems and their perspectives are also analyzed in the search for solutions to our current educational problems. The findings of the study revealed that with basis on the varied instances of its successful implementation, as well as on its ethical and technical foundations, non-formal education offers an answer to the quest of alternatives to solve the educational problems we have, particularly in developing countries.

Skill Development through Non-Formal Education for National Development in India has been studied by Banhi and Vandana (2015) discussing the growing consensus among scholars. The study aims to contribute to the development of theoretical insights on increasing regarding employability opportunities through skill development. The study also mentioned that the growth in numbers and range of non-formal educational initiatives creating an upsurge in adult education and lifelong learning across the world. The findings of the study revealed that the effectiveness of imparting skill training in employment-oriented courses to the target population segment on a nation-wide scale hinges on a multi-pronged participatory approach by the

government, non-government agencies, and institutes of higher education to support the efforts of non-formal educational organizations.

On Nei (2011) studied on the Non-formal learning examining the concept and its application in music learning. It is also cleared that the concept of non-formal learning, which falls outside the categories of informal and formal learning. It also mentioned that the Unlike formal learning which has a clear and highly structured curriculum, an instruction plan, a sequential learning process, a clear assessment plan, and a person in charge, in non-formal learning, the assessment and the intended learning outcomes have not been clearly highlighted.

Gunjan and Guru (2017) studied on Skills and knowledge discussing the economic growth and social development for any country. The first attempt to promote skill development in the country was made with the National Policy on Skill Development 2009. Consequently, over the last five years, Indian has made some progress towards developing the assets to drive skills training at scale. The Skill Development Programme is to create opportunities, space and scope for the development of the talents of the Indian youth and to develop more of those sectors which have already been put under skill development for the last so many years and also to identify new sector shape 'Skill India' will take and what it will do only time can tell. They mentioned that it is also high time to take measures to improve the physical and mental development of the youths of the country. The economy should concentrate on job creation and social security schemes.

Skill development

Skills and skill development are an essential component of all efforts in this challenging area. The idea is to raise confidence, improve productivity and give direction through proper skill development. Skill development will enable the youths to get blue-collar jobs. Development of skills, at a young age, right at the school level, is very essential to channelize them for proper job opportunities. skill- development programme is very much needed to development the economy of the society. Skill Development for employability is an important strategy in the fight against poverty and unemployment. Accordingly, the poor should have a priority claim and easy access to opportunities for skill development.

Need of skill-Development programme

Skill Development has been accorded an important place in the National economy by the national decision makers because of the complementarities that exist between physical capital and human capital on the one hand and between technology and human capital on the other. It play a great role in economy of individual and society as a whole. If every individual can get skill- development their earning can be increased as well as their living standard.

Literacy as a human right

Literacy skills are now expected from every member of a society. Literacy is a human right essential for lifelong learning and social change. As supported by the 1996 Report of the International Commission on Education for the Twenty-First Century, and the 1997 Hamburg Declaration: 'Literacy, broadly conceived as the basic knowledge and skills needed by all in a rapidly changing world, is a fundamental human right. (...) There are millions, the majority of whom are women, who lack opportunities to learn or who have insufficient skills to be able to assert this right. The challenge is to enable them to do so. This will often imply the creation of preconditions for learning through awareness raising and empowerment. Literacy is also a catalyst for participation in social, cultural, political and economic activities and for learning throughout life'

Non-formal Education

The term Non-Formal Education was coined in the late 1960s. The term gave a label for already existing activities. It became part of the international discourse on education policy in the late 1960s and early 1970s. It can be seen as related to the concepts of recurrent and lifelong learning. Some scholars suggests that the latter concepts have to do with the extension of education and learning throughout life, whereas, non-formal education is about 'acknowledging the importance of education, learning and training which takes place outside recognized educational institutions'.

Non-formal Education (NFE) is any organized educational activity that takes place outside the formal educational system. Usually it is flexible, learner-centered, contextualized and uses a participatory approach. There is no specific target group for NFE; it could be kids, youth or adults. It may be literacy program in a village, wise elderly men transferring their knowledge to younger generations or a farmer teaching his aides how to plant crops etc. The term NFE is mostly associated with the Development field and used in the Development Discourse more extensively than the academic Educational Discourse especially by international developmental organizations such as UNESCO, Council of Europe and local Non- Governmental Organizations (NGOs).

UNESCO provides Non-formal education as an addition, alternative and/or a complement to formal education within the process of the lifelong learning of individuals. It is often provided to guarantee the right of access to education for all. It caters for people of all ages, but does not necessarily apply a continuous pathway-structure; it may be short in duration and/or low intensity, and it is typically provided in the form of short courses, workshops or seminars. Non-formal education mostly leads to qualifications that are not recognized as formal qualifications by the relevant national educational authorities or to no qualifications at all. Non-formal education can cover programmes contributing to adult and youth literacy and education for out-of-school children, as well as programmes on life skills, work skills, and social or cultural development.

Rogers, Coombs and Ahmed first define NFE as "any organized educational activity outside the established formal system - whether operating separately or as an important feature of some broader activity - that is intended to serve identified learning clienteles and learning objectives".

Jan Shikshan Sansthan (JSS), a Scheme of People's Education is an example of a polyvalent institute in the non-formal education sector under the aegis of Directorate of Adult Education, Ministry of Human Resource Development, Government of India. Started as the Scheme of Shramik Vidyapeeth launched in Worli, Mumbai in 1967 and renamed as Jan Shikshan Sansthan in 2000, currently there are 271 sanctioned JSS across 28 states and Union territories in India in 2013 out of which 252 are functioning JSS.

Non-Formal Education Criteria

NFE Programmes have some criteria that are as follows:

Learner centered - As learners play an active role in their learning and program is customized to their circumstances.

Flexible curriculum – Curriculum are flexible that can be changed according to the learner's need.

Human relationships are more informal depending more on reciprocal learning

Focus on practical skills and knowledge

Target disadvantaged groups as youth, women, poor, and marginalized groups

Creative use of educational resources

Community participation

Non- formal Education Design

Two of the main models adopted heavily in NFE programs are the Experiential Learning Model by Carlson & Maxa, and Malcolm Knowles' Adult Learning Principles.

The Four Characteristics of Non- Formal education.

The four characteristics of non-formal education are its concern with specific target groups, the focus on clearly defined purposes specific to its objectives, needs of disadvantaged groups, and organizational and methodological flexibility. It provides a unique opportunity for the disadvantaged due to its low costs and its nature of adaptability with the needs and requirements of its target groups.

OBJECTIVES OF THE STUDY

In this paper, all the adult literacy education programmes conducted by the Department of Adult Continuing Education & Extension, Manipur University in the non-formal setting will be studied. The study will cover a period of 12 years that is from 2007-08 batch to 2018-19 batch. The life skill training programme, vocational training programme, basic computer literacy programme and the continuing education programme provided by the department for the neo literates will also be studied and also how to improved and make the literacy programme better. To discuss cause and lack skill- development programme.

DEPARTMENT OF ACEE, MANIPUR UNIVERSITY

The Department of ACEE, MU was established as a Project Cell in 1986 before it got the status of a Department in January, 2007. Since its inception, the students enrolled in the Department had conducted adult literacy education programmes every year till now in different adopted villages of five districts out of the sixteen districts of Manipur. The main objective of the department is to eradicate illiteracy from the root of the community and to build up the society by providing skill- development programme to the adult learners. In this department, the Malcolm Knowles' Adult Learning Principles was applied and the programme was conducted by the post- graduation students of the university in the adopted areas for year to year. The department targeted the adults as-

Adults are internally motivated and self-directed;

Adults bring life experiences and knowledge to learning experiences;

Adults are goal oriented, practical, and like to be respected.

In this literacy programme, the learners were taught by the student volunteers of the department of ACEE for forty-five days at the learning centers provided by Department of ACEE, as a part of the PG course of Manipur University and an evaluation was carried out at the end of the course to check and identify the success, benefit and feed-back of the literacy programme. The feed-back are taken to improve the adult literacy programme in future.

METHODOLOGY

Sample

Sample of the study consists the learners enrolled in the adult literacy programme conducted by the Department of Adult continuing education and extension (ACEE) Manipur university. India.

Participants

Participants of this study include programmes of literacy, life-skill trainings, vocational training, basic computer literacy programme and continuing education programme and 3R reading, writing and Arithmetic. Mostly the adult learners are from different localities and families background.

Limitation of the study

The study is limited to the adopted areas/ village and the adult learners participate in the adult literacy programme conducted by the department of Adult continuing education and extension, Manipur University, India. It is the only institutional agency where adult literacy educational programmes are being conducted.

Method

The study adopted analytical method.

Statistical tool used

Percentage method is used wherever applicable for the presentation of the results.

RESULTS AND DISCUSSION

From the study it was found that the department of ACEE conducted the adult literacy programme in the following five districts of Manipur-

1. Bishnupur District
2. Imphal East District
3. Imphal West District
4. Kangpokpi District and
5. Thoubal District.

Year-wise adopted area, number of student volunteers, number of learners enrolled, number of dropout learners were presented in the following tables:

Table 1: Year, adopted area, and number of student volunteers for each year

Year	Adopted area	No of student volunteers
2007-08	Langthabal Lep Makha	15
2008-9	Langthabal Lep Awang	18
2009-10	Kyamgei	18
2010-11	Thongju	20
2011-12	Thongju Pechu	20
2012-13	Langthabal	20
2013-14	Kakwa	25
2014-15	Thoubal	25
2015-16	Langol	25
2016-17	Heirangoithong	30
2017-18	Namdulong	30
2018-19	Ningomthongjao	30

Table 1 showed the year-wise adopted area for the adult literacy programme, and the number of student volunteers that are engaged for the teaching of the adult learners. The numbers of student volunteers are the students from department of Adult continuing education and extension, Manipur University, India. The areas for adult literacy programme are provided by their respective localities.

Table 2: Number of learners enrolled and dropouts for each year.

Year	No of learners enrolled	No. of dropout learners	Percentage of dropouts
2007-08	57	2	3%
2008-9	92	3	3%
2009-10	104	0	0%
2010-11	95	7	7%
2011-12	94	1	1%
2012-13	113	4	3%
2013-14	91	0	0%
2014-15	97	3	3%
2015-16	145	4	2%
2016-17	172	5	3%
2017-18	207	12	5%
2018-19	191	2	1%

Table 2 provided the number of learners enrolled each year and number of dropouts. It was found that there is less and negligible percentage of dropout of the learners from the literacy programme.

Results also revealed that the summative evaluation conducted for the learners at the end of the course were fruitful. The adult literacy programme conducted by the Department of adult continuing education and extension were successful so far and this led the adopted areas to declare a total literate area. After the end of the literacy programme the successful neo literates were provided life-skill training, vocational training, basic computer literacy programme and continuing education programme. The life-skill training, vocational training, and basic computer literacy programme given to the neo literates were up to satisfaction. However, continuing education programme for the neo literates was not successful due to various reasons such as the neo literates were not interested and there was lack of financial assistance.

SUGGESTION AND DISCUSSION.

In order to make the adult learners more interest to participate in this adult literacy programme. The numbers of student volunteers need to be increase. So, that more / large area can be cover. Skill- Development programme is very much needed because the neo-literate and the adult learners will become more interest in this programme if the learners get a benefit to earn through this skill development programme. Mostly adult Learners have to earn for their livelihood. So, skill-development programme will support the adult learners in future. If the department of Adult Continuing Education and Extension Manipur University want to make the adult learners participate in large numbers department should provide more skill-development programme.

CONCLUSION

Literacy is the ability to read, write and do simple arithmetic and is a process by which one expands one's knowledge of reading and writing in order to develop one's thinking and learning for the purpose of understanding oneself and the world. Adult Literacy Education is generally provided to adults who because of one reason or another are not reached by the formal system of education and to those who would like to enhance their education and skills. This study is based on the adult literacy education programmes conducted in five adopted areas by the Department of Adult Continuing Education and Extension (ACEE), Manipur University (MU), Manipur, India. This paper studied all the adult literacy education programmes conducted by the Department of ACEE, MU. Participants of this study include programmes of literacy, life-skill trainings, vocational training, computer literacy programme and continuing education. The study adopted analytical method. Results shows the year, year-wise adopted area, number of student volunteers engaged, number of learners enrolled, and number of dropout learners. Results also revealed that the adult literacy programmes conducted by the Department are successful so far and this led the adopted villages to declare a total literate area. It is also found that the life-skill training, vocational training, and basic computer literacy programme given to the neo literates is up to satisfaction. However, continuing education programme for the neo literates are not successful due to lack of skill- development programme. The researcher has studied the different aspect of policy design which influences the incentives of individuals and firms to invest in skills and shape those of training providers to deliver effective and responsive services.

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ONLINE SHOPPING: BENIFITS AND SAFETY MEASURES

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ABSTRACT

Electronic Commerce (e-Commerce) is the buying and selling of goods and services, or the transferring of data and funds through internet. Such transactions are business to business (B2B), business to consumer (B2C), etc. Security is an essential part of every transaction that takes place through internet. If security of transactions is compromised, customers may lose their faith on e-Business. e-Commerce security is the protection of e-transactions from unauthorised access, use, alteration or destruction of information.

Key Words Electronic Commerce (e-Commerce), Internet, Electronic Data Interchange (EDI), Mobile Banking (m-Banking), Electronic Fund Transfer (EFT), Enterprise Resource Planning (ERP).

1. INTRODUCTION

Today's age is known as 'The Age of Technology'. Internet has changed the way by which the business is conducted. Electronic commerce is the concept covering all types of business transactions using technology. It is associated with the buying and selling of products, services and information through computer network. Online shopping is convenient, in that you can shop around, find the best prices, and have your packages delivered right to your doorstep without ever having to leave the comfort of your own home.

Because of the numerous advantages and benefits, more and more people say they prefer online shopping over conventional shopping these days. The buyer's decision-making process has changed dramatically in recent years. Buyers are conducting extensive research online before ever speaking to a sales person. Buyers are also making more direct purchases online and via their smartphone, never stepping foot into traditional brick-and-mortar locations. The internet makes doing business much easier and faster. It's led to changes in the way people do business with a rapidly growing world wide trend towards online shopping or e-commerce.

2. OBJECTIVES

This paper has been written with the following objectives :

- To know the process of e-Shopping.
- To search the various risks involved in e-Shopping.
- To make people aware of the precautions to be taken, while shopping through internet.

3. SCOPE

Scope of e-Shopping is limited to the products marketed through internet only.

4. LIMITATIONS

e-Shopping has the following limitations :

- Geographical limitations – The facility of e-Shopping cannot be availed at every corner of the world.
- Human limitations – Only computer-literate people purchase the products or services through internet.
- Product limitations – Every product cannot be sold through internet.

5. CONCEPTUAL FRAMEWORK**5.1 Definition of 'e-Commerce' :**

"e-Commerce is a concept covering any form of business transactions or information exchange executed using information and communication technology between companies and public administration."

5.2 Process of e-Commerce :

The term 'e-Commerce' refers to more than just buying and selling products online. It also includes the entire online process of developing, marketing, delivering, servicing and paying for products and services. The use of commerce is conducted in this way, spurring and drawing on innovations in Electronic Fund Transfer (EFT), supply chain management, internet marketing, online transaction processing, Electronic Data Interchange (EDI), inventory management system and automated data collection system. Modern e-Commerce uses the World Wide Web (WWW) at least at one point in the life cycle of a transaction. Online retailers are also known as 'e-Tailers' and online retail trade is known as 'e-Tail'.

5.3 A Brief History of e-Commerce :

e-Commerce was identified as the facilitation of commercial transactions electronically, using technology such as Electronic Data Interchange (EDI) and Electronic Fund Transfer (EFT). These were introduced in late 1970s, for allowing business to send documents, e.g. – purchase orders, invoices, etc. The growth of debit cards or credit cards and Automated Teller Machines (ATMs) are also the forms of e-Commerce. In banking sector, Electronic Banking (e-Banking) and Mobile Banking (m-Banking) are the latest developments. Online reservations of airline, bus and railway are also the modern forms of e-Commerce. From 1990s, e-Commerce includes Enterprise Resource Planning (ERP) system, data mining and data warehousing.

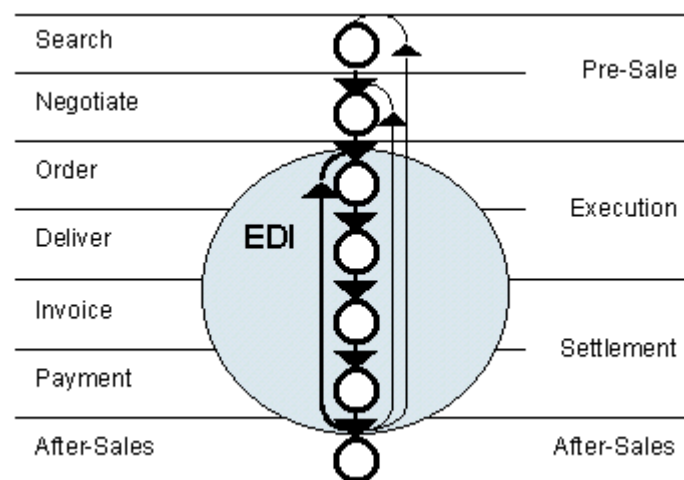
5.4 Types of e-Commerce :

Types of e-Commerce represent a range of schemes of transactions, which are distinguished according to their participants.

- Business to Business (B2B)
- Business to Consumer (B2C)
- Business to Employee (B2E)
- Business to Government (B2G)
- Business to Machine (B2M)
- Business to Manager (B2M)
- Consumer to Business (C2B)
- Consumer to Consumer (C2C)
- Citizen to Government (C2G)
- Government to Business (G2B)
- Government to Citizen (G2C)
- Government to Government (G2G)
- Manager to Consumer (M2C)
- Peer to Peer (P2P)

5.5 Trade cycle in e-Commerce :

The trade cycle in e-Commerce is different from that in traditional commerce. The following figure shows the trade cycle in e-Commerce.



5.6 Advantages of e-Commerce :

1. **Convenience-** The convenience is the biggest perk. Where else can you comfortably shop at midnight while in your pajamas? There are no lines to wait in or shop assistants to wait on to help you with your purchases, and you can do your shopping in minutes. Online shops give us the opportunity to shop 24/7, and also reward us with a 'no pollution' shopping experience. There is no better place to buy informational products

like e-books, which are available to you instantly, as soon as the payment goes through. Downloadable items purchased online eliminate the need for any kind of material goods at all, as well, which helps the environment!

2. **You can send gifts more easily-** Sending gifts to relatives and friends is easy, no matter where they are. Now, there is no need to make distance an excuse for not sending a gift on occasions like birthdays, weddings, anniversaries, Valentine's Day, Mother's Day, Father's Day, and so forth.
3. **Price comparisons-** Comparing and researching products and their prices is so much easier online. Also, we have the ability to share information and reviews with other shoppers who have firsthand experience with a product or retailer.
4. **No crowds-** If you are like me, you hate crowds when you're shopping. Especially during festivals or special events, they can be such a huge headache. Also, it tends to be more chaotic when there are more crowds out and this sometimes makes us feel rush or hurried. Grumpy, annoying, and smelly people also annoy me when I'm out shopping. Plus, parking becomes a huge issue. All of these problems can be avoided when you shop online.
5. **No need to travel-** People don't usually like to move a lot to get what they want. Of course, nothing can compete with experience of going to a cloth boutique and buying what you want, but normally people just don't want to travel. Customers don't usually leave near the shops they would want to visit, but today they have an option to visit the shop online.

5.7 Disadvantages of e-Commerce :

- Inability to touch and feel product or service.
- Computer illiteracy.
- Risk of hacking of computer system.
- Limited group of customers can be reached.
- No mutual trust between buyers and sellers.
- Small businesses find it difficult to conform to EDI standards.
- Virus attack and other electronic vandalism.

6. Safety Measure for Online Shopping

Here are a few tips to keep you, your computer and your bank account protected while you shop online.

1. Shop with reputable retailers-

It's best to shop directly with online retailers you know and trust. Bookmark your favorite shopping sites to get there quickly and safely. Avoid typing the name of the retailer into your browser bar. That's because a tiny typo could land you on a fake site that looks just like the real one. Make a "purchase" on an illegitimate site and you may unwittingly hand the scammers your credit card number and other personal info.

2. Vet new-to-you businesses-

Did you spot an amazing product from a new seller? Do your homework on any business you've never purchased from in the past. Look for online reviews and search the Better Business Bureau website for complaints. Check the "contact us" page on the website for a U.S. address and phone number. Then take it a step further: call the business to verify.

Why? The FBI reported that some scammers hijack the contact info of real U.S. businesses to make their shady site look legitimate.

3. Beware amazing deals-

Did you spot an ad on Facebook or Instagram offering rock-bottom prices or an eye-popping offer of free stuff? Reports of lost money from social media scams have more than tripled in the past year, according to the U.S. Federal Trade Commission (FTC).

Remember, if an offer looks too good to be true, then it probably is. The FBI found that many sites at the center of its recent spate of complaints were advertised on social media platforms.

Compare prices before you buy. Unusually low prices could be a red flag that you've landed on a fake site that's been set up to snag your personal information or steal your money.

4. Don't browse on public Wi-Fi-

Avoid shopping from public Wi-Fi next time you're sipping a latte at your favorite coffee shop. The guy staring at his phone at the next table could be a hacker spying on your online activity. And shopping online often requires giving out information that an ID thief would love to grab, including your name, address and credit card number.

5. Use a VPN-

If you ever do use public Wi-Fi, protect yourself with a VPN (virtual private network). A VPN creates an encrypted tunnel between your computer and the server. Cybercriminals lurking nearby won't be able to see what you're doing or intercept your personal information. A VPN is the only way to shop online safely from public Wi-Fi in airports, cafes and other public spaces.

6. Pick strong passwords

A strong password is like a secure lock that keeps cyberthieves out of the accounts where you store your private information. Here are some quick guidelines on how to choose a good password:

- Use a complex set of lower and uppercase numbers, letters, and symbols. Or consider a long passphrase that you can remember and others are unlikely to guess.
- Avoid dictionary words and personal information a thief could easily find or guess, like your kid's birthdate, your dog's name or your favorite sports team.
- Never reuse passwords across sites. If you do, a data breach at one company could give criminals access to your other accounts.

7. Check site security before you buy-

Look for a lock icon in the browser bar of a site to verify that they use SSL (secure sockets layer) encryption. The URL also should start with "https" rather than just "http." Secure websites are configured to mask the data you share, such as passwords or financial info. Shopping only on secure sites reduces the risk that your private information will be compromised while you shop.

8. Don't fall for email scams-

You might get emails or texts offering amazing bargains or claiming there's been a problem with a package delivery. Delete suspicious messages from unfamiliar senders. And don't open attachments or click links in messages because they could infect your computer or phone with viruses and other malware.

9. Guard your personal information-

Here's a general rule: No shopping website should ever ask for your Social Security number. If a site does request this type of very personal information, run in the other direction. Provide reputable sellers the minimum personal info necessary in order to complete a purchase.

10. Pay with credit, not debit-

Always use a credit card to shop as securely as possible. First, a credit card doesn't give a seller direct access to the money in your bank account. Second, most credit cards offer liability for fraud.

That means you're not out any money if a crook uses your account info to make a purchase. Your credit card company will ask questions, investigate the fraudulent activity and send you a new card.

11. Add extra security with a virtual credit card-

A virtual credit card can offer even more online shopping security. Some credit card issuers will give you a temporary card number that's linked to your credit card account.

You can use the temporary number to shop online without showing the seller your real credit card details. If a thief gets ahold of the virtual credit card number and later tries to use it, they'll be out of luck.

12. Keep an eye out for fraud-

Check your bank and credit card statements for fraudulent charges at least once a week. Or set up account alerts to notify you of any new activity on your card. When you receive a text or email notification, you can check your account to make sure you recognize the charge.

13. Mind the details-

After you make the purchase, keep the details in a safe place. Hang onto the receipt, your order confirmation number and the tracking number the seller provides. If you have a problem with the order, this information will help you get the issue resolved quickly.

14. Track your stuff-

After you make an online purchase, keep tabs on it to make sure it's headed your way. If the merchant refuses to provide shipping info or respond to your requests for the status of your order, contact your credit card issuer for help. They may remove the charge from your bill and look into the matter.

15. Report scammers-

Did you get scammed? If so, file a complaint with the U.S. Federal Trade Commission and the FBI's Internet Crime Complaint Center. Tip: If you suspect you may be a victim of ID theft, the FTC offers an identity theft recovery plan.

7. CONCLUSION-

Use your intuition. If you come across a retailer that has a product priced substantially lower than other retailers or offers an online coupon that gives an unbelievable discount, use caution. Website retailers have to make their money somehow. Read their privacy policy, make sure they are not selling your personal information and take the extra steps to ensure that the company and product are valid.

With a few simple precautions, online shopping can save your time, money and keep you, your money and your information 100 percent safe.

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EMPIRICAL EVIDENCE ON PRODUCT PACKAGING IMPACT ON BUYING BEHAVIOR FOR FINGER FOOD OF INDIAN CONSUMERS

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ABSTRACT

The prime purpose of the study is to know the packaging impact on buying. Packing is certainly the silent salesman because of the touch and see attribute it consists. Packing is wrapping of the product in a suitable container or bag. What glitters is gold many a times especially in the field of marketing and sales as the customers get attracted to the package and many a times results in impulse buying. Companies dealing in both tangible and intangible products have understood the importance of packaging and its impact on customer or consumer buying behavior. The quality of material used for packaging also reveals the inside character of the product or commodity. Before the evolution of globalization the scenario was totally different when it is compared now. The buying motives have changed to a great extent in the consumer market. Marketers have also understood the needs of the customers and putting in all the efforts to lure the customers through various packaging techniques and methods. But one thing is certain that customer mindset understanding is the toughest job for the researchers because of the rapidly changing behavior the customer. Marketing and selling is no more the job of idle people. Hence continuous research and product modification is very important through attractive packaging. The intent of this study is to govern role of packaging on consumer's buying behavior. This is the primary research and data has been collected through questionnaire and for analysis SPSS software has been used. In this study samples of 300 respondents has been collected and tested the reliability of the model.

Purpose – the purpose of this study is to find out the Impact of packaging on consumer behavior on Indian consumer sector.

Data / Design/ Methodology/ Approach – the data collected and treated properly by using statistical tools and SPSS

Findings – in the findings it was found that most of the customers believed that packaging plays a significant role in their buying habit.

Originality / Value – the research was conducted keeping the research ethics in mind, and seen that data collected is genuine and authentic

Keywords: Product Packaging, Consumer Behavior, and Hyderabad India

1. INTRODUCTION

Packing is certainly the silent salesman because of the touch and see attribute it consists. Packing is wrapping of the product in a suitable container or bag. What glitters is gold many a times especially in the field of marketing and sales as the customers get attracted to the package and many a times results in impulse buying. Companies dealing in both tangible and intangible products have understood the importance of packaging and its impact on customer or consumer buying behavior. The quality of material used for packaging also reveals the inside character of the product or commodity. Before the evolution of globalization the scenario was totally different when it is compared now. The buying motives have changed to a great extent in the consumer market. Marketers have also understood the needs of the customers and putting in all the efforts to lure the customers through various packaging techniques and methods. But one thing is certain that customer mindset understanding is the toughest job for the researchers because of the rapidly changing behavior the customer. Marketing and selling is no more the job of idle people. Hence continuous research and product modification is very important through attractive packaging.

Research Question:

The Research question is to discover the impact of product packaging of finger food on consumers buying behavior.

Objectives of the Study

1. To know the impact of packaging on the consumers buying decision for finger food
2. To find out the impact of the packaging features on consumers purchasing behavior.

3. To quantify the critical role of each packaging component on the consumer.
4. To identify the elements of packaging to be emphasized to attract consumers

Justification

It is very well known fact that packaging is a silent salesman it does wonders in creating impulse buying behavior from scratch. To be evident to this fact this topic is selected by the researcher.

Limitations

This study is restricted to only Hyderabad customers.

Sample size is constraint

Opinions may be biased

LITERATURE REVIEW

(Ahmed, Billo & Lakhan, 2012) Packaging is the last imprint for consumers and they make purchasing decisions on the basis of product packaging which built a insight in the consumers mind, therefore it is very important that packaging is working hard to lock the sale, this may be in the form of brand image, brand values, product quality and innovations.

(Silayoi & Speece, 2007). Packaging of the product talks about different components, usage of the product and also it tells about some precautions if the product has any side effects. The packaging sometimes includes different features like attractive colors, images, signs that will enrich the charm of any product.

(Neeta & Sudha, 2014). The role of packaging as a medium for communication and branding is increasing in competitive markets for FMCG products. Packaging is the container or a vessel or a protection for a product. Packaging includes the names and the brand names, brand logos, pictures of the product, different kinds of labels such as ingredients, manufacturing and expiry date, warnings, price, using method of the product, company name, company place etc. and the main function of the packaging is to easily and safely distribute the products. (Neeta & Sudha, 2014).

(Saeed, Lodhi, Mukhtar, Hussain, Mahmood and Ahmad (2013), combine the impact of brand image, brand attachment and environmental effects on consumers purchase decision and the study exposes that brand image have no positive relation with the consumer purchase decision and brand attachment and environment effects have moderate positive relation but no positive relation with the consumer purchase decision.

(Shruti, 2014). If the product have a good quality and exclusive packaging it remains in the mind of the consumer's for a long period of time and by this the consumers wants to buy that product at the time of shopping, so it itself did the promotion of that product by its packaging.

(Deliya & Parmar, 2012). When people attract towards any product so it is common that they will buy that product which will increase its sales and company's revenue and this all can done only by attracting consumers towards any product at first sight and usually the first impression is the last impression that will lead to increase the existing sale performance. The packaging is that important key factor which we can use to attract our consumers at first sight.

(Saeed, Lodhi, Rauf, Rana, Mahmood & Ahmed, 2013) consumers purchase more quantity of product after seeing its label so it is clear that labeling influence the consumers buying behavior but there are many other factors that influence which impact the consumers buying behavior.

Behzad (2014) designate in his research that colors and graphics play important key roles in promoting product sales. Color is an excellent source of information to communicate with the consumers either negatively or positively and it is estimated that 62-90% of people calculation and estimation is based on colors alone. (Singh, 2006).

2. METHODOLOGY:**2.1. Research Design**

There are two types of researches quantitative and qualitative research. Quantitative research is about asking people for their opinions in a structured way so that you can produce hard facts and statistics to guide you. To get reliable statistical results, it's important to survey people in fairly large numbers and to make sure they are a representative sample of your target market. The research conducted to identify the impact of packaging on consumer's buying behavior is a quantitative research.

2.2. Sampling Technique & Size

There are two major types of sampling techniques which are probability sampling and non-probability sampling. We are using probability sampling technique in which we use convenience sampling. The reason of choosing this technique is that every individual are using the FMCG product and they all know their impacts on the buying behavior so we can find out the results on the behalf of the available population sample.

2.3. Population

The population of my sample is from Hyderabad, India.

2.4. Measurement/ Instrument

A questionnaire will be given to the sample population in order to identify the buying pattern of consumer's on the basis of given variables.

Each variable is measure by asking the questions and ratings type scale ranging from:

1. Agree 2. Disagree 3. neutral

2.5. Methodology for Data Analysis:

To make correct analysis of the data we use SPSS software in which we make analysis in two parts:

1. Descriptive Analysis:

It is the technique in which we use to generate result in descriptive statistics. It shows maximum, minimum and mean value of data.

2. Correlation:

The Pearson's correlation is used to find out the relation between at least two variables. The values for correlations are:

1. 0.00 = No correlation
2. 1.00 = perfect/positive correlation

Other factors such as group size will be determined if the correlation is significant. Generally, correlation above

0.80 is considered pretty high.

Independent Variable**Packaging Color**

Color play a dynamic role in the consumer's decision making and it can appeal customers towards any product. Different colors have different meaning and can help to draw attention according to the consumer's mood.

Packaging Material

Packaging material has great influence on consumer's purchasing decision. High quality packaging attracts the consumer's then the low quality packaging.

Design of Wrappers

The design of the package also plays an important share to attract consumers. Companies use creative designs to lure customers.

Innovations

Innovation in packaging may add the extra value according to the needs and comfort for the consumers such as easy open, easy carry, protection, child-proofing, recyclability and non-breakability.

2.5.1. Dependent Variable:**Consumer's Buying Behavior:**

The consumer's buying behavior is the sum total of the attitudes, preferences and decisions regarding the purchasing of any product or service.

3. DATA ANALYSIS & FINDINGS:**3.1 Descriptive Analysis:**

To analyze the research outcome the results of descriptive analysis of all dependent and independent variables are shown as follow:

Descriptive Analysis:**Table 3.1**

	N	Minimum	Maximum	Sum	Std. Deviation	Mean	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
CB	300	2.40	4.40	1028.80	.46259	3.4293	.02671
PC	300	1.50	4.50	1149.00	.56760	3.8300	.03277
PM	300	2.00	4.50	1053.50	.69448	3.5117	.04010
DW	300	1.00	4.50	1038.50	.79149	3.4617	.04570
PI	300	2.50	4.50	1116.50	.77267	3.7217	.04461
Valid N (listwise)	300						

Here; CB= Consumer Buying Behavior PC= Packaging color

PM= packaging material DW= Design of wrappers PI= Packaging innovation

In the above table the Minimum values, Maximum Values, Sum, Mean and values of standard deviation of all the variables are given. Number of observations of each variable is 300. All values of mean shows the central tendencies of each variable. Values of standard deviation, minimum and maximum show the dispersion of values from its mean. The mean value of Consumer Buying Behavior is 3.4 where as its minimum and maximum values are 2.40 to 4.40. Similarly all the independent variables have different mean value as well as extreme values.

3.2. Correlation

Hypothesis:

H1: There is a relationship between consumer's buying behavior and packaging color. Correlations between Consumer's Buying Behavior & Packaging Color

Table 3.2.1

		CB	PC
	Pearson Correlation	1	.562**
CB	Sig. (2-tailed)		.0001
	N	300	300
	Pearson Correlation	.562**	1
PC	Sig. (2-tailed)	.0001	
	N	300	300

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

The above table represents the correlation of two variables_ Consumer buying behavior and packaging color are positively correlated ($r=0.562$, $p=0.0001$). There is a moderate relationship between buying behavior and packaging color which is significant. So we can say that the hypothesis is accepted. Dark colors attracts people towards them easily so if we use dark colors in product packaging, it can easily grasp the consumer's attention

H2: There is a relationship between consumer's buying behavior and packaging material. Correlations between Consumer's Buying Behavior & Packaging Material

Table 3.2.2

		CB	PM
	Pearson Correlation	1	-.006
CB	Sig. (2-tailed)		.914
	N	300	300
	Pearson Correlation	-.006	1
PM	Sig. (2-tailed)	.914	
	N	300	300

There is a negative correlation between consumer's buying behavior and packaging material ($r=-0.006$, $p=0.914$). Hence the packaging material has no effects on consumer's buying behavior. So we can say that hypothesis is rejected.

H3: There is a relationship between consumer's buying behavior and Design of Wrapper. Correlations between Consumer's Buying Behavior & Wrapper Design

Table 3.2.3

		CB	DW
	Pearson Correlation	1	.443**
CB	Sig. (2-tailed)		.0001
	N	300	300
	Pearson Correlation	.443**	1
DW	Sig. (2-tailed)	.0001	
	N	300	300

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

The above table represents the correlation of two variables_ Consumer buying behavior and Design of wrappers are positively correlated ($r=0.443$, $p=0.0001$). There is a moderate relationship between buying behavior and design of wrapper which is significant. So we can say that the hypothesis is accepted.

H4: There is a relationship between consumer's buying behavior and packaging innovations. Correlations between Consumer's Buying Behavior & packaging Innovation

Table 3.2.4

		CB	PI
	Pearson Correlation	1	.335**
CB	Sig. (2-tailed)		.0005
	N	300	300
	Pearson Correlation	.335**	1
PI	Sig. (2-tailed)	.0005	
	N	300	300

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

In the above table it is shown positive correlation between consumer's buying behavior and packaging innovation ($r=0.335$, $p=0.0005$). So that it is clear that the hypothesis is accepted.

4.1. Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824 ^a	.679	.674	.26405

a. Predictors: (Constant), PI, PM, PC, DW

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	PI, PM, PC, DW ^b	.	Enter

a. Dependent Variable: CB

b. All requested variables entered.

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	43.414	4	10.854	155.674	.000 ^b
1 Residual	20.567	295	.070		
Total	63.982	299			

a. Dependent Variable: CB

b. Predictors: (Constant), PI, PM, PC, DW

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.617	.162		9.969	.000
PC	.286	.033	.351	8.729	.000
1 PM	.180	.031	.270	5.755	.000
DW	.388	.030	.663	13.017	.000
PI	-.338	.021	-.564	-15.951	.000

a. Dependent Variable: CB

5. CONCLUSION

It was quite interesting to conduct this particular research inclined towards the impact of packaging for buying behavior of consumers for particularly finger foods. The prime purpose of the study is to know the packaging impact on buying. Packing is certainly the silent salesman because of the touch and see attribute it consists. Packing is wrapping of the product in a suitable container or bag. What glitters is gold many a times especially in the field of marketing and sales as the customers get attracted to the package and many a times results in impulse buying. Companies dealing in both tangible and intangible products have understood the importance of packaging and its impact on customer or consumer buying behavior. The quality of material used for packaging also reveals the inside character of the product or commodity. Before the evolution of globalization the scenario was totally different when it is compared now. The buying motives have changed to a great extent in the consumer market. Marketers have also understood the needs of the customers and putting in all the efforts to lure the customers through various packaging techniques and methods. But one thing is certain that customer mindset understanding is the toughest job for the researchers because of the rapidly changing behavior the customer. Marketing and selling is no more the job of idle people. Hence continuous research and product modification is very important through attractive packaging.

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PROPHECY OF CROP FOR SHIFTING CULTIVATION

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ABSTRACT

Agriculture is a field that makes a substantial contribution to our country's economic growth. It's the one that gave birth to civilization. India is an agricultural country whose economy is primarily focused on crop production. The importance of crop selection in agricultural planning cannot be overstated. Machine learning is an effective approach for determining the best crop to grow. For a good crop forecast, we examined some of the features such as rainfall, pH, nitrogen (N), phosphorous (p), potassium (k), humidity, and temperature, according to our search method. We gathered about 7 characteristics from multiple datasets and collected 20000 samples for our proposed approach. The findings corroborate prior findings in several models, were delivered with a lower degree of precision. In this paper, we argue that when compared to linear regression and bagging classifier models, the Gaussian Naive Bayes method achieves a 97 percent accuracy using machine learning metrics such as Root Mean Square Error (RMSE), Mean Absolute Error (MAE), and Mean Squared Error (MSE). The goal of this study is to put the crop selection approach into practice so that it may help farmers and farmers solve difficulties. This boosts the yield rate of crop production, which benefits the Indian economy.

Keywords- Gaussian Naive Bayes, metrics, crop prediction, Accuracy, Linear regressor, bagging classifier, RMSE, MAE, MSE.

INTRODUCTION:

Data mining is a technique for evaluating huge data sets and determining categorization and trends. The approaches are intended to extract important information that can be quickly accessed, Individuals are predictable. Data mining is a difficult technology in the realm of analytics. In the realm of agriculture, data mining is now employed for soil categorization, Management of wasteland, crops, and pests. The rules of association were evaluated. Rain, weather, macro nutrients, micro nutrients, soil type contents and fertilizers are the primary variables that contribute to increased output in agriculture. Agriculture is primarily concerned with the production of crops. Crop cultivation is influenced by the type and nutrients of the soil, and growing land cultivation results in a loss of supplements in the soil. Soil has a vital function in crop cultivation. All of this contributes to shifting cultivation. A soil test is performed to determine the amount of nutrients, humidity, soil type and other components present in the soil. Machine learning is an area of computer science that has seen recent advancements and also aids in automating the assessment and processing performed by humanity, therefore decreasing the strain on human power. Machine learning is a subfield of Artificial Intelligence which permits computers to be taught without having to explicitly design them. Machine-learning means that algorithms can offer knowledge about a dataset without requiring the user to write code or solve the programme manually. Instead of developing code, you input data or just use the traditional technique, and it develops its own conclusions based on the data. Machine learning agricultural technology are derived from the learning process. Those techniques must also be learned via experience in order to effectively carry out a certain activity. After the learning is complete, the model may be used to categorize and test data based on assumptions. After accumulating expertise with the training procedure, the test data is obtained. Classification is a data mining approach that uses machine learning to classify existing data in a dataset into a set of predefined classes. It aids in the discovery of differences between things and concepts. It also gives you the knowledge you need to research a methodical way. Many studies are being conducted in an attempt to develop an accurate and efficient crop forecast model. We implemented gaussian naive bayes in our proposed system to examine two different algorithms: linear regression and bagging classifier, a supervised machine learning algorithm. (Rohit Ravi, B. Baranidharan 2020) [12] has gone through the prediction based on the linear regression.

Gaussian is a machine learning algorithm that is used for classification. Naive Bayes with Gaussian Normal Distribution is a version of Naive Bayes that accepts continuous data and follows the Gaussian normal distribution. The Bayes theorem is the basis for a category of supervised machine learning classification algorithms described as Naive Bayes (Shikha Ujjainia, et al, 2021). It's a simple classification technique with a lot of potential. They're useful when the inputs' dimensionality is high. This algorithm depicts something is about to happen, and something has already happened. One frequent assumption, when working with continuous data is that the continuous values associated with each class follow a normal (or Gaussian)

distribution. The frequency of the features is considered to be- The z-score distance between each data point and each class mean is computed by multiplying the distance from the class mean by the class standard deviation. To fit this model, the mean and standard deviation of the points inside each label may be utilised. Our technique is based on the Python Jupyter Notebook and Google Colab, which is a Python-based data science software stack (Phusanisa Charoen-Ung et al 2021) [14] describes the implementation which contains numpy, panda, matplotlib, scikit-learn

, and other essential python programmes. The final work is the comparative study of all 3 algorithms and show the results of the best algorithm based on different metrics (Jay Gholap et al, 2019) [9] such as accuracy, Root Mean Square Error (RMSE), Mean Absolute Error (MAE), and Mean Squared Error (MSE)

LITERATURE SURVEY:

Avnika Shah et al. (2021) investigate the notion of predicting maximum net crop production using remote sensing and metrological inputs such as temperature and crop images processed by NDVI calculation using the boosting algorithm to analyse and preprocess the dataset. Here The accuracy and performance of the boosting method are determined using KF fold cross validation. The boosting approach is used here as the best algorithm, although it has been shown in numerous research that it can be improved using some deep learning techniques to get more accurate results. Rohit Ravi et al. (2020) stated that In comparison to various classification methods such as linear regression, decision regression, random forest, support vector regression, and XG Boost algorithm, the XG Boost algorithm provides the best accuracy.

The accuracy is computed using R², MAE (Mean absolute error), MSE (Mean Squared Error) and MSE (Mean Squared Error). As a result, based on the anticipated values from various algorithms, the accuracy of the boosting algorithm yields the best results.

Mummaleti Keerthana et al. (2021) propose that combining different types of algorithms will get the best outcome. The algorithms that were tested were decision tree with RF, decision tree with ada boost, RF with ada boost, and decision tree with Gradient boosting, using dataset metrics such as R², MAE (Mean absolute error), and MSE (Mean Squared Error). When using the Ada boost regressor in conjunction with the decision tree regressor, the accuracy is the best. S. Bangaru Kamatchi et al. (2019) established a relationship between metrological and meteorological data and made decisions based on the metrics mentioned above. The data is analysed and learned using ANN depending on the meteorological conditions specified in the dataset. It is equipped with a hybrid-based recommender. To anticipate the agricultural production district, a system combined with case-based reasoning will be useful.

By taking use of the meteorological circumstances

Phusanisa Charoen-Ung et al. (2018) used random forest and gradient boosting to classify yield grades, monitoring accuracy and prediction while testing the dataset and building a decision tree. Confusion matrices are utilised in this work to assess accuracy, and they may be used with other variables such as temperature, humidity, and other qualities to test and provide efficient results. A Software Model for Precision Agriculture for Small and Marginal Farmers was proposed by Satish Babu et al. (2017). The needs and planning needed to construct a software model for precision farming are covered in this project. It delves into the fundamentals of precision farming. The authors begin with the fundamentals of precision farming before moving on to constructing a model to support it. This research offers a model that uses Precision Agriculture (PA) concepts to control variability on small, open farms at the individual farmer and crop level. The model's overall goal is to provide direct advising services to even the tiniest farmer at the level of his or her smallest crop plot, utilising the most accessible technologies available, such as SMS and email. This model was created for the situation in Kerala, where the average holding size is significantly lower than the rest of India. As a result, with minimal alterations, this model may be used everywhere in India.

Anshal Savla et al., Survey of classification algorithms for developing yield forecast accuracy in precision agriculture. It conducts a comparison of categorization algorithms and their yield prediction performance in precision agriculture. These algorithms are used to forecast yield on a soya bean crop using data collected over multiple years. Support Vector Machine, Random Forest, Neural Network, REPTree, Bagging, and Bayes are the methods employed in this article for yield prediction. The conclusion drawn at the end is that bagging is the best algorithm for yield prediction among the above stated algorithms since the error deviation in bagging is minimum with a mean absolute error of 18985.7864.

Rakesh Kumar et al., implemented a Crop Selection Method to Maximize Crop Yield Rate Using Machine Learning Technique. The importance of crop selection is depicted in this project, as well as the elements that

influence crop selection, such as production rate, market price, and government policies. This work provides a Crop Selection Method (CSM), which addresses the crop selection problem while also increasing the crop's net yield rate. It advises a sequence of crops to be planted throughout the course of a season, taking into account elements such as weather, soil type, water density, and crop type. The accuracy of CSM is determined by the expected value of important parameters. As a result, there is a requirement to offer a forecast.

Yang Liying For ensemble learning, classifiers are chosen based on accuracy and diversity. The goal of this project is to address the difficult problem of choosing classifiers for ensemble learning. A method has been presented for selecting the optimal classifier set from a pool of classifiers. The goal of the idea is to improve accuracy and performance. Based on accuracy and classification performance, a technique termed SAD was devised. The relationship between the most relevant and accurate classifiers is determined using Q statistics. The ensemble was formed by combining the classifiers that were not picked. This measure is meant to improve the ensemble's performance and variety. Several algorithms were found, including SA (Selection by Accuracy), SAD (Selection by Accuracy and Diversity), and NS (No selection). Finally, it is deduced that SAD is more effective than others. To categorise the liver disease data set, the research suggests many classification algorithms. Tapas Ranjan Baitharua et al, Analysis of Data Mining Techniques for Healthcare Decision Support System Using Liver Disorder Dataset. Because the dataset and the learning algorithm are dependent on each other, this project stresses the importance of accuracy. To diagnose these illnesses and assess their efficacy and correction

rate, classification algorithms such as J48, Naive Bayes, ANN, ZeroR, 1BK, and VFI were utilised. The accuracy and computing time of the models were compared to see how well they performed. Except for naive bayes, all of the classifiers demonstrated increased prediction accuracy. Among the suggested methods, the multilayer perceptron has the best accuracy.

Aymen E Khedr, Mona Kadry, et al, Proposed Framework for Implementing Data Mining Techniques to Enhance Decisions in the Agriculture Sector Applied Case on Food Security Information Center Ministry of Agriculture,. This project aims to address Egypt's food insecurity problem. It gives a framework for forecasting production and imports for that specific year. WEKA builds the prediction using Artificial Neural Networks and Multi-layer Perceptrons. We would be able to view the amount of production import, demand, and availability at the conclusion of the process. As a result, it would be easier to decide whether food has to be imported further or not.

Santosh K. Vishwakarma, et al, Data Mining Approach for Soil Behavior Analysis and Crop Yield Prediction The soil datasets are examined, and a classification is projected. A Classification rule is used to determine the crop production based on the expected soil category. Crop yield prediction is done using the Nave Bayes and k-Nearest Neighbor algorithms. The goal of future study is to develop efficient models employing a variety of classification approaches, such as support vector machines and principal component analysis. Based on our assessment of the literature, we have identified the following metrics for comparison in our proposed work: RMSE (Root Mean Square Error), MAE (Mean Absolute Error), MSE (Mean Squared Error), Accuracy based on training and testing data

PROPOSED METHODOLOGY:

Machine learning is one such variance that is automated from Artificial Intelligence (AI) which uses mathematical calculation as well as to determine in statistical way. Machine Learning which uses primarily in prediction of some of the real time content. We will determine the soil's fundamentals such as macro and micro contents along with the features which is needed to yield growth using Machine Learning methods. We develop this with help of some precise language code. We have calculated the accuracy and some of performance metrics to determine how precise our machine is. We can save time and money and can reduce the loss before it going to happen in the industrial sector and for the low level farming by predicting what crop will be needed during shifting cultivation." This stage entails assessing the problem by breaking down the system into different components, reviewing the project's goals as per problem statement, breaking down what are the requirements to be analyzed and to be established, and seeking to engage about the final working and establishment.

Based on soil composition and environmental data such as temperature, humidity, soil PH, and rainfall, the proposed algorithm would estimate the best crop for a given piece of land. In our case, We employed a supervised machine learning technique with classification and regression subcategories regression. Our system will benefit most from a classification method. Process of crop forecasting being with the external crop datasets loading After the dataset has been read, pre-processing will begin. As stated in the Data Pre-processing section,

this can be accomplished in several phases. Following the data pre-processing, using Gaussian Naive Bayes along with linear regression and bagging classifier, we train the models by these algorithms and implement it which gives the best result. We conducted a comparison analysis to determine which classification algorithm will produce the best results based on performance indicators such as mean square error, mean absolute error, and root mean squared error.

Collection of exercises

Getting the Dataset: The first step in creating a machine learning model is to obtain a dataset, as a machine learning model is entirely based on data. The dataset is a collection of data in a certain format for a specific task.

DATA PREPROCESSING: There are four major phases involved in data preprocessing.

- Splitting the data set into two parts: training and validation
- Addressing missing values
- Addressing categorical features
- Normalizing the data collection

HANDLING MISSING DATA: Handling missing data in datasets is a stage in data preparation. If part of the data in our dataset is missing, it might be a significant challenge for our machine learning model. As a result, handling missing values in the dataset is required. We've preprocessed the data here. By computing the mean, we will find the mean of the column or row that has any missing values and use it to fill in the blanks. We'll use this technique in this case.

Scaling of Features

It is a strategy for standardising the dataset's independent variables in a defined range. In feature scaling, we place all of our variables in the same range and scale so that none of them dominate the others.

Training and Testing:

The most important in training the machine learning model is to split dataset into training and testing model. The model is split into two parts to train and test the model on the basis of 7:3 ratio to get the result.

Confusion Matrix:

A confusion matrix is a summary of classification problem prediction outcomes. The number of right and unsuccessful predictions is totaled and split down by class using count values. The confusion matrix's key is this. The confusion matrix depicts the various ways in which your classification model becomes perplexed while making predictions. Based on the confusion matrix, the error is analysed.

Mean Absolute Error (MAE) is a measure of how accurate a (MAE) In regression issues, it is the most basic error measure. It's essentially the total of the absolute difference between the expected and actual values multiplied by the average.

Mean Square Error (MSE) is similar to MAE, but instead of utilising the absolute value, it squares the difference between actual and anticipated output values before adding them up.

1) Gaussian Naive Bayes:

Gaussian Naive Bayes with Gaussian Normal Distribution is a variation of Naive Bayes that handles continuous data and follows the Gaussian normal distribution. It's true. Something is about to happen, and something has already happened. When working with continuous data, one common assumption is that the continuous values associated with each class follow a normal (or Gaussian) distribution. The characteristics' probability is considered to be-

The z-score distance between each data point and each class mean is determined, which is the distance from the class mean divided by the class standard deviation. Finding the mean and standard deviation of the data is all that is required to fit this model within each label

2) Linear Regressor

For predictive analysis, the linear regression [9] approach is utilised to reveal the relationship between continuous variables. The dependent variable (Y-axis) has a linear relationship with the independent variable (X-axis) in linear regression (Y-axis). A classic slope-intercept form is used to generate best-fit line linear regression.

$$y=mx+c$$

y = Dependent Variable. x = Independent Variable. c = intercept of the line **3)Bagging Classifier**

Bagging classifier [13] is carried out by taking some the random set from the dataset for prediction to reduce the variance in the training set. The random subset are analyzed to the whole and final prediction is done.

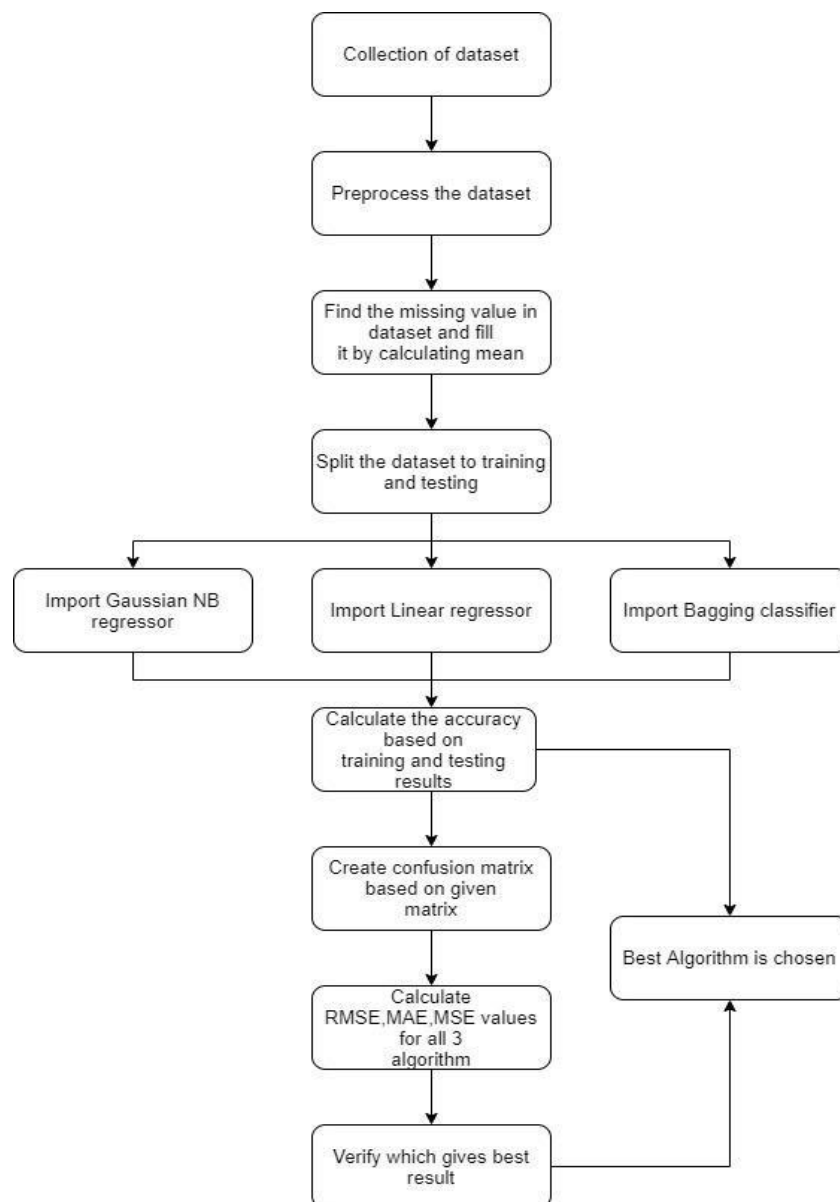
Working of Gaussian NB

Step 1: Separate by class based on which gives best result .Step 2: Compile a summary of the data set.

Step 3: Classify and summarise the data.

Step 4: Calculate the Gaussian Probability Density Function. Step 5: Calculate the probabilities for each class.

Step 6: Verify how much best prediction are resulted.



IMPLEMENTATION AND RESULT ANALYSIS :

ALGORITHM	RMSE	MAE	MSE	ACCURACY
Gaussian Naïve Bayes	510.492	358.428	260.602	99.545
Linear Regression	753.761	296.786	272.515	97.162
Bagging Classifier	915.819	108.899	623.96	94.831

Table:1

Table 1 describes Individual Model Prediction: Based on the given metrics, we anticipate that Gaussian Naive Bayes algorithm produces the best outcomes. Based on the previous findings, Linear Regression and Bagging classifier gives more error rate than Gaussian NB. The RMSE values should be lie between 0 to 0.7 for better datum ranges, therefore Compared with other Gaussian NB Has least accuracy. Gaussian Naive Bayes is an appropriate model for training our data to obtain the desired results. MAE which is the error prediction which we can make it positive that is the least value should be obtained while calculating MAE. Here Gaussian NB give the best result. So from the Performance metrics we have taken it concludes Gaussian NB gives better results. In this model, we can see that we use the to examine the data correctness by dividing the dataset into training and testing set and verify which gives best accuracy. Since the accuracy for Gaussian NB is calculated based on Z score normalization value it gives the best output.

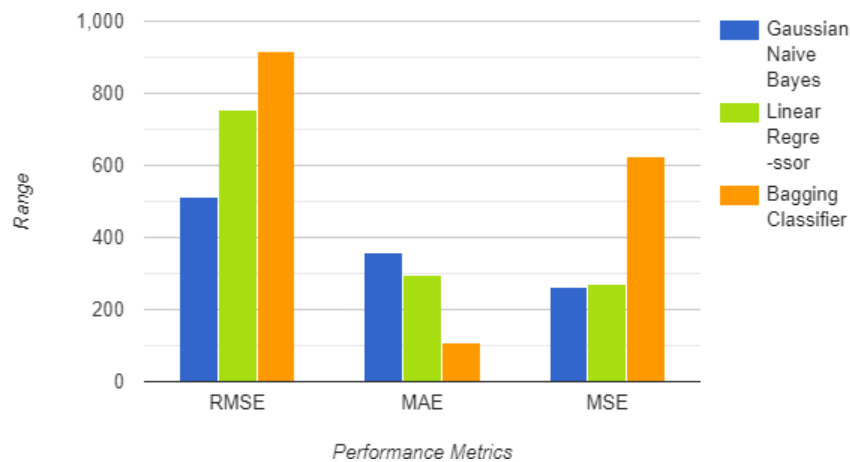


Figure:1

Figure 1 ie, The proposed chart depicts the row side values describes performance metrics such as RMSE, MAE, MSE of three different algorithms such as Linear regression, Bagging Classifier and Gaussian NB. The column based values are the range of performance metrics values

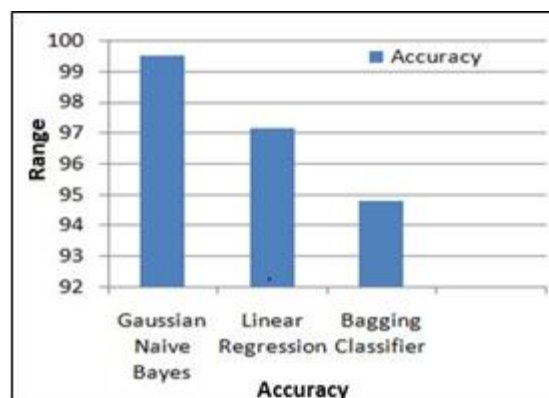


Figure:2

The figure 2 illustrates the accuracy of compared algorithm based on the training and testing model

Various fields based dataset are collected based on the region where the crops are grown. These data were collected from kaggle and from some of the github sites. After preprocessing and feature extraction some columns are dropped and finally 7 columns are along with the dataset with 20,000 instances. The dataset consists of features such as: Nitrogen (N), Phosphorus (P), Potassium (K), Rainfall, Humidity, Ph, Temperature.

Based on the values in the dataset resultant crop is suggested for particular soil. Here 3 different algorithms are implemented to check best prediction. The accuracy for Gaussian Naive Bayes is 99%, whereas in Linear regression and Bagging classifier it gives the result as 97%, 94%, the accuracy is more for Gaussian NB because the algorithm works based on the normalized values and the continuous data values. But in the other two algorithms, it is based on dependent variable. While measuring the error content values of RMSE, MSE in Gaussian NB gives the less error rate comparison with other two. So based on the results we get from different datasets and from different regions it concludes that Gaussian NB gives better results.

CONCLUSION:

Finally, we developed a method for predicting crop yields based on previously acquired data. This has been resolved by the application of machine learning techniques. The outcome is predicted using Gaussian naïve bayes, which has a higher accuracy rate. By considering the Accuracy, MSE, MAE, RMSE value Gaussian naïve bayes gives the best result where its accuracy is 99%. The increase in accuracy rate will benefit the yield more. This technique assists farmers in determining which crop should be planted in the field depending on the criteria taken into account. In this paper suggestion, we have chosen the top 10 crops that handle the bulk of the problems when the criteria are location and weather. Farmers will be guided to make a clear decision in picking a suitable crop for yield based on the accuracy of crop forecast throughout the globe.

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INTERVAL VALUED INTUITIONISTIC FUZZY SOFT IDEALS OF HEMIRING

Dr. N. Anitha¹ and Lambodharan .V²Assistant Professor¹ and Research Scholar², Department of Mathematics, Periyar University PG Extension Centre, Dharmapuri-636701**ABSTRACT**

The goal of this work is to present the notions of intuitionistic fuzzy soft ideals intuitionistic equivalent fuzzy soft ideals of hemirings. A few properties and characteristics of intuitionistic fuzzy ideals. And we discuss a few examples, finally, we examine aggregative intuitionistic fuzzy ideals of Hemirings and discussed with decision making.

Keywords: Fuzzy set, Fuzzy soft set, intuitionistic fuzzy soft ideals, Hemiring

1.INTRODUCTION

Handling with difficulties in various areas of applied mathematics and sciences, we can find that more applicable in semi-rings. They involve more essential part intake in optimization areas, automata theory, graph theory, and so on. Most of the semi-rings in the part of structure theory, and generally not run into the ideals of semi-rings with normally ring ideals, hence limited usage of ideals in semi-rings several authors mean a semiring with a "0" and with a commutative "+", we said to be semiring hemiring. The h-ideals in hemirings were systematically examined by LaTorre [1] and apply the h-ideals, he proved a few equivalents ring of hemirings, [2]jun et al. make to the idea of fuzzy h-ideals in hemirings and provided a few connected properties. In investigating Zhan [3] the h-hemi regular hemirings. [4] provided more these article [5] contributed a few generalized fuzzy h-ideals of hemirings.[6] Zhan and Shum have studied h-hemiregular hemiring fuzzy h-ideals of hemirings. [7] Dudek provided the essential results on hemirings. Mathematical show-off and operation of a few types of doubts have come to be a gradually more essential problem in answering difficult problem springing up in a huge collection of extents likewise medicine, Engineering, economics, etc. [8] molodtsov initially presented the soft set concept as a common mathematical tool for uncertainty. Therefore a few authors gave operation of soft sets and application [9] a moment ago,[10] a few authors find fuzzy soft sets along by way of parameterizations, such as parameterized soft sets.[11] presented intuitionistic fuzzy parameterized soft sets. [12] L. A Zadeh gave the concept of fuzzy set,[13] K.T. Atanassov presents the idea of an Intuitionistic fuzzy set. In this work, we initiated the idea of Intuitionistic fuzzy soft ideals of Hemirings and argue a few connected results. Also using two operator maximum, minimum operator As a final topic, we saw a few examples to display the techniques can be effectively useful to a few uncertain problems.

2. Preliminaries.

Let (S, \oplus, \odot) be a semiring involving a non-null set S along with two operations on S is said to be " \oplus " and " \odot " such that (S, \oplus) and (S, \odot) be a semigroups and fulfills the distributive property (Here \oplus, \odot be the usual addition and multiplication)

$$l(m \oplus n) = lm \oplus ln, (l \oplus m)n = ln \oplus mn, \forall l, m, n \in S \quad (1)$$

Let (S, \oplus, \odot) be the semi-ring and let zero be a semi-ring of (S, \oplus, \odot) that mean the element $0 \in S$ such that $0 \odot l = l \odot 0 = 0$ and $0 \oplus l = l \oplus 0 = 0, \forall l \in S$. (H, \oplus) is said to hemiring the following conditions are fulfilled a semiring along with zero, commutative semi-group (S, \oplus) . For simply we write lm for $l \odot m (l, m \in H)$

A subhemiring of a hemiring $H \subseteq L$ of H is closed under " \oplus " and \odot . A subset L of H is said to be left –right ideal of H if L is closed under " \oplus " $L \supseteq HL$ and $L \supseteq LH$. A subset L is said to be an left and right ideals.

A subhemiring L of H is said to be an h –subhemiring of H , if for any $a, c \in H$ and $l, m \in L$ and $a \oplus l \oplus c = m \oplus c \Rightarrow l \in L$

Let C be the universal set and H is hemiring, F be the parameter set, hence the power set be $P(C)$, and $L, M, N \subseteq F$.

Definition 2.1 (Ref [12]) Let C be the universal set. A fuzzy set L over C is a set well-defined by a function φ_L be the function $\varphi_L : C \rightarrow [0,1]$ (2)

Here φ_L is said to be membership value of L and the value $\varphi_L(l)$ is said to be the grade of membership of $\varphi \in C$. The value denotes the degree of $l \in L$. Hence a fuzzy set L over C can be symbolized as below

$$L = \{(l, \varphi_L(l)) : l \in C, \varphi_L(l) \in [0,1]\} \quad (3)$$

Here the set of all fuzzy sets over C symbolized by $L(C)$

Definition 2.2 An intuitionistic fuzzy set (IFS) L over C is stated as below

$$L = \{(l, \varphi_L(l), \theta_L(l)) : l \in C\} \quad (4)$$

Where $0 \leq \varphi_L(l) + \theta_L(l) \leq 1$ this value is membership and non membership value. (5)

It also additionally $\forall l \in C, C = \{l, 1, 0\}; l \in C\}$, void set = $\{(l, 0, 1) : l \in C\}$ are intuitionistic fuzzy universal and intuitionistic fuzzy void set respectively.

Definition 2.3. Let φ be a fuzzy set H is called fuzzy LRI(left-right ideal) of H . If the below property satisfies

$$\varphi(l \oplus m) \geq \inf\{\varphi(l), \varphi(m)\},$$

$\varphi(lm) \geq \varphi(m)(\varphi(lm) \geq \varphi(l)) ; \forall l, m \in S$, Here φ is a left-right ideal of H , hence $\varphi(0) \geq \varphi(l), \forall l \in H$.

(b) A LRh -ideal φ of H is stated to be a LRI φ of H if for all $x, y, l, n \in S, l \oplus x \oplus n = y \oplus n \Rightarrow \varphi(l) \geq \inf\{\varphi(x), \varphi(y)\}$.

Therefore φ is called both left right h -ideals of S

Definition 2.4. (a) An intuitionistic fuzzy set L of S is said to be intuitionistic fuzzy left right ideal of H if the following properties are satisfied

$$\varphi(l \oplus m) \geq \inf\{\varphi(l), \varphi(m)\},$$

$\theta(l \oplus m) \leq \sup\{\theta(l), \theta(m)\}$ and

$$\varphi(lm) \geq \varphi(m)(\varphi(lm) \geq \varphi(l)),$$

$\theta(lm) \leq \theta(m)(\theta(lm) \leq \theta(l)). \forall l, m \in H$.

Clearly if φ is an intuitionistic left-right fuzzy ideal of H therefore $\varphi(0) \geq \varphi(l)$ and $\theta(0) \leq \theta(l), \forall l \in H$.

(b) An intuitionistic left right fuzzy ideal L of H is stated as intuitionistic left right ideals L of H if $\forall x, y, l, n \in H, l \oplus x \oplus n = y \oplus n \Rightarrow \varphi(l) \geq \inf\{\varphi(x), \varphi(y)\}$ and $\theta(l) \leq \sup\{\theta(x), \theta(y)\}$.

An intuitionistic fuzzy set L is said to be an left right fuzzy ideal of H if it both an intuitionistic left right fuzzy ideal of H .

Definition 2.5. Let C be common universal set, \mathbb{F} is set of all parameters, and L an intuitionistic fuzzy set over with the membership function $\varphi_L: \mathbb{F} \rightarrow \text{Int}([0,1])$, and non -membership function $\theta_L: \mathbb{F} \rightarrow \text{int}([0,1])$ χ_L be an Intuitionistic fuzzy set over C for every $l \in \mathbb{F}$. Then , λ - set, λ_L over intuitionistic fuzzy set over C (Represented by $IF(C)$) is stated by a function $\lambda_L(l)$ representing function

$$\lambda_L: \mathbb{F} \rightarrow IF(C) \text{ such that } \lambda_L(l) = \emptyset \text{ if } l \notin L. \quad (6)$$

Where λ_L is said to be intuitionistic fuzzy rough calculation of λ - set, $\lambda_L(l)$ is an intuitionistic fuzzy set said to be l -member of the λ - set, for every $l \in \mathbb{F}$. Thus an λ - set, λ_L over C can be stated by

$$\lambda_L = \{(l, (\varphi_L(l), \theta_L(l)), \eta_L(l)) : l \in \mathbb{F}, \eta_L(l) \in IF(C)\}. \quad (7)$$

Clearly ,if $\varphi_L(l) = 0, \theta_L(l) = 1$ and $\eta_L(l) = \text{empty}$, we don't show such element in the set. It necessity that the sets of every λ - sets over $IF(C)$ will be symbolized by $\lambda(C)$.

Definition 2.6. Let $\lambda_L \in \lambda(C)$. Then

(a) If $\lambda_L(l) = \emptyset, \forall l \in \mathbb{F}$, then λ_L is said to be an L - empty λ - set, and symbolized by λ_{\emptyset_L} .

(b) If $L = \emptyset$ then the L -empty λ -set (λ_{\emptyset_L}) is said to be empty λ -set , symbolized by λ_{\emptyset} , where \emptyset this means Intuitionistic fuzzy empty set.

(c) If $\varphi_L(l) = 1, \theta_L(l) = 0$ and $\eta_L(l) = C, \forall l \in L$, then λ_L is said to be L - universal λ - set , symbolized by λ_L .

(d) If L is equal to intuitionistic fuzzy universal set over \mathbb{F} , Then the L - universal λ - set , is said to be universal λ - set, symbolized by $\lambda_{\mathbb{F}}$. Here C is the intuitionistic fuzzy universal set.

Definition 2.7. Let $\lambda_L, \lambda_M \in \lambda(C)$. Then

(a) λ_L be an intuitionistic fuzzy parameter subset of λ_M , denoted by $\lambda_L \sqsubseteq \lambda_M$, If $\varphi_L(l) \leq \varphi_M(l), \theta_L(l) \geq \theta_M(l)$, and $\eta_L(l) \sqsubseteq \eta_M(l), \forall l \in \mathbb{F}$;

(b) λ_L and λ_M be an TVF parameter-equal, denoted by $\lambda_L = \lambda_M$, if $\varphi_L(l) = \varphi_M(l), \theta_L(l) = \theta_M(l)$, and $\kappa_L(l) = \kappa_M(l), \forall l \in \mathbb{F}$.

Definition 2.8. Let $\lambda_L \in \lambda(C)$. The thn the complement of λ_L , symbolized by λ_L' , is an TVF-fuzzy soft set stated by (' meant complement)

$$\lambda_L'(l) = 1 - \varphi(l), \theta_L'(l) = 1 - \theta(l),$$

$$\eta_L'(l) = C/\eta_L(l) \quad (8)$$

Definition 2.9. Let $\lambda_L, \lambda_M \in \lambda(C)$. then

(a) The intersection of λ_L and λ_M , symbolized by $\lambda_L \sqcap \lambda_M$, is stated by

$$\lambda_L \sqcap \lambda_M = \left\{ \left(l, \left(\varphi_{\lambda_L \sqcap \lambda_M}(l), \theta_{\lambda_L \sqcap \lambda_M}(l) \right), \eta_{\lambda_L \sqcap \lambda_M}(l) \right) : l \in \mathbb{F} \right\}. \quad (9)$$

Where ,

$$\varphi_{\lambda_L \sqcap \lambda_M}(l) = \inf\{\varphi_L(l), \varphi_M(l)\},$$

$$\theta_{\lambda_L \sqcap \lambda_M}(l) = \sup\{\theta_L(l), \theta_M(l)\},$$

$$\varphi_{\lambda_L \sqcap \lambda_M}(l) = \{r, \inf\{\varphi_{\eta_L(i)}(r), \varphi_{\eta_M(i)}(r)\}, \sup\{\theta_{\eta_L(i)}(r), \theta_{\eta_M(i)}(r)\} : r \in C\} \quad (10)$$

(b). The Union of λ_L and λ_M , symbolized by $\lambda_L \sqcup \lambda_M$, is stated by

$$\lambda_L \sqcup \lambda_M = \left\{ \left(l, \left(\varphi_{\lambda_L \sqcup \lambda_M}(l), \theta_{\lambda_L \sqcup \lambda_M}(l) \right), \eta_{\lambda_L \sqcup \lambda_M}(l) \right) : l \in \mathbb{F} \right\}. \quad (11)$$

Where ,

$$\varphi_{\lambda_L \sqcup \lambda_M}(l) = \sup\{\varphi_L(l), \varphi_M(l)\},$$

$$\theta_{\lambda_L \sqcup \lambda_M}(l) = \inf\{\theta_L(l), \theta_M(l)\},$$

$$\varphi_{\lambda_L \sqcup \lambda_M}(l) = \{r, \sup\{\varphi_{\eta_L(i)}(r), \varphi_{\eta_M(i)}(r)\}, \inf\{\theta_{\eta_L(i)}(r), \theta_{\eta_M(i)}(r)\} : r \in C\}. \quad (12)$$

here $\eta_{L \sqcup M}(l) = \eta_L(l) \sqcup \eta_M(l), \forall l \in \mathbb{F}$.

(c) The multiplication operator (\wedge)(minimum) of λ_L and λ_M and represented by $\lambda_L \wedge \lambda_M$, is stated as

$$\lambda_L \wedge \lambda_M = \left\{ \left(l, \left(\varphi_{\lambda_L \wedge \lambda_M}(l, m), \theta_{\lambda_L \wedge \lambda_M}(l, m) \right), \eta_{\lambda_L \wedge \lambda_M}(l, m) \right) : l \in \mathbb{F} \right\}. \quad (13)$$

Where

$$\varphi_{\lambda_L \wedge \lambda_M}(l, m) = \inf\{\varphi_L(l), \varphi_M(m)\},$$

$$\theta_{\lambda_L \wedge \lambda_M}(l, m) = \sup\{\theta_L(l), \theta_M(m)\},$$

$$\eta_{\lambda_L \wedge \lambda_M}(v) = \left\{ \left(v, \inf\{\varphi_{\eta_L(l)}(v), \varphi_{\eta_M(l)}(v)\}, \sup\{\theta_{\eta_L(l)}(v), \theta_{\eta_M(l)}(v)\} \right) : v \in C \right\}, \quad (14)$$

Here $\eta_{L \wedge M}(l) = \eta_L(l) \wedge \eta_M(l), \forall l \in \mathbb{F}$.

3. Intuitionistic fuzzy soft left –right ideals (IFSLRI)

Definition 3.1 Take H is a hemiring, \mathbb{F} is a parameters and L an intuitionistic fuzzy set along with \mathbb{F} , $\lambda_L = \left\{ \left(l, \left(\varphi_L(l), \theta_L(l) \right), \eta_L(l) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(C) \right\} \in \lambda(C)$.

Hence λ_L is called intuitionistic fuzzy parameter intuitionistic fuzzy soft left –right ideals (IFSLRI) over H , and if for any $l \in \mathbb{F}$, $\eta_L(l)$ be an intuitionistic fuzzy left right ideal of H .

Example 3.2 Take $H = \mathbb{Q}_3 = \left\{ \frac{0}{10}, \frac{10}{10}, \frac{2}{10} \right\}$ is an hemiring and $\mathbb{F} = \{x, y\}$ is an parameters set.

$$\text{If } L = \left\{ \left(x, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(y, \left(\frac{5}{10}, \frac{2}{10} \right) \right) \right\},$$

$$\eta_L(x) = \left\{ \left(\frac{0}{10}, \left(\frac{7}{10}, \frac{2}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\},$$

$$\eta_M(y) = \left\{ \left(\frac{0}{10}, \left(\frac{5}{10}, \frac{1}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right) \right\}$$

Hence λ_L be an intuitionistic fuzzy soft left-right ideals over H .

Example 3.3 let $H = [a_{ij}]_n$ be an hemiring Matrix, let $\mathbb{F} = \{x, y\}$ is an parameters sets, if L is an intuitionistic fuzzy set over H is stated by

$$\varphi_L(l) = \begin{cases} \frac{2}{10}, & \text{if } l = x \\ \frac{6}{10}, & \text{if } l = y \end{cases} \quad (15)$$

Where $\theta_L(l) = 1 - \varphi_L(l)$.

η_L is stated by

$$\varphi_{\eta_L(w)}(u) = \begin{cases} 0, & \text{if } u \text{ is non-triangular matrix,} \\ 1, & \text{if } u \text{ is triangular matrix,} \end{cases}$$

$$\theta_{\eta_L(w)}(u) = 1 - \varphi_{\eta_L(w)}(u) \quad (16)$$

$$\varphi_{\eta_L(q)}(v) = \begin{cases} 0, & \text{if } v \text{ is non-triangular matrix,} \\ 1, & \text{if } v \text{ is triangular matrix,} \end{cases}$$

$$\theta_{\eta_L(q)}(v) = 1 - \varphi_{\eta_L(q)}(v)$$

For every $l \in \mathbb{F}$, if we confirm that $\eta_L(l)$ be an intuitionistic left-right fuzzy ideal of H and λ_L be an intuitionistic fuzzy soft ideal over H .

Theorem 3.4. Let $\lambda_L, \lambda_M \in IF(C)$ be left right ideal over H , hence the " $\lambda_L \bar{\cap} \lambda_M$ " is an intuitionistic fuzzy soft left right ideal over H .

Proof: here we represent $\lambda_L \bar{\cap} \lambda_M = \lambda_{L \bar{\cap} M}$. For every $l \in \mathbb{F}$,

$$\varphi_{L \bar{\cap} M}(l) = \inf\{\varphi_L(l), \varphi_M(l)\},$$

$$\varphi_{L \bar{\cup} M}(l) = \sup\{\varphi_L(l), \varphi_M(l)\}.$$

Now we show that $\eta_L(l) \bar{\cap} \eta_M(l)$ be an LRI of H . For ever $l \in \mathbb{F}, h_1, h_2 \in H$,

$$\begin{aligned} (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h_1 + h_2) &= \inf\{\varphi_{\eta_L(l)}(h_1 + h_2), \varphi_{\eta_M(l)}(h_1 + h_2)\} \\ &\geq \inf\{\inf\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_2)\}, \inf\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_2)\}\} \\ &= \inf\{\inf\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_1)\}, \inf\{\varphi_{\eta_L(l)}(h_2), \varphi_{\eta_M(l)}(h_2)\}\} \\ &= \inf\{(\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h_1), (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h_2)\}, \end{aligned} \quad (17)$$

$$\begin{aligned} (\varphi_{\eta_L(l)} \bar{\cup} \varphi_{\eta_M(l)})(h_1 + h_2) &= \sup\{\varphi_{\eta_L(l)}(h_1 + h_2), \varphi_{\eta_M(l)}(h_1 + h_2)\} \\ &\geq \sup\{\inf\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_2)\}, \sup\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_2)\}\} \\ &= \sup\{\sup\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_M(l)}(h_1)\}, \sup\{\varphi_{\eta_L(l)}(h_2), \varphi_{\eta_M(l)}(h_2)\}\} \\ &= \sup\{(\varphi_{\eta_L(l)} \bar{\cup} \varphi_{\eta_M(l)})(h_1), (\varphi_{\eta_L(l)} \bar{\cup} \varphi_{\eta_M(l)})(h_2)\}, \end{aligned} \quad (18)$$

Hence $\varphi_{\eta_L(l)}(h_1 h_2) \geq \varphi_{\eta_L(l)}(h_2), \theta_{\eta_L(l)}(h_1 h_2) \leq \theta_{\eta_L(l)}(h_2)$ also

$\varphi_{\eta_L(l)}(h_1 h_2) \geq \varphi_{\eta_L(l)}(h_2), \theta_{\eta_L(l)}(h_1 h_2) \leq \theta_{\eta_L(l)}(h_2)$ and

$\varphi_{\eta_M(l)}(h_1 h_2) \geq \varphi_{\eta_M(l)}(h_2), \theta_{\eta_M(l)}(h_1 h_2) \leq \theta_{\eta_M(l)}(h_2)$, hence

$$\begin{aligned} (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h_1 h_2) &= \inf\{\varphi_{\eta_L(l)}(h_1 h_2), \varphi_{\eta_M(l)}(h_1 h_2)\} \\ &\geq \inf\{\varphi_{\eta_L(l)}(h_2), \varphi_{\eta_M(l)}(h_2)\} \end{aligned}$$

$$= (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h_2) \quad (19)$$

$$\begin{aligned} (\theta_{\eta_L(l)} \bar{\sqcup} \theta_{\eta_M(l)})(h_1 h_2) &= \inf\{\theta_{\eta_L(l)}(h_1 h_2), \theta_{\eta_M(l)}(h_1 h_2)\} \\ &\geq \inf\{\theta_{\eta_L(l)}(s_2), \theta_{\eta_M(l)}(h_2)\} \end{aligned}$$

$$= (\theta_{\eta_L(l)} \bar{\cap} \theta_{\eta_M(l)})(h_2) \quad (20)$$

Therefore we look $\eta_L(l) \bar{\cap} \eta_M(l)$ be a intuitionistic left fuzzy ideal of H .

In the same way we show that the proof of right ideal of H .

For every $l \in \mathbb{F}, x, y, h, n \in H$, let $h \oplus x \oplus n = y \oplus n$; then

$$\begin{aligned} (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(h) &= \inf\{\varphi_{\eta_L(l)}(h), \varphi_{\eta_M(l)}(h)\} \\ &\geq \inf\{\inf\{\varphi_{\eta_L(l)}(x), \varphi_{\eta_L(l)}(y)\}, \inf\{\varphi_{\eta_M(l)}(x), \varphi_{\eta_M(l)}(y)\}\} \end{aligned} \quad (21)$$

$$\begin{aligned} &= \inf\{\inf\{\varphi_{\eta_L(l)}(x), \varphi_{\eta_M(l)}(x)\}, \inf\{\varphi_{\eta_L(l)}(y), \varphi_{\eta_M(l)}(y)\}\} \\ &= \inf\{(\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(x), (\varphi_{\eta_L(l)} \bar{\cap} \varphi_{\eta_M(l)})(y)\}; \end{aligned}$$

$$\begin{aligned} (\theta_{\eta_L(l)} \bar{\sqcup} \theta_{\eta_M(l)})(h) &= \sup\{\theta_{\eta_L(l)}(h), \theta_{\eta_M(l)}(h)\} \\ &\geq \sup\{\sup\{\theta_{\eta_L(l)}(x), \theta_{\eta_L(l)}(y)\}, \sup\{\theta_{\eta_M(l)}(x), \theta_{\eta_M(l)}(y)\}\} \end{aligned} \quad (22)$$

$$\begin{aligned} &= \sup\{\sup\{\theta_{\eta_L(l)}(x), \theta_{\eta_M(l)}(x)\}, \sup\{\theta_{\eta_L(l)}(y), \theta_{\eta_M(l)}(y)\}\} \\ &= \sup\{(\theta_{\eta_L(l)} \bar{\sqcup} \theta_{\eta_M(l)})(x), (\theta_{\eta_L(l)} \bar{\sqcup} \theta_{\eta_M(l)})(y)\}; \end{aligned}$$

Therefore $\eta_L(l) \bar{\cap} \eta_M(l)$ be an intuitionistic fuzzy left-right ideal of H ; (ie) $\varphi_{L \bar{\cap} M}(l) = \eta_L(l) \bar{\cap} \eta_M(l)$ be an intuitionistic fuzzy left-right fuzzy ideals over H .

We identify that that the " $\bar{\cap}$ " of all intuitionistic left-right fuzzy ideals over H . Hence we assume the " $\bar{\sqcup}$ " of intuitionistic left right fuzzy ideal over H is also an intuitionistic left-right fuzzy ideal over H .

Notation 1 Take $\lambda_L, \lambda_M \in IF(C)$ be soft left right fuzzy ideal over H . If ordered sequence for every $l \in \mathbb{F}, h_1, h_2 \in H$:

$$(a) \quad \varphi_{\eta_L(l)}(h_1) \geq \varphi_{\eta_L(l)}(h_2) \Rightarrow \varphi_{\eta_M(l)}(h_1) \geq \varphi_{\eta_M(l)}(h_2)$$

$$(b) \quad \theta_{\eta_L(l)}(h_1) \geq \theta_{\eta_L(l)}(h_2) \Rightarrow \theta_{\eta_M(l)}(h_1) \geq \theta_{\eta_M(l)}(h_2)$$

Theorem.3.5 Take $\lambda_L, \lambda_M \in IF(C)$ be the intuitionistic left-right fuzzy soft ideals (ILRSFI) over H along with sequence order values Then the $\lambda_L \bar{\sqcup} \lambda_M$ is still an Intuitionistic soft left-right fuzzy ideals over H .

Proof: The proof is straightforward in theorem 3.2 //

Theorem 3.6 Let $\lambda_L, \lambda_M \in IF(C)$ be intuitionistic left-right fuzzy soft ideal over H . Therefore $\lambda_L \wedge \lambda_M$ be an Intuitionistic left-right fuzzy soft ideals $H \otimes H$.

Proof: The proof is straightforward in theorem 3.5 //

Definition 3.7 Take λ_L is a intuitionistic left-right fuzzy soft ideal over H and λ_M is an intuitionistic fuzzy soft subset over H . Then λ_L is called is an intuitionistic left-right fuzzy soft ideal of λ_M . If λ_L be an intuitionistic fuzzy soft subset of λ_M .

Example 3.8 Take $H = \mathbb{Q}_4 = \{0, \frac{10}{10}, \frac{20}{10}, \frac{30}{10}\}$ is a hemiring and $\mathbb{F} = \{x, y\}$ be the parameters set. If $L = \{(x, (\frac{1}{10}, \frac{7}{10})), (y, (\frac{3}{10}, \frac{6}{10}))\}$,

$$\eta_L(x) = \left\{ \left(0, \left(\frac{4}{10}, \frac{5}{10}\right)\right), \left(\frac{10}{10}, \left(\frac{2}{10}, \frac{7}{10}\right)\right), \left(\frac{20}{10}, \left(\frac{3}{10}, \frac{6}{10}\right)\right), \left(\frac{30}{10}, \left(\frac{2}{10}, \frac{6}{10}\right)\right) \right\},$$

$$\eta_L(y) = \left\{ \left(0, \left(\frac{6}{10}, \frac{3}{10}\right)\right), \left(\frac{10}{10}, \left(\frac{1}{10}, \frac{6}{10}\right)\right), \left(\frac{20}{10}, \left(\frac{3}{10}, \frac{5}{10}\right)\right), \left(\frac{30}{10}, \left(\frac{2}{10}, \frac{7}{10}\right)\right) \right\}, \text{ and}$$

$$M = \left\{ \left(x, \left(\frac{5}{10}, \frac{3}{10} \right) \right), \left(y, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\}$$

$$\eta_M(x) = \left\{ \left(0, \left(\frac{5}{10}, \frac{2}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{4}{10}, \frac{4}{10} \right) \right), \left(\frac{30}{10}, \left(\frac{2}{10}, \frac{6}{10} \right) \right) \right\},$$

$\eta_M(y) = \left\{ \left(0, \left(\frac{9}{10}, \frac{0}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{8}{10}, \frac{2}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{9}{10}, \frac{1}{10} \right) \right), \left(\frac{30}{10}, \left(\frac{7}{10}, \frac{3}{10} \right) \right) \right\}$, Therefore λ_L be an Intuitionistic Fuzzy soft left –right ideals over H , λ_M be an Intuitionistic Fuzzy soft left –right ideals over λ_M .

4.Intuitionistic Equivalent Fuzzy soft left –right ideals (IEFSLRI)

Definition 4.1 Let $\lambda_L = \left\{ \left((l, \varphi_L(l), \theta_L(l)) : \eta_L(l) \right) : l \in A, \eta_L(l) \in IF(H) \right\}$ and let $\lambda_M = \left\{ \left((m, \varphi_M(m), \theta_M(m)) : \eta_M(m) \right) : m \in B, \eta_M(m) \in IF(P) \right\}$ be an intuitionistic fuzzy soft LRI over hemirings H and P , in that order. If $g: H \rightarrow P$ and $f: A \rightarrow B$ are two function, then (g, f) is said to be an intuitionistic fuzzy soft morphism such that (g, f) is an intuitionistic fuzzy soft morphism over left right ideals from λ_L to λ_M . Hence we written by $\lambda_L \equiv \lambda_M$ if the below property fulfilled :

- (i) g is an epimorphism from H to P ,
- (ii) f is a one-one onto function,
- (iii) $\varphi_L(l) = \varphi_M(f(l))$, $\theta_L(l) = \theta_M(f(l))$, and $g(\eta_L(l)) = \eta_M(f(l))$, $\forall l \in A$.

Example 4.2 Let $H = (\mathbb{Q}, \oplus, \otimes)$ and $P = (2\mathbb{Q}, \oplus, \otimes)$, $A = \left(\frac{10}{10}, \frac{20}{10} \right)$ and $B = \left(\frac{30}{10}, \frac{60}{10} \right)$. State a homomorphism g from H into P by $f(h) = 2h$ for $e \in H$ and a function f from A onto B by $f(l) = 3l$, $\forall l \in A$.

Let L be an intuitionistic fuzzy set over A stated by $L = \left\{ \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{7}{10}, \frac{2}{10} \right) \right) \right\}$ and M be an intuitionistic fuzzy set over B stated by $M = \left\{ \left(\frac{30}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{60}{10}, \left(\frac{7}{10}, \frac{2}{10} \right) \right) \right\}$.

Let $\eta_L: A \rightarrow \mathbb{F}(H)$ stated by

$$\left(\eta_L \left(\frac{10}{10} \right) \right) (h) = \begin{cases} \left(\frac{2}{10}, \frac{7}{10} \right), & h = \frac{20}{10}p + 1, p \in \mathbb{Q}, \\ \left(\frac{6}{10}, \frac{3}{10} \right), & h = \frac{20}{10}p, p \in \mathbb{Q}; \end{cases} \quad (23)$$

$$\left(\eta_L \left(\frac{20}{10} \right) \right) (h) = \begin{cases} \left(\frac{3}{10}, \frac{6}{10} \right), & h = \frac{20}{10}p + 1, p \in \mathbb{Q}, \\ \left(\frac{4}{10}, \frac{5}{10} \right), & h = \frac{20}{10}p, p \in \mathbb{Q}; \end{cases}$$

Let $\eta_M: B \rightarrow \mathbb{F}(P)$ stated by

$$\left(\eta_M \left(\frac{40}{10} \right) \right) (h) = \begin{cases} \left(\frac{2}{10}, \frac{7}{10} \right), & h = \frac{40}{10}p + 1, p \in \mathbb{Q}, \\ \left(\frac{6}{10}, \frac{3}{10} \right), & h = \frac{40}{10}p, p \in \mathbb{Q}; \end{cases} \quad (24)$$

$$\left(\eta_M \left(\frac{80}{10} \right) \right) (h) = \begin{cases} \left(\frac{3}{10}, \frac{6}{10} \right), & h = \frac{40}{10}p + 1, p \in \mathbb{Q}, \\ \left(\frac{4}{10}, \frac{5}{10} \right), & h = \frac{40}{10}p, p \in \mathbb{Q}; \end{cases}$$

Note that λ_L and λ_M are intuitionistic fuzzy soft left-right idelas over H and P , in that order, we can quickly see that $\varphi_L(l) = \varphi_M(f(l))$ and we can infer that $g(\varphi_L(l)) = \varphi_M(f(l))$, $\forall l \in A$. Hence (g, f) is an intuitionistic fuzzy soft homomorphism from λ_L to λ_M .

Lemma 4.3 If $g: H \rightarrow P$ epimorphism of hemirings and L is an intuitionistic fuzzy left right ideal of H , then $g(L)$ is an tri-vlaue fuzzy ideal of P .

Theorem 4.4 Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) : l \in A, \eta_L(l) \in IF(H) \right\}$, intuitionistic fuzzy soft left right ideal over H and $\lambda_M = \left\{ \left(m, (\varphi_M(m), \theta_M(m)), \eta_M(m) \right) : m \in B, \eta_M(m) \in IF(P) \right\}$, an intuitionistic fuzzy soft set over hemiring P . If λ_L is an intuitionistic fuzzy soft homomorphic to λ_M , then λ_M is an intuitionistic fuzzy soft left right ideals over P .

Proof: Let (g, f) be an intuitionistic fuzzy soft homomorphism from λ_L to λ_M . Since λ_L is an Intuitionistic fuzzy soft left right ideals over H , $g(H) = P$ and $\lambda_L(l)$ is a fuzzy left right ideal of H , $\forall l \in A$. Now $\forall m \in B, \exists l \in A$ such that $f(l) = m$, therefore $\varphi_M(m) = \varphi_L(f(l)) = \varphi_L(l)$, $\theta_M(m) = \theta_L(f(l)) = \theta_L(l)$. by the above lemma(4.3), $\eta_L(m) = \eta_M(f(l)) = g(\eta_L(l))$ is an tri-vale fuzzy left right ideals of the hemiring P , so φ_M must be an Tri-vale fuzzy soft left right ideals over P as well.

Definition 4.5. Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) : l \in \mathbb{F}, \varphi_L(l) \in IF(H) \right\}$ be an intuitionistic fuzzy soft left-right over hemiring H . Then λ_L is called an intuitionistic equivalent intuitionistic fuzzy soft left right ideals over H if, for every $l, m \in \mathbb{F}$, $\varphi_L(l) = \varphi_L(m)$ and $\theta_L(l) = \theta_L(m)$, we have $\eta_L(l) = \eta_L(m)$.

By the definition 4.1 and 2.5, we can simply find that λ_L' (' means complement) is an intuitionistic equivalent intuitionistic fuzzy soft left right ideals over H , if λ_L is an intuitionistic equivalent fuzzy soft left right ideal over H .

Example 4.6 Assume that ,

$$H_{lm} = [a_{ij}]_{2 \times 2} = \left\{ \begin{bmatrix} l & m \\ l & m \end{bmatrix} / l, m \in \mathbb{Q}_2 = \{0, 1\} \right\} \quad (25)$$

is a hemiring, $\mathbb{F} = \{l_1, l_2, l_3, l_4\}$ be the parameters set, and L is an Tri-vale fuzzy set over H stated by $L = \left\{ \left(l_1, \left(\frac{3}{10}, \frac{7}{10} \right) \right), \left(l_2, \left(\frac{6}{10}, \frac{2}{10} \right) \right), \left(l_3, \left(\frac{6}{10}, \frac{2}{10} \right) \right), \left(l_4, \left(\frac{7}{10}, \frac{1}{10} \right) \right) \right\}$,

$$\begin{aligned} \eta_L(l_1) &= \left\{ \left(\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, \left(\frac{7}{10}, \frac{1}{10} \right) \right), \left(\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}, \left(\frac{6}{10}, \frac{2}{10} \right) \right) \right\}, \\ \eta_L(l_2) &= \left\{ \left(\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, \left(\frac{5}{10}, \frac{1}{10} \right) \right), \left(\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}, \left(\frac{2}{10}, \frac{8}{10} \right) \right), \left(\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}, \left(\frac{2}{10}, \frac{8}{10} \right) \right), \left(\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}, \left(\frac{3}{10}, \frac{6}{10} \right) \right) \right\}, \end{aligned} \quad (26)$$

$$\begin{aligned} \eta_L(l_3) &= \left\{ \left(\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, \left(\frac{5}{10}, \frac{1}{10} \right) \right), \left(\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}, \left(\frac{2}{10}, \frac{8}{10} \right) \right), \left(\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}, \left(\frac{2}{10}, \frac{8}{10} \right) \right), \left(\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}, \left(\frac{3}{10}, \frac{6}{10} \right) \right) \right\}, \\ \eta_L(l_4) &= \left\{ \left(\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, \left(\frac{8}{10}, \frac{1}{10} \right) \right), \left(\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}, \left(\frac{7}{10}, \frac{3}{10} \right) \right) \right\}. \end{aligned}$$

Hence η_L is an intuitionistic equivalent soft LRI over H_{lm} .

Notation 4.7 Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ and $\lambda_M = \left\{ \left(m, (\varphi_M(m), \theta_M(m)), \eta_M(m) \right) : m \in \mathbb{F}, \eta_M(m) \in IF(H) \right\}$ are intuitionistic equivalent fuzzy soft left right ideals over hemiring H , then $\lambda_L \bar{\cap} \lambda_M$ and $\lambda_L \bar{\cup} \lambda_M$ are always not intuitionistic fuzzy soft left right ideals over H .

Example 4.7 Assume that $H = \mathbb{Q}_3 = \mathbb{F} = \{l_1, l_2, l_3\}$. Let λ_L be an intuitionistic fuzzy soft left-right ideals over H stated by

$$\begin{aligned} A &= \left\{ \left(l_1, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(l_2, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(l_3, \left(\frac{2}{10}, \frac{6}{10} \right) \right) \right\}, \\ \eta_L(l_1) &= \left\{ \left(\frac{0}{10}, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{3}{10}, \frac{6}{10} \right) \right\}, \end{aligned}$$

$$\eta_L(l_2) = \left\{ \left(\frac{0}{10}, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(\frac{3}{10}, \frac{6}{10} \right) \right\}, \quad (27)$$

$$\eta_L(l_3) = \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{4}{10}, \frac{5}{10} \right) \right), \left(\frac{4}{10}, \frac{5}{10} \right) \right\}.$$

And let λ_M be an Intuitionistic fuzzy soft left-right idelas over H stated by

$$\begin{aligned} A &= \left\{ \left(l_1, \left(\frac{2}{10}, \frac{6}{10} \right) \right), \left(l_2, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(l_3, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\}, \\ \eta_M(m_1) &= \left\{ \left(\frac{0}{10}, \left(\frac{8}{10}, \frac{1}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{1}{10}, \frac{7}{10} \right) \right), \left(\frac{1}{10}, \frac{7}{10} \right) \right\}, \\ \eta_M(m_2) &= \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{2}{10}, \frac{5}{10} \right) \right), \left(\frac{2}{10}, \frac{5}{10} \right) \right\}, \\ \eta_M(m_3) &= \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{2}{10}, \frac{5}{10} \right) \right), \left(\frac{2}{10}, \frac{5}{10} \right) \right\}. \end{aligned} \quad (28)$$

It is note that η_L and λ_M are intuitionistic equivalent fuzzy soft left right ideals over H . We can look that

$$\begin{aligned} A \bar{\cap} B &= \left\{ \left(l_1, \left(\frac{2}{10}, \frac{6}{10} \right) \right), \left(l_2, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(l_3, \left(\frac{2}{10}, \frac{6}{10} \right) \right) \right\}, \\ \eta_{(A \bar{\cap} B)}(l_1) &= \lambda_{(A \bar{\cap} B)}(l_3), \\ A \bar{\cup} B &= \left\{ \left(l_1, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(l_2, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(l_3, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\}, \\ \eta_{(A \bar{\cup} B)}(l_2) &= \lambda_{(A \bar{\cup} B)}(l_3), \end{aligned} \quad (29)$$

$$\begin{aligned} \text{But } \eta_{(A \bar{\cap} B)}(l_1) &= \left\{ \left(\frac{0}{10}, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{1}{10}, \frac{7}{10} \right) \right), \left(\frac{1}{10}, \frac{7}{10} \right) \right\}, \\ \eta_{(A \bar{\cap} B)}(l_3) &= \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{2}{10}, \frac{5}{10} \right) \right), \left(\frac{2}{10}, \frac{5}{10} \right) \right\}, \\ \eta_{(A \bar{\cup} B)}(l_2) &= \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(\frac{3}{10}, \frac{5}{10} \right) \right\}, \\ \eta_{(A \bar{\cup} B)}(l_3) &= \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{4}{10}, \frac{5}{10} \right) \right), \left(\frac{4}{10}, \frac{5}{10} \right) \right\}. \end{aligned} \quad (30)$$

Hence $\eta_{(A \bar{\cap} B)}$ and $\eta_{(A \bar{\cup} B)}$ are not intuitionistic equivalent fuzzy soft left –tight ideals over H .

Theorem 4.8. Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ be an intuitionistic equivalent fuzzy soft left right ideal over H . And $\lambda_M = \left\{ \left(m, (\varphi_M(m), \theta_M(m)), \eta_M(m) \right) : m \in \mathbb{F}, \eta_M(m) \in IF(H) \right\}$ are intuitionistic equivalent fuzzy soft set over hemiring P . If λ_L is intuitionistic fuzzy soft homomorphic to λ_M , then λ_L is an intuitionistic equivalent fuzzy soft left right ideals over P .

Proof: Let (g, f) be an intuitionistic fuzzy soft homomorphism from λ_L to λ_M . Since λ_L is an intuitionistic fuzzy soft left right ideals over H , we have $\eta_L(l_1) = \eta_L(l_2)$, if $\varphi_L(l_1) = \varphi_L(l_2)$, $\theta_L(l_1) = \theta_L(l_2)$ For any $l_1, l_2 \in A$. Now for every $m_1, m_2 \in B$, then $\exists l_1, l_2 \in A$, with $f(l_1) = m_1, f(l_2) = m_2$. Since $\varphi_M(m_1) = \varphi_M(f(l_1)) = \varphi_M(m_2)$, and all over again, we have $\theta_M(m_1) = \theta_M(m_2)$. And then $\eta_M(m_1) = \eta_M(f(l_1)) = g(\eta_L(l_1)) = g(\eta_L(l_2)) = \eta_M(f(l_2)) = \eta_M(m_2)$; hence λ_M necessarily be an intuitionistic equivalent fuzzy soft left right ideal over P as well. //

Definition 4.9. Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ be an intuitionistic equivalent fuzzy soft left right ideals over H . Then λ_L is called an intuitionistic non decreasing fuzzy soft left right ideals

over H . If for any $l, m \in \mathbb{F}$, $\varphi_L(l) \leq \varphi_L(m)$, $\theta_L(l) \geq \theta_L(m)$, we have $\eta_L(l) \sqsubseteq \eta_L(m)$, and λ_L is called intuitionistic non-increasing fuzzy soft left right ideals over H . If for any $l, m \in \mathbb{F}$, $\varphi_L(l) \leq \varphi_L(m)$, $\theta_L(l) \leq \theta_L(m)$, we have $\eta_L(l) \sqsupseteq \eta_L(m)$.

Example 4.10 Let $H = \mathbb{Q}_3$, $\mathbb{F} = \{l_1, l_2, l_3\}$, and L be a fuzzy set over \mathbb{F} stated by

$$L = \left\{ \left(l_1, \left(\frac{1}{10}, \frac{8}{10} \right) \right), \left(l_1, \left(\frac{4}{10}, \frac{6}{10} \right) \right), \left(l_1, \left(\frac{7}{10}, \frac{3}{10} \right) \right) \right\},$$

$$\eta_L(l_1) = \left\{ \left(\frac{0}{10}, \left(\frac{2}{10}, \frac{6}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{1}{10}, \frac{8}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{1}{10}, \frac{8}{10} \right) \right) \right\}, \quad (31)$$

$$\eta_L(l_2) = \left\{ \left(\frac{0}{10}, \left(\frac{6}{10}, \frac{4}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{3}{10}, \frac{5}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{3}{10}, \frac{5}{10} \right) \right) \right\}$$

$$\eta_L(l_3) = \left\{ \left(\frac{0}{10}, \left(\frac{9}{10}, \frac{0}{10} \right) \right), \left(\frac{10}{10}, \left(\frac{7}{10}, \frac{2}{10} \right) \right), \left(\frac{20}{10}, \left(\frac{7}{10}, \frac{2}{10} \right) \right) \right\}.$$

Hence η_L is an intuitionistic non-decreasing fuzzy soft hemiring over H .

Notation 4.11 Let $\lambda_L = \left\{ \left(l, (\varphi_L(l), \theta_L(l), \eta_L(l)) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ and $\lambda_L = \left\{ \left(l, (\varphi_M(l), \theta_M(l), \eta_M(l)) \right) : l \in \mathbb{F}, \eta_M(l) \in IF(H) \right\}$ are intuitionistic non decreasing fuzzy soft left –right ideals over H , then $\lambda_L \bar{\sqcap} \lambda_M$, $\lambda_L \bar{\sqcup} \lambda_M$ always not an intuitionistic non –decreasing intuitionistic soft left right ideals over H .

Example 4.12 Assume that $H = \mathbb{Q}_3$, $\mathbb{F} = \{l_1, l_2\}$. Let L be an intuitionistic fuzzy set over \mathbb{F} stated by

$$L = \left\{ \left(l_1, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(l_2, \left(\frac{5}{10}, \frac{2}{10} \right) \right) \right\},$$

$$\eta_L(l_1) = \left\{ \left(\frac{4}{10}, \frac{5}{10} \right), \left(\frac{1}{10}, \frac{6}{10} \right), \left(\frac{1}{10}, \frac{6}{10} \right) \right\} \quad (32)$$

$$\eta_L(l_2) = \left\{ \left(\frac{6}{10}, \frac{2}{10} \right), \left(\frac{5}{10}, \frac{3}{10} \right), \left(\frac{5}{10}, \frac{3}{10} \right) \right\}$$

$$M = \left\{ \left(l_1, \left(\frac{9}{10}, \frac{0}{10} \right) \right), \left(l_2, \left(\frac{4}{10}, \frac{3}{10} \right) \right) \right\}$$

$$\eta_M(l_1) = \left\{ \left(\frac{6}{10}, \frac{2}{10} \right), \left(\frac{4}{10}, \frac{5}{10} \right), \left(\frac{4}{10}, \frac{5}{10} \right) \right\} \quad (33)$$

$\eta_M(l_2) = \left\{ \left(\frac{3}{10}, \frac{5}{10} \right), \left(\frac{2}{10}, \frac{8}{10} \right), \left(\frac{2}{10}, \frac{8}{10} \right) \right\}$. Note that it is clearly η_L and η_M are intuitionistic fuzzy soft left right ideals over H . We can look the

$$L \bar{\sqcap} M = \left\{ \left(l_1, \left(\frac{3}{10}, \frac{6}{10} \right) \right), \left(l_2, \left(\frac{4}{10}, \frac{3}{10} \right) \right) \right\};$$

$$L \bar{\sqcup} M = \left\{ \left(l_1, \left(\frac{9}{10}, \frac{0}{10} \right) \right), \left(l_2, \left(\frac{5}{10}, \frac{2}{10} \right) \right) \right\}. \quad (34)$$

but

$$\eta_{(L \bar{\sqcap} M)}(l_1) = \left\{ \left(\frac{4}{10}, \frac{5}{10} \right), \left(\frac{1}{10}, \frac{6}{10} \right), \left(\frac{1}{10}, \frac{6}{10} \right) \right\};$$

$$\eta_{(L \bar{\sqcap} M)}(l_2) = \left\{ \left(\frac{3}{10}, \frac{5}{10} \right), \left(\frac{2}{10}, \frac{8}{10} \right), \left(\frac{2}{10}, \frac{8}{10} \right) \right\}. \quad (35)$$

$$\eta_{(L \bar{\sqcup} M)}(l_1) = \left\{ \left(\frac{6}{10}, \frac{2}{10} \right), \left(\frac{4}{10}, \frac{5}{10} \right), \left(\frac{4}{10}, \frac{5}{10} \right) \right\};$$

$$\eta_{(L \bar{\sqcup} M)}(l_2) = \left\{ \left(\frac{6}{10}, \frac{2}{10} \right), \left(\frac{5}{10}, \frac{3}{10} \right), \left(\frac{5}{10}, \frac{3}{10} \right) \right\}.$$

Then $\eta_L \bar{\sqcap} \eta_M$ and $\eta_L \bar{\sqcup} \eta_M$ are not intuitionistic fuzzy soft left –right ideals over H .

Theorem 4.13 Let $\lambda_L = \left\{ \left(\left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ be an Intuitionistic equivalent fuzzy soft left right ideals over H . And $\lambda_M = \left\{ \left(\left(m, (\varphi_M(m), \theta_M(m)), \eta_M(m) \right) \right) : m \in \mathbb{F}, \eta_M(m) \in IF(H) \right\}$ are intuitionistic equivalent fuzzy soft set over hemiring P . If λ_L is intuitionistic fuzzy soft homomorphic to λ_M , then λ_M is an intuitionistic non-decreasing fuzzy soft left-right ideals over H .

Proof: Let (g, f) be an Intuitionistic fuzzy soft homomorphism from λ_L to λ_M is an Intuitionistic fuzzy soft left-right ideals over H , $\forall l_1, l_2 \in A$ $\varphi_L(l_1) \leq \varphi_L(l_2)$, and $\theta_L(l_1) \geq \theta_L(l_2)$, we have $\eta_L(l_1) \sqsubseteq \eta_L(l_2)$, now for every $m_1, m_2 \in B$, $\exists l_1, l_2 \in A$ with $f(l_1) = m_1, f(l_2) = m_2$. Since $\varphi_M(m_1) = \varphi_M(f(l_1)) = \varphi_L(l_1)$, after $\varphi_M(m_1) \leq \varphi_M(m_2)$, and another time, we have $\theta_M(m_1) \geq \theta_M(m_2)$. Therefore, $\eta_M(l_1) = \eta_M(f(l_1)) = g(\eta_L(l_1)) \sqsubseteq g(\eta_L(l_2)) = \eta_M(m_2)$ and λ_M necessarily be an intuitionistic non-decreasing fuzzy soft left-right ideals over P as well.

5. Intuitionistic fuzzy soft left-right ideals on Decision Making.

The approximate function of an λ -set is an intuitionistic fuzzy set. The λ_{aggr} on intuitionistic fuzzy set is an operation by way of many approximate function of an λ -set are jointed a only intuitionistic fuzzy set that is the aggregate intuitionistic fuzzy set of the λ -set.

Definition 5.1 Let $\lambda_L \in \lambda(C)$ and $IF(\mathbb{F})$ be a set of all Intuitionistic fuzzy sets over \mathbb{F} . Then λ -aggregation operator, represented by λ_{aggr} is stated by

$$\lambda_{aggr}: IF(\mathbb{F}) \times \lambda(C) \rightarrow IF(C),$$

$$\lambda_{aggr}(L, \lambda_L) = \lambda_L^*, \quad (36)$$

Where

$$\lambda_L^* = \left\{ \left(c, \left(\varphi_{\lambda_L^*}(c), \theta_{\lambda_L^*}(c) \right) \right) : c \in C \right\} \quad (37)$$

Which is an intuitionistic fuzzy set over C . The value λ_L^* is said to be aggregate intuitionistic fuzzy set of λ_L . Here the degree of membership $\varphi_{\lambda_L^*}(c)$ and degree of non-membership $\theta_{\lambda_L^*}(c)$ of " c " is stated as below:

$$\varphi_{\lambda_L^*}(c) = 1/|\mathbb{F}| \sum_{l \in \mathbb{F}} \varphi_L(c) \varphi_{\eta_L(l)}(c),$$

$$\theta_{\lambda_L^*}(c) = 1/|\mathbb{F}| \sum_{l \in \mathbb{F}} \theta_L(c) \theta_{\eta_L(l)}(c), \quad (38)$$

Here $|\mathbb{F}|$ is number of members of \mathbb{F} .

Theorem 5.2 Let $\lambda_L = \left\{ \left(\left(l, (\varphi_L(l), \theta_L(l)), \eta_L(l) \right) \right) : l \in \mathbb{F}, \eta_L(l) \in IF(H) \right\}$ be an intuitionistic equivalent fuzzy soft left right ideals over H . Then the intuitionistic aggregate fuzzy set λ^* of λ_L is an intuitionistic fuzzy left right ideals of H .

Proof : For any $l \in \mathbb{F}$, $\eta_L(l)$ is an intuitionistic fuzzy left right ideal of H . That is $\forall h_1, h_2 \in H$,

$\varphi_{\eta_L(l)}(h_1 \oplus h_2) \geq \inf\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_L(l)}(h_2)\}$, $\varphi_{\eta_L(l)}(h_1 \otimes h_2) \geq \sup\{\varphi_{\eta_L(l)}(h_1), \varphi_{\eta_L(l)}(h_2)\}$ and for every $x, y, h, n \in H$, $h \oplus x \oplus n = y \oplus n$ implies $\varphi_{\eta_L(l)}(h) \geq \inf\{\varphi_{\eta_L(l)}(x), \varphi_{\eta_L(l)}(y)\}$. Then $\varphi_{\lambda_L^*}(h_1 \oplus h_2)$

$$\begin{aligned} &= 1/|\mathbb{F}| \sum_{l \in \mathbb{F}} \varphi_L(l) \varphi_{\eta_L(l)}(h_1 \oplus h_2) \\ &\geq \left\{ 1/|\mathbb{F}| \sum_{l \in \mathbb{F}} \varphi_L(l) \varphi_{\eta_L(l)}(h_1), 1/|\mathbb{F}| \sum_{l \in \mathbb{F}} \varphi_L(l) \varphi_{\eta_L(l)}(h_2) \right\} \\ &= \inf\{\varphi_{\lambda_L^*}(h_1), \varphi_{\lambda_L^*}(h_2)\} \end{aligned} \quad (39)$$

In similar way, we can find: $\varphi_{\lambda_L^*}(h_1 \otimes h_2) \geq \sup\{\varphi_{\lambda_L^*}(h_1), \varphi_{\lambda_L^*}(h_2)\}$,

$\varphi_{\lambda_L^*}(h) \geq \inf\{\varphi_{\lambda_L^*}(x), \varphi_{\lambda_L^*}(y)\}$ and $\theta_{\lambda_L^*}(h_1 \oplus h_2) \leq \sup\{\theta_{\lambda_L^*}(h_1), \theta_{\lambda_L^*}(h_2)\}$, $\theta_{\lambda_L^*}(h_1 \otimes h_2) \leq \inf\{\theta_{\lambda_L^*}(h_1), \theta_{\lambda_L^*}(h_2)\}$, and $\theta_{\lambda_L^*}(h) \leq \sup\{\theta_{\lambda_L^*}(x), \theta_{\lambda_L^*}(y)\}$, which gives λ_L^* is an intuitionistic fuzzy left right ideals of H .

Notation 5.3 The notation λ_L^* intuitionistic aggregative fuzzy left right ideals intuitionistic fuzzy soft left right ideals of λ_L .

Example 5.4 Let H be an hemiring matrix, written by $H_{n \times n}$, X and Y is triangular and diagonal matrix. And let $\mathbb{F} = \{x, y\}$, the parameters x and y stand for "triangular and diagonal". If L is an intuitionistic fuzzy set over \mathbb{F} stated by

$$\varphi_L(l) = \begin{cases} \frac{6}{10}, & \text{if } l = x \\ \frac{2}{10}, & \text{if } l = y \end{cases} \quad (40)$$

$$\theta_L(l) = 1 - \varphi_L(l)$$

Define η_L by

$$\varphi_{\eta_L(x)}(t) = \begin{cases} \frac{0}{10}, & \text{if } t \text{ is non triangular matrix} \\ \frac{10}{10}, & \text{if } t \text{ is triangular matrix} \end{cases} \quad (41)$$

$$\varphi_{\eta_L(x)}(t) = \begin{cases} \frac{0}{10}, & \text{if } t \text{ is non diagonal matrix} \\ \frac{10}{10}, & \text{if } t \text{ is diagonal matrix} \end{cases}$$

And $\theta_{\eta_L}(t) = 1 - \varphi_{\eta_L}(t)$.

We can confirm that λ_L^* is said to be intuitionistic aggregate fuzzy ideal of λ_L .

For the example 5.4, we assume an intuitionistic fuzzy left right ideals of λ_L^* . so, we can yield into respect the common condition λ_L^*

Definition 5.5. We can create decision taking technique by the following rules.

Rule 1 Create an λ -set over C .

Rule 2 Obtain intuitionistic aggregate fuzzy set λ_L^* of λ_L ,

Rule 3 Obtain $\sup(i) = \sup\{\varphi_{\lambda_L^*}(l)/i \in C\}$ and $\inf(j) = \inf\{\theta_{\lambda_L^*}(j)/j \in C\}$

Rule 4 Obtain $\varepsilon \in [0,1]$ such that $(i, (\sup(i), \varepsilon)) \in \lambda_L^*$ and $\delta \in [0,1]$ such that $(j, (\delta, \inf(j))) \in \lambda_L^*$,

Rule 5 Obtain $\frac{\sup(i)}{\sup(i)+\varepsilon} = \varepsilon'$ and $\frac{\delta}{(\inf(i)+\delta)} = \delta'$,

Rule 6 Appropriate element of C is represented by $\text{Appr}(i)$ and is selected as follows:

$$\text{Appr}(i) = \begin{cases} i, & \varepsilon' > \delta' \\ j, & \varepsilon' < \delta' \end{cases} \quad (42)$$

Example 5.6 we are showing λ -decision taking application.

Consider the person sweepstakes coupons, were assume only 5 digits, and they are stated as $H = \mathbb{Q}_5 = \{0,1,2,3,4\}$. The purchaser assumes a set of parameters $\mathbb{F} = \{l_1, l_2, l_3\}$. for $k = 1,2,3$, the parameters l_k position for "Liking", "continuously happening" and "mutual meddling", respectively.

After argument, each digit from point of sight of the drop a foal and the limitation according to selection subset $L = \left\{ \left(l_1, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(l_2, \left(\frac{8}{10}, \frac{2}{10} \right) \right), \left(l_3, \left(\frac{7}{10}, \frac{2}{10} \right) \right) \right\}$ of \mathbb{F} . Lastly, the purchasers constructs the next λ -set over H .

$$\lambda_L = \left\{ \left(l_1, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(0, \left(\frac{2}{10}, \frac{6}{10} \right) \right), \left(1, \left(\frac{7}{10}, \frac{3}{10} \right) \right), \left(2, \left(\frac{4}{10}, \frac{5}{10} \right) \right), \left(3, \left(\frac{8}{10}, \frac{1}{10} \right) \right), \left(4, \left(\frac{1}{10}, \frac{6}{10} \right) \right) \right\} \\ \left\{ \left(l_2, \left(\frac{8}{10}, \frac{2}{10} \right) \right), \left(0, \left(\frac{4}{10}, \frac{6}{10} \right) \right), \left(1, \left(\frac{9}{10}, \frac{1}{10} \right) \right), \left(2, \left(\frac{5}{10}, \frac{4}{10} \right) \right), \left(3, \left(\frac{6}{10}, \frac{2}{10} \right) \right), \left(4, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\}$$

$$\left(l_3, \left(\frac{7}{10}, \frac{2}{10} \right) \right), \left\{ \left(0, \left(\frac{2}{10}, \frac{6}{10} \right) \right), \left(1, \left(\frac{6}{10}, \frac{3}{10} \right) \right), \left(2, \left(\frac{7}{10}, \frac{1}{10} \right) \right), \left(3, \left(\frac{7}{10}, \frac{2}{10} \right) \right), \left(4, \left(\frac{6}{10}, \frac{3}{10} \right) \right) \right\} \quad (43)$$

1. The aggregate Intuitionistic fuzzy set can be set up as

$$2. \lambda_L^* = \left\{ \left(0, \left(\frac{193}{100}, \frac{14}{100} \right) \right), \left(1, \left(\frac{52}{100}, \frac{5}{100} \right) \right), \left(2, \left(\frac{37}{100}, \frac{8}{100} \right) \right), \left(3, \left(\frac{48}{100}, \frac{3}{100} \right) \right), \left(4, \left(\frac{32}{100}, \frac{10}{100} \right) \right) \right\}. \quad (44)$$

$$3. \sup(i) = \frac{52}{100} \text{ and } \inf(j) = \frac{3}{100}.$$

$$4. \left(1, \left(\frac{52}{100}, \frac{5}{100} \right) \right) \in \lambda_L^* \text{ and } \left(3, \left(\frac{48}{100}, \frac{3}{100} \right) \right) \in \lambda_L^*.$$

$$5. \varepsilon' = \frac{\frac{52}{100}}{\frac{52}{100} + \frac{5}{100}} = \frac{90}{100} \text{ and } \delta' = \frac{\frac{48}{100}}{\frac{48}{100} + \frac{3}{100}} = \frac{93}{100}.$$

$$6. \text{ since } \varepsilon' < \delta', \text{ } Appr(i) = 3.$$

We discuss the decision making use the 0 to 4 number digit only. By the same way we can apply many number digit from 0 to 9.

6. CONCLUSION

This paper presents a few basic knowledge of intuitionistic fuzzy soft left-right ideals. And we state intuitionistic fuzzy soft homomorphism, intuitionistic equivalent fuzzy soft ideals, and intuitionistic non-decreasing fuzzy soft left-right ideals and a few properties of them. finally, we examine aggregate intuitionistic fuzzy left-right ideals of hemiring based on decision making.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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ON FUNDAMENTAL ALGEBRAIC STRUCTURES OF $\kappa - Q$ -ANTI FUZZY NORMED RINGSDr. A. Prasanna¹, M. Premkumar^{*2}, Dr. S. Ismail Mohideen³ and ⁴Dr. M. A. Rifayath Ali^{1&4}Assistant Professor, PG and Research Department of Mathematics, Jamal Mohamed College (Autonomous), (Affiliated to Bharathidasan University), Tiruchirappalli-620020, Tamilnadu, India^{*2}Assistant Professor, Department of Mathematics, Kongunadu College of Engineering and Technology, Tiruchirappalli-620020, Tamilnadu, India³Principal, Head and Associate Professor, PG and Research Department of Mathematics, Jamal Mohamed College (Autonomous), (Affiliated to Bharathidasan University), Tiruchirappalli-620020, Tamilnadu, India.

ABSTRACT

In this paper, the concept of $\kappa - Q$ -Anti fuzzy normed ring is introduced and some basic properties related to it are established. That our definition of normed rings on $\kappa - Q$ - Anti fuzzy sets leads to a algebraic structure which we call a $\kappa - Q$ - Anti Fuzzy Normed Rings. We also defined $\kappa - Q$ - Anti Fuzzy Normed Rings homomorphism, $\kappa - Q$ - Anti Fuzzy Normed Subring, $\kappa - Q$ - Fuzzy Normed Ideal, $\kappa - Q$ - Fuzzy Normed Prime Ideal and $\kappa - Q$ - Anti Fuzzy Normed Maximal Ideal of a Normed ring respectively. We show that the some algebraic properties of normed ring theory on a $\kappa - Q$ - Anti fuzzy sets, prove theorem and given relevant examples.

Keywords: Fuzzy Sets, Normed Space, $\kappa - Q$ - Anti fuzzy set, $\kappa - Q$ - Anti fuzzy normed ring and $\kappa - Q$ - Anti fuzzy normed ideal.

I INTRODUCTION

Zahed L A^[19], published his maiden well acknowledged research paper about fuzzy sets in 1965. In 1952, described the new notion of generalization of normed rings by Arens R^[1]. Sahin M^[13] & [14] et.al., developed the new concept of Soft Normed Rings in 1950, and also established the Normed Quotient Rings in 2018. Swamy U M and Swamy K L N^[16], commenced the idea of Fuzzy Peime Ideals in 1988. In 2017, started the conception of Normed Z-Modules by Ulucay V^[17], et.al. Aykut Emniyet and Memet Sahin^[2], initiated the concept of Fuzzy Normed Rings in 2018. Solairaju A and Nagarajan R^[15], developed a new structure of Q - fuzzy subgroup groups discussed some elementary properties of these groups in 2009. In Commutative Normed Rings, will be the concept developed by Gel'fand I^[3] et.al. in 1964. Rasuli R^[12], explained the notion of Characterization of Q -fuzzy subrings (Anti Q -fuzzy subrings) with respect to a T -norm (T -conorm) in 2018. Theory of T -norms and Fuzzy Inference Methods, started the new work by Gupta M M and Qi J^[4], in 1991. In 2011, introduced the concept of Normed Rings-Algebraic Patching by Jarden M^[5]. Komogorov A N^[6] et.al. written the book as Introductory Real Analysis in 1970. In 1982, studied the Fuzzy Invariant Subgroups and Fuzzy ideals by Liu W^[7]. Mordeson J N^[8] et.al. developed a new structure of fuzzy group theory in 2005. Mukherjee N P and Bhattacharya P^[9], initiated the concept of Fuzzy Normed subgroups and Fuzzy cosets in 1984. Prasanna A, Premkumar M^[11], et.al. defined the new concept on $\kappa - Q$ -Fuzzy Orders Relative to $\kappa - Q$ -Fuzzy Subgroups and Cyclic group on various fundamental aspects in 2020. In 1964, published his maiden well acknowledged research paper in Normed Rings by Naimark M A^[10]. In 2009, explored a Mathematics of Fuzziness by Wang X^[18] et.al. Zimmermann H J^[20], portrayed the Fuzzy set Theory and its applications in 1991.

This paper is formed because the section 2 contains the fundamental definitions of Normed Rings, $\kappa - Q$ -fuzzy set and related results which are thoroughly crucial to know the novelty of this paper. In section 3, we clarify an Algebraic Structures on $\kappa - Q$ - Anti Fuzzy Normed Rings and Ideals and their results. In section 4, we utilize the study of this phenomena to Fundamental Algebraic properties on $\kappa - Q$ - Anti Fuzzy Normed Prime Ideal and $\kappa - Q$ - Anti Fuzzy Normed Maximal Ideal and their theorems and also established the examples.

II PRELIMINARIES

In this section, definition of normed linear space, normed ring, Archimedean strict T -norm and concept of fuzzy sets are outlined.

Definition 2.1 [6]:

A function $\| \cdot \|$ defined on a linear space L is said to be a norm if it has the following properties:

- (i) $\|x\| \geq 0$, for all $x \in L$, where $\|x\| = 0$ if and only if $x = 0$;

(ii) $\|\alpha \cdot x\| = |\alpha| \cdot \|x\|$; (and hence $\|x\| = \|-x\|$), for all $x \in L$ and for all α ;

(iii) *Tringle inequality*: $\|x + y\| \leq \|x\| + \|y\|$, for all $x, y \in L$.

A linear space L , equipped with a norm is called linear space.

Definition 2.2 [4]:

A ring A is said to be a normed ring if A possesses a norm $\|\cdot\|$, that is a non-negative real-valued function $\|\cdot\|: A \rightarrow R$ such that for any $a, b \in A$,

(i) $\|a\| = 0 \Leftrightarrow a = 0$,

(ii) $\|a + b\| \leq \|a\| + \|b\|$,

(iii) $\|-a\| = \|a\|$,

(iv) $\|ab\| \leq \|a\| \|b\|$.

Definition 2.3 [5]:

Let $*$: $[0,1] \times [0,1] \rightarrow [0,1]$. $*$ is an Archimedean strict T-norm iff for all $x, y, z \in [0,1]$:

(i) $*$ is commutative and associative, that is, $*(x, y) = *(y, x)$ and $*(x * (y, z)) = (*(x, y), z)$,

(ii) $*$ is continuous,

(iii) $*(x, 1) = x$,

(iv) $*$ is monotone, which means $*(x, y) \leq *(x, z)$ if $y \leq z$,

(v) $*(x, x) < x$ for $x \in (0,1)$, and

(vi) when $x < z$ and $y < t$, $*(x, y) < *(z, t)$ for all $x, y, z, t \in (0,1)$.

For convenience, we use the word t -norm shortly and show it as $x * y$ instead of $*(x, y)$. Some examples of t -norm are $x * y = \min\{x, y\}$, $x * y = \max\{x + y - 1, 0\}$ and $x * y = x \cdot y$.

Definition 2.4 [5]:

Let \boxtimes : $[0,1] \times [0,1] \rightarrow [0,1]$. \boxtimes is an Archimedean strict T -conorm iff for all $x, y, z \in [0,1]$:

(i) \boxtimes is commutative and associative that is $\boxtimes(x, y) = \boxtimes(y, x)$ and $\boxtimes(x, \boxtimes(y, z)) = \boxtimes(\boxtimes(x, y), z)$,

(ii) \boxtimes is continuous

(iii) $\boxtimes(x, 0) = x$,

(iv) \boxtimes is monotone, which means $\boxtimes(x, y) \leq \boxtimes(x, z)$ if $y \leq z$,

(v) $\boxtimes(x, x) > x$ for $x \in (0,1)$, and

(vi) When $x < z$ and $y < t$, $\boxtimes(z, t) > \boxtimes(x, y)$ for all $x, y, z, t \in (0,1)$.

For convenience we use the word s -norm shortly and show it as $x \boxtimes y$ instead of $\boxtimes(x, y)$. Some examples of s -norm are $x \boxtimes y = \max\{x, y\}$, $x \boxtimes y = \min\{x + y, 1\}$ and $x \boxtimes y = x + y - x \cdot y$.

Definition 2.5 [19]:

The fuzzy set B on a universal set X is a set of ordered pairs $B = \{(x, \mu_B(x)): x \in X\}$ here, $\mu_B(x)$ is the membership function or membership grade of x in B . for all $x \in X$, we have $0 \leq \mu_B(x) \leq 1$. If $x \notin B$, $\mu_B(x) = 0$, and if x is entirely contained in B , $\mu_B(x) = 1$. The membership grade of x in B is shown as $B(x)$ in the rest of this paper.

Definition 2.6 [19]:

For the fuzzy sets A and B , the membership functions of the intersection, unjon and complement are defined point wise as follows respectively:

$$(A \cap B)(x) = \min\{A(x), B(x)\},$$

$$(A \cup B)(x) = \max\{A(x), B(x)\},$$

$$\bar{A}(x) = 1 - A(x).$$

Definition 2.7 [17]:

Let $(R, +, \cdot)$ be a ring and $F(R)$ be the set of all fuzzy subsets of R . As $A \in F(R)$, \wedge is the fuzzy intersection and \vee is the fuzzy union functions, for all $x, y \in R$, if A satisfies

$$(i) \quad A(x - y) \geq A(x) \wedge A(y)$$

$$(ii) \quad A(x \cdot y) \geq A(x) \wedge A(y)$$

then A is called a fuzzy subring of R . If A is a subring of R for all $a \in A$, then A is itself a fuzzy ring.

Definition 2.8 [15]:

A non-empty fuzzy subset A of R is said to be an ideal (in fact a fuzzy ideal) if and only if, for any $x, y \in R$, $A(x - y) \geq A(x) \wedge A(y)$ and $A(x \cdot y) \geq A(x) \vee A(y)$.

Remark 2.9:

The fuzzy operations of fuzzy subsets $A, B \in F(R)$ on the ring R can be extended to the operations below by t - norms and s - norms:

For all $z \in R$,

$$(A + B)(z) = \bigvee_{x + y = z} (A(x) * B(y));$$

$$(A - B)(z) = \bigvee_{x - y = z} (A(x) * B(y));$$

$$(A \cdot B)(z) = \bigvee_{x \cdot y = z} (A(x) * B(y)).$$

Definition 2.10 [14]:

Let Q and S be any two sets. Then the mapping $A: S \times Q \rightarrow [0, 1]$ is called a Q -Fuzzy set in S

Definition 2.11 [11]:

A Q -Fuzzy set A of ring S is said to be Q -Fuzzy Subring if the following properties hold,

$$1. \quad A(m - n, q) \geq \min\{A(m, q), A(n, q)\}, \text{ for all } m, n \in S \text{ and } q \in Q.$$

$$2. \quad A(mn, q) \geq \min\{A(m, q), A(n, q)\}, \text{ for all } m, n \in S \text{ and } q \in Q$$

Definition 2.12 [11]:

Let the mapping $f: S_1 \rightarrow S_2$ be a homomorphism. Let A and B be two Q -Fuzzy Subrings of S_1 and S_2 respectively, then $f(A)$ and $f^{-1}(B)$ are image of A and the inverse image of B respectively, defined as

$$i. f(A)(n, q) = \begin{cases} \sup\{A(m, q) : m \in f^{-1}(n)\}, & \text{if } f^{-1}(n) \neq \emptyset \\ 0, & \text{if } f^{-1}(n) = \emptyset \end{cases}, \text{ for every } n \in S_2 \text{ and } q \in Q$$

$$ii. f^{-1}(B)(m, q) = B(f(m), q), \text{ for every } m \in S_1 \text{ and } q \in Q.$$

III Algebraic Structures on $\kappa - Q -$ Anti Fuzzy Normed Rings and Ideals

In this section, there has been defined the $\kappa - Q -$ Anti fuzzy normed ring and some basic properties related to it. Throughout the rest of this paper, R is the set of real numbers, R will denote an associative ring with identity, NR is a normed ring $F(X)$ is the set of all $\kappa - Q -$ Anti fuzzy subsets of the set X .

5.2.1. Definition

Let G and Q be any two nonempty sets and $\kappa \in [0, 1]$ and A be a $Q -$ Anti Fuzzy Subset ($Q - AFSb$) of a set G . The fuzzy set A^κ of G is called the $\kappa - Q -$ Anti Fuzzy Subset ($\kappa - Q - AFSb$) of G is defined by

$$A^\kappa(x, q) = (A(x, q), \kappa), \forall x \in G \text{ and } q \in Q.$$

Definition 3.1:

Let $*$ be a continuous t -norm and \boxtimes a continuous s -norm, NR a normed ring and let A^κ be a κ - q -Anti fuzzy set. If the Anti fuzzy set $A^\kappa = \{(x, \mu_{A^\kappa}(x)) : x \in NR\}$ over a κ - q -Anti fuzzy normed ring $F(NR)$ satisfy the following conditions then A^κ is called a κ - q -Anti fuzzy normed subring of the normed ring $(NR, +, \cdot)$: For all $x, y \in NR$ and $q \in Q$,

$$(i) \quad A^\kappa((x - y), q) \leq A^\kappa(x, q) * A^\kappa(y, q)$$

$$(ii) \quad A^\kappa((x \cdot y), q) \leq A^\kappa(x, q) * A^\kappa(y, q).$$

Let 0 be the zero of the normed ring NR . For any q -Anti fuzzy normed subring A^κ and for all $x \in NR$ and $q \in Q$, we have $A^\kappa(x, q) \leq A^\kappa(0, q)$, since $A^\kappa((x - y), q) \leq A^\kappa(x, q) * A^\kappa(x, q) \Rightarrow A^\kappa(0, q) \leq A^\kappa(x, q)$.

Example 3.1.1:

Let A^κ κ - q -Anti fuzzy set and $R = (Z, +, \cdot)$ be the ring of all integers. Define a mapping $f: A^\kappa \rightarrow F(NR(Z))$ where for any $a \in A^\kappa, x \in Z$ and $q \in Q$,

$$A^\kappa_f(x, q) = \begin{cases} 0 & \text{if } x \text{ is odd} \\ \frac{1}{a} & \text{if } x \text{ is even} \end{cases}$$

Corresponding t -norm($*$) and t -conorm(\boxtimes) are defined as $a * b = \min\{(a, b), q\}$, $a \boxtimes b = \max\{(a, b), q\}$; then A^κ is a κ - q -Anti fuzzy set as well as a κ - q -Anti fuzzy normed ring over $[(Z, +, \cdot), A^\kappa]$.

Lemma 3.2:

Let $A^\kappa \in F(NR)$ is a κ - q -Anti fuzzy normed subring of the normed ring NR if and only if $A^\kappa - A^\kappa \subseteq A^\kappa$ and $A^\kappa \cdot A^\kappa \subseteq A^\kappa$.

Proof:

Let A be a κ - q -Anti fuzzy normed subring of NR . By [10], it is clear that A^κ is κ - q -Anti fuzzy group under addition and so $A^\kappa - A^\kappa \subseteq A^\kappa$. Also for all $z \in NR$ and $q \in Q$,

$$(A^\kappa \cdot A^\kappa)(z, q) =_{x \cdot y = z} \boxtimes (A^\kappa(x, q) * A^\kappa(y, q)) \leq_{x \cdot y = z} A^\kappa(xy, q) = A^\kappa(z, q) \Rightarrow A^\kappa \cdot A^\kappa \subseteq A^\kappa$$

Now we suppose $A^\kappa - A^\kappa \subseteq A^\kappa$ and $A^\kappa \cdot A^\kappa \subseteq A^\kappa$. For all $x, y \in NR$ and $q \in Q$,

$$A^\kappa((x - y), q) \leq (A^\kappa - A^\kappa)((x - y), q) =_{s - t = x - y} \boxtimes (A^\kappa(s, q) * A^\kappa(t, q)) \leq A^\kappa(x, q) * A^\kappa(y, q).$$

Similarly,

$$A^\kappa((xy), q) \leq (A^\kappa \cdot A^\kappa)((xy), q) =_{st = xy} \boxtimes (A^\kappa(s, q) * A^\kappa(t, q)) \leq A^\kappa(x, q) * A^\kappa(y, q)$$

Thus, A^κ is a κ - q -Anti fuzzy normed subring of NR .

Lemma 3.3:

(i) Let A^κ be a κ - q -Anti fuzzy normed subring of the normed ring NR and let $f: NR \rightarrow NR'$ be a ring homomorphism. Then $f(A^\kappa, q)$ is a κ - q -Anti fuzzy normed subring of NR' .

(ii) Let $f: NR \rightarrow NR'$ be a ring homomorphism. If B^κ is a κ - q -Anti fuzzy normed subring of NR' , then $f^{-1}(B^\kappa, q)$ is a κ - q -Anti fuzzy normed subring of NR .

Proof:

(i) Take $u, v \in NR'$. As f is onto there exists $x, y \in NR$ and $q \in Q$ such that $f(x, q) = u$ and $f(y, q) = v$. So

$$\begin{aligned} (f(A^\kappa))(u, q) * (f(A^\kappa))(v, q) &= \left(f(x, q) = u^{A^\kappa(x, q)} \right) * \left(f(y, q) = v^{A^\kappa(y, q)} \right) \\ &=_{f(x, q) = u, f(y, q) = v} \boxtimes (A^\kappa(x, q) * A^\kappa(y, q)) \end{aligned}$$

$$\begin{aligned}
 \leq f(x, q) &= u, f(y, q) = v \quad (A^\kappa((x-y), q)) \text{ (as } A^\kappa \text{ is a } \kappa - q \text{ - Anti fuzzy normed subring of } NR) \\
 &\leq f(x, q) - f(y, q) = u - v \quad (A^\kappa((x-y), q)) \\
 &= f((x-y), q) = u - v \quad (A^\kappa((x-y), q)) \\
 &= f(z, q) = u - v \quad (A^\kappa(z, q)) \\
 &= (f(a, q))(u - v).
 \end{aligned}$$

Similarly, it is easy to see that

$$(f(A))((u \cdot v), q) \leq (f(A^\kappa)(u, q) * f(A^\kappa)(v, q)).$$

Therefore, $f(A^\kappa)$ is a $\kappa - q$ - Anti fuzzy normed subring of NR' .

(ii) Proof is straightforward and similar to the proof of (i).

Definition 3.4:

Let A^κ_1 and A^κ_2 be two $\kappa - q$ - Anti fuzzy normed rings over the normed ring NR . Then A^κ_1 is a $\kappa - q$ - Anti fuzzy normed subring of A^κ_2 if

$$A^\kappa_1(x, q) \leq A^\kappa_2(x, q), \text{ for all } x \in NR \text{ and } q \in Q$$

Definition 3.5:

Let NR be a normed ring, $A^\kappa \in F(NR)$ and let $A^\kappa \neq \emptyset$. If for all $x, y \in NR$ and $q \in Q$

- (i) $A^\kappa((x-y), q) \leq A^\kappa(x, q) * A^\kappa(y, q)$ and
- (ii) $A^\kappa((x \cdot y), q) \leq A^\kappa(x, q) A^\kappa((x \cdot y), q) \leq A^\kappa(x, q)$, then A^κ is called a $\kappa - q$ - Anti fuzzy left (right) normed ideal of NR .

Definition 3.6:

If the $\kappa - q$ -fuzzy set A^κ is both a $\kappa - q$ - Anti fuzzy normed right and a $\kappa - q$ - Anti fuzzy normed left ideal of NR , then A^κ is called a $\kappa - q$ - Anti fuzzy normed ideal of NR ; i.e., if for all $x, y \in NR$ and $q \in Q$

- (i) $A^\kappa((x-y), q) \leq A^\kappa(x, q) * A^\kappa(y, q)$ and
- (ii) $A^\kappa((x \cdot y), q) \leq A^\kappa(x, q) \boxtimes A^\kappa(y, q)$,

then $A^\kappa \in F(NR)$ is a $\kappa - q$ - Anti fuzzy normed ideal of NR .

Remark: 3.6.1

Let the multiplicative identity of NR (if exists) be 1_{NR} . As $A^\kappa((x \cdot y), q) \leq A^\kappa(x, q) \boxtimes A^\kappa(y, q)$ for all $x, y \in NR$ and $q \in Q$, $A^\kappa((x \cdot 1_{NR}), q) \leq A^\kappa(x, q) \boxtimes A^\kappa((1_{NR}), q)$ and therefore for all $x \in NR$ and $q \in Q$, $A^\kappa(x, q) \leq A^\kappa((1_{NR}), q)$.

Remark: 3.6.2

Let A^κ and B^κ be two ($\kappa - q$ - Anti fuzzy normed left, $\kappa - q$ - Anti fuzzy normed right) ideals of a normed ring NR . Then, $A^\kappa \cap B^\kappa$ is also a ($\kappa - q$ - Anti fuzzy normed left, $\kappa - q$ - Anti fuzzy normed right) ideal of NR .

Solution:

Let $x, y \in NR$ and $q \in Q$.

$$\begin{aligned}
 (A^\kappa \cap B^\kappa)((x-y), q) &= \max\{A^\kappa((x-y), q), B^\kappa((x-y), q)\} \\
 &\leq \max\{A^\kappa(x, q) * A^\kappa(y, q), B^\kappa(x, q) * B^\kappa(y, q)\} \\
 &\leq \max\{(A^\kappa \cap B^\kappa)(x, q), (A^\kappa \cap B^\kappa)(y, q)\}.
 \end{aligned}$$

On the other hand, as A^κ and B^κ are $\kappa - q$ - Anti fuzzy normed left ideals, using $A^\kappa((x.y), q) \leq A(y, q)$ and $B^\kappa((x.y), q) \leq B^\kappa(y, q)$ we have

$$\begin{aligned}(A^\kappa \cap B^\kappa)((x.y), q) &= \max\{A^\kappa((x.y), q), B^\kappa((x.y), q)\} \\ &\leq \max\{A^\kappa(y, q) * B^\kappa(y, q)\} \\ &\leq (A^\kappa \cap B^\kappa)(y, q).\end{aligned}$$

So $A^\kappa \cap B^\kappa$ is a $\kappa - q$ - Anti fuzzy normed left ideal. Similarly it is easy to show that $A^\kappa \cap B^\kappa$ is a $\kappa - q$ - Anti fuzzy normed right ideal. As a result $A^\kappa \cap B^\kappa$ is an $\kappa - q$ - Anti fuzzy normed ideal of NR .

Example: 3.6.3

Let A^κ be a $\kappa - q$ - Anti fuzzy ideal of NR . The subring $A^{\kappa^0} = \{x: \mu_{A^\kappa}(x, q) = \mu_{A^\kappa}(0_{NR}, q), \forall x \in NR \text{ and } q \in Q\}$ is a $\kappa - q$ - Anti fuzzy normed ideal of NR , since for all $x \in NR$ and $q \in Q$, $A^{\kappa^0}(x, q) \leq A^{\kappa^0}(0, q)$.

Theorem: 3.7

Let A^κ be a $\kappa - q$ - Anti fuzzy normed ideal of NR , $X = \{(a_1, a_2, \dots, a_m), q\} \subseteq NR$, $x, y \in NR$ and $q \in Q$ and let $FN(X)$ be the $\kappa - q$ - Anti fuzzy normed ideal generated by the set X in NR . Then,

- (i) $\omega \in FN(X) \Rightarrow A^\kappa(\omega, q) \leq \bigvee_{1 \leq i \leq m} (A^\kappa(a_i, q)),$
- (ii) $x \in (y, q) \Rightarrow A^\kappa(x, q) \geq A^\kappa(y, q),$
- (iii) $A^\kappa(0, q) \leq A^\kappa(x, q)$ and
- (iv) If 1 is the multiplicative identity of NR then $A^\kappa(x, q) \leq A^\kappa(1, q).$

Proof:

Let (ii), (iii) and (iv) can be proved using (i). The set $FN(X)$ consist of the finite sums in the form $ra + as + uav + na$ where $a \in X, r, s, u, v \in NR$ and $q \in Q$, n is an integer.

Let $\omega \in FN(X)$.

So there exists an integer n and $r, s, u, v \in NR$ and $q \in Q$ such that $\omega = ra_i + a_i s + ua_i v + na_i$ where $1 \leq i \leq m$.

As A^κ is a $\kappa - q$ - Anti fuzzy normed ideal, $A^\kappa((ra_i + a_i s + ua_i v + na_i), q) \leq A^\kappa(ra_i, q) * A^\kappa(a_i s, q) * A^\kappa(ua_i v, q) * A^\kappa(na_i, q) \leq A^\kappa(a_i, q).$

Therefore $A^\kappa(\omega, q) \leq \bigvee_{1 \leq i \leq m} (A^\kappa(a_i, q)).$

4. Fundamental Algebraic properties on $\kappa - Q$ - Anti Fuzzy Normed Prime Ideal and $\kappa - Q$ - Anti Fuzzy Normed Maximal Ideal

In this section, $\kappa - q$ - Anti fuzzy normed prime ideal and $\kappa - q$ - Anti fuzzy normed maximal ideal are outlined.

Definition 4.1:

Let A^κ and B^κ be two $\kappa - q$ - Anti fuzzy subsets of the normed ring NR . We define the operation $A^\kappa \circ B^\kappa$ as follows:

$$A^\kappa \circ B^\kappa(x, q) = \begin{cases} \bigvee_{x=yz} (A^\kappa(y, q) * B^\kappa(z, q)), & \text{If } x \text{ can be defined as } x = yz \text{ and } q \in Q \\ 0, & \text{otherwise.} \end{cases}$$

If the normed ring NR has a multiplicative inverse, namely if $NR.NR = NR$, then the second case does not occur.

Definition 4.2:

Let A^κ and B^κ be $\kappa - q$ - Anti fuzzy normed ideals of a normed ring NR and let FNP be a non-constant function, which is not an ideal of NR . If

$$A^\kappa \circ B^\kappa \subseteq FNP \Rightarrow A^\kappa \subseteq FNP \text{ or } B^\kappa \subseteq FNP,$$

then FNP is called a $\kappa - q$ - Anti fuzzy normed prime ideal of NR .

Example 4.2.1:

Show that if the $\kappa - q$ - Anti fuzzy normed ideal I ($I \neq NR$) is a $\kappa - q$ - Anti fuzzy normed prime ideal of NR , then the characteristic function λ_I is also a $\kappa - q$ - Anti fuzzy normed prime ideal.

Solution:

As $I \neq NR$, λ_I is a non-constant function on NR . Let A^κ and B^κ be two $\kappa - q$ - Anti fuzzy normed ideals on NR such that $A^\kappa \circ B^\kappa \subseteq \lambda_I$, but $A^\kappa \not\subseteq \lambda_I$ and $B^\kappa \not\subseteq \lambda_I$.

There exists $x, y \in NR$ and $q \in Q$ such that $A^\kappa(x, q) \leq \lambda_I(x, q)$ and $B^\kappa(y, q) \leq \lambda_I(y, q)$.

In this case,

$$A^\kappa(x, q) \neq 0 \text{ and } B^\kappa(y, q) \neq 0, \text{ but } \lambda_I(x, q) = 0 \text{ and } \lambda_I(y, q) = 0.$$

Therefore, $x \notin I, y \notin I$.

As I is a $\kappa - q$ - Anti fuzzy normed prime ideal, there exists an $r \in NR$ and $q \in Q$, such that $xry \notin I$.

This is obvious, because if I is $\kappa - q$ - Anti fuzzy normed prime,

$$A^\kappa \circ B^\kappa(xry, q) \subseteq I \Rightarrow \text{or } B^\kappa(ry, q) \subseteq I \text{ and } \text{therefore as } (NRxNR, q)(NRryNR, q) = (NRxNR, q)(NRyNR, q) \subseteq I, \text{ we have either } (NRxNR, q) \subseteq I \text{ or } (NRyNR, q) \subseteq I.$$

Assume $(NRxNR, q) \subseteq I$. Then $((x x x), q) = (x, q)^3 \in I \Rightarrow (x, q) \subseteq I$, but this contradicts with the fact that $\lambda_I(x, q) = 0$.

Now let $a = xry$. $\lambda_I(a, q) = 0$.

Thus $A^\kappa \circ B^\kappa(a, q) = 0$. On the other hand,

$$\begin{aligned} A^\kappa \circ B^\kappa(a, q) &= \bigwedge_{a=cd} (A^\kappa(c, q) * B^\kappa(d, q)) \\ &\leq A^\kappa(x, q) * B^\kappa(ry, q) \\ &\leq A^\kappa(x, q) * B^\kappa(y, q) \\ &\leq 0 \text{ (as } A^\kappa(x, q) \neq 0 \text{ and } B^\kappa(y, q) \neq 0). \end{aligned}$$

This is a contraction, since $A^\kappa \circ B^\kappa(a, q) = 0$. Therefore if A^κ and B^κ are $\kappa - q$ - Anti fuzzy normed ideals of a normed ring NR , then $A^\kappa \circ B^\kappa \subseteq \lambda_I \Rightarrow A^\kappa \subseteq \lambda_I$ or $B^\kappa \subseteq \lambda_I$. As a result, the characteristic function λ_I is a $\kappa - q$ - Anti fuzzy normed prime ideal.

Definition 4.3:

Let A^κ be a $\kappa - q$ - Anti fuzzy normed ideal of a normed ring NR . If A^κ is non-constant and for all $\kappa - q$ - Anti fuzzy normed ideals B^κ of NR , $A^\kappa \subseteq B^\kappa$ implies $A^{\kappa 0} = B^{\kappa 0}$ or $B = \lambda_{NR}$, A^κ is called a $\kappa - q$ - Anti fuzzy normed maximal ideal of the normed ring NR . $\kappa - q$ - Anti Fuzzy normed maximal left (right) ideals are defined similarly.

Example 4.3.1:

Let A^κ be a $\kappa - q$ - Anti fuzzy normed maximal left (right) ideal of a normed ring NR . Then, $A^{\kappa 0} = \{x \in NR \text{ and } q \in Q: A^\kappa(x, q) = A^\kappa(0, q), \}$ is a Anti fuzzy normed maximal left (right) ideal of .

Lemma 4.4:

If A^κ and B^κ are a $\kappa - q$ - Anti fuzzy normed right and a $\kappa - q$ - Anti fuzzy normed left ideal of a normed ring NR , respectively, $A^\kappa \circ B^\kappa \subseteq A^\kappa \cap B^\kappa$ and hence $(A^\kappa \circ B^\kappa)(x, q) \leq (A^\kappa \cap B^\kappa)(x, q), \forall x \in NR \text{ and } q \in Q$.

Proof:

It is shown in Example 2 that if A^κ and B^κ are $\kappa - q -$ Anti fuzzy normed left ideals of NR , then $A^\kappa \cap B^\kappa$ is also a $q -$ Anti fuzzy normed left ideal. Now, let A^κ and B^κ be a $\kappa - q -$ Anti fuzzy normed right and a $\kappa - q -$ Anti fuzzy normed left ideal of NR , respectively. If $A^\kappa \circ B^\kappa(x, q) = 0$, the proof is trivial.

Let $A^\kappa \circ B^\kappa(x, q) = \bigvee_{x=yz} (A^\kappa(y, q) * B^\kappa(z, q))$.

As A^κ is a $\kappa - q -$ Anti fuzzy normed right ideal and B^κ is a $\kappa - q -$ Anti fuzzy normed left ideal, we have

$$A^\kappa(y, q) \leq A^\kappa(yz, q) = A^\kappa(x, q) \text{ and } B^\kappa(y, q) \leq B^\kappa(yz, q) = B^\kappa(x, q)$$

Thus

$$\begin{aligned} (A^\kappa \circ B^\kappa)(x, q) &= \bigvee_{x=yz} (A^\kappa(y, q) * B^\kappa(z, q)) \\ &\leq \max\{A^\kappa(x, q), B^\kappa(x, q)\} \\ &= (A^\kappa \cap B^\kappa)(x, q). \end{aligned}$$

Theorem 4.5:

If A^κ is a $\kappa - q -$ Anti fuzzy normed left (right) maximal ideal of a normed ring NR , then $A^\kappa(0, q) = 1$.

Proof:

Assume $A^\kappa(0, q) \neq 1$.

Let $A^\kappa(0) < t < 1$ and let B^κ be a $\kappa - q -$ Anti fuzzy subset of NR such that $B^\kappa(x, q) = t$ for all $x \in NR$ and $q \in Q$. B^κ is trivially an ideal of NR .

Also it is easy to verify that $A^\kappa \subset B^\kappa, B^\kappa \neq \lambda_{NR}$ and $B^{\kappa^0} = \{x \in NR \text{ and } q \in Q: B^\kappa(x, q) = B^\kappa(0, q)\} = NR$.

But, despite the fact that $A^\kappa \subset B^\kappa, A^{\kappa^0} \neq B^{\kappa^0}$ and $B^\kappa \neq \lambda_{NR}$ is a contradiction to the $\kappa - q -$ Anti fuzzy normed minimality of A^κ .

Thus $A^\kappa(0, q) = 1$.

V CONCLUSION

In this paper, we defined a $\kappa - q -$ Anti fuzzy normed ring. Here we examine the algebraic properties of $\kappa - q -$ Anti fuzzy sets in ring structures. Some related notions, the $\kappa - q -$ fuzzy normed ring homomorphism, $\kappa - q -$ Anti fuzzy normed subring, $\kappa - q -$ Anti fuzzy normed ideal, $\kappa - q -$ Anti fuzzy normed prime ideal and $\kappa - q -$ Anti fuzzy normed prime maximal ideal are proposed. We hope that this new concept will bring a new opportunity in research and development of $\kappa - q -$ Anti fuzzy set theory.

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A COMPARATIVE STUDY ON FOOTWEAR MODIFICATION VERSUS MUSCULOSKELETAL EXERCISES IN THE MANAGEMENT OF ANTERIOR KNEE PAIN

Nithyanisha R

ABSTRACT

OBJECTIVE:

The objective of the study is to comparing the effectiveness of footwear modification versus musculoskeletal exercises in the management of anterior knee pain.

BACKGROUND STUDY

Anterior knee pain is a condition in which cartilage under the knee cap is damaged due to injury or overuse. Also called as patellofemoral pain syndrome. The etiology of anterior knee pain is multifactorial and not well defined due to the variety of symptoms pain location, and pain level experienced by the patient. It is most common in people who participate in sports especially women and young adults. The most common symptom is knee pain that increases with stair climbing, running, squatting movements.

METHODOLOGY

This study is an comparative study of pre and post comparative type with duration of 6 weeks which will be conduct on 30 subjects with anterior knee pain.

STUDY DESIGN: comparative study

STUDY TYPE: Pre and post type

STUDY SETTING: ACS medical college and hospital

SAMPLE SIZE: 30 Subjects with anterior knee pain

STUDY SAMPLING METHOD: simple Random sampling method

STUDY DURATION

FOOTWEAR MODIFICATION: 1 session/ day 3 sessions per week for 6 weeks.

MUSCULOSKELETAL EXERCISE: 1 session/ day 3 sessions per week for 6 weeks.

INCLUSION CRITERIA: subjects with anterior knee pain, age between 18-40 years, patellofemoral arthritis , patellar tendinitis, flat foot, VAS- score less than 5, both female and male are included.

EXCLUSION CRITERIA: Recent lower limb fracture, spinal cord injury, previous knee surgery, osteoporosis.

OUTCOME MEASURE: pain intensity and functional activity

MEASUREMENT TOOLS

1. Anterior knee pain scale

2. Visual analogue scale.

PROCEDURE

According to inclusion and exclusion criteria 30 subjects with anterior knee pain are randomly selected and divided into two equal groups.

GROUP-A-- Included 15 patients will receive footwear modification for 1 session per day 3 sessions per week for 6 weeks.

GROUP-B-- Included 15 patients will receive musculoskeletal exercises for 1 session per day 3 sessions per week for 6 weeks.

RESULT

On comparing the mean value of the groups on AKPS score and VAS scale, it shows significant decrease in the post test mean values in group -A than group-B

CONCLUSION

The present study concludes that footwear modification has great role in reducing pain intensity and increasing functional activity on anterior knee pain when compared to musculoskeletal exercises at the end of 6 weeks of study.

KEYWORDS: Footwear modification, musculoskeletal exercises, anterior knee pain scale, visual analogue scale.

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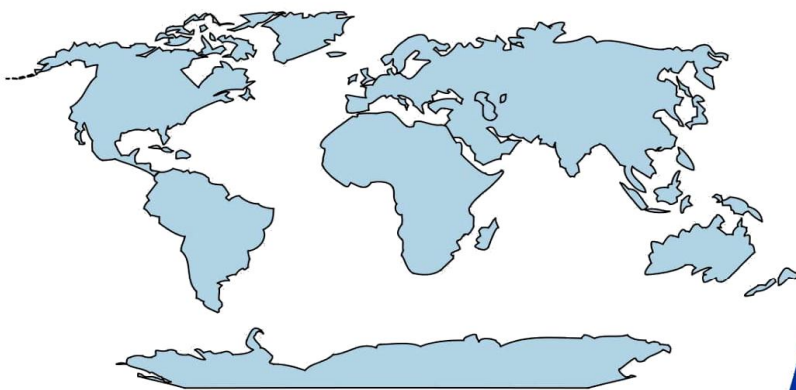
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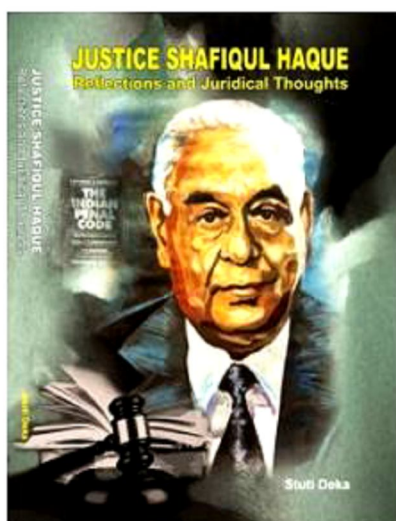


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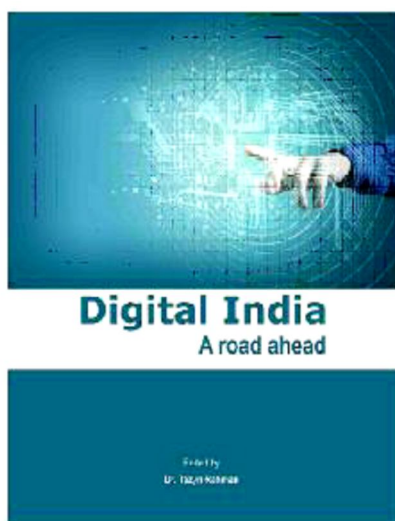
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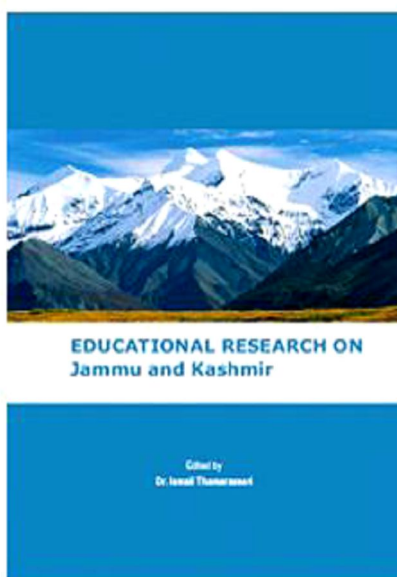
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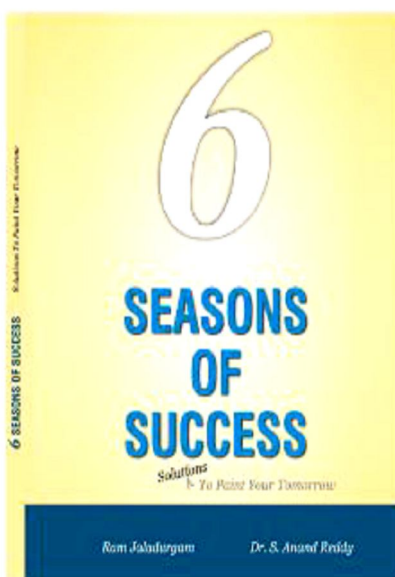
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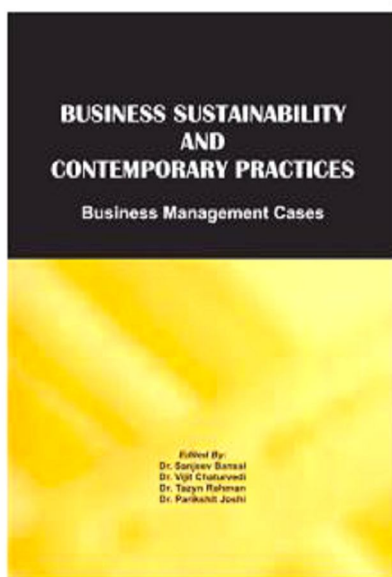
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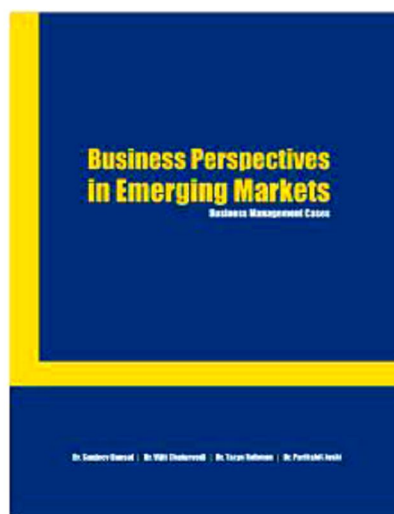
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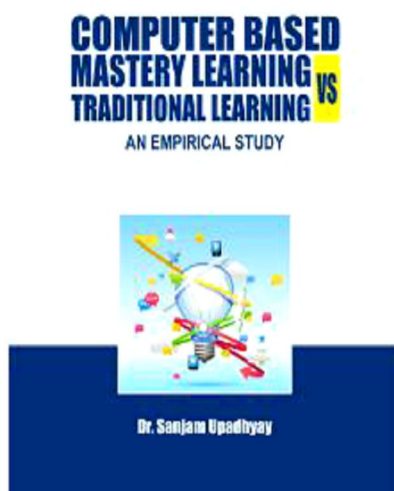
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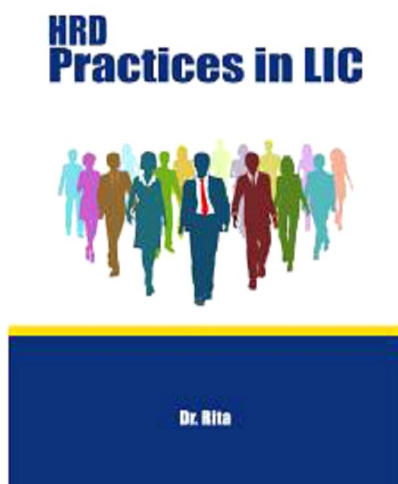
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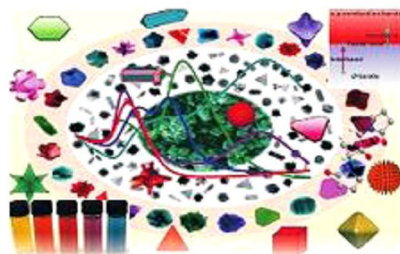
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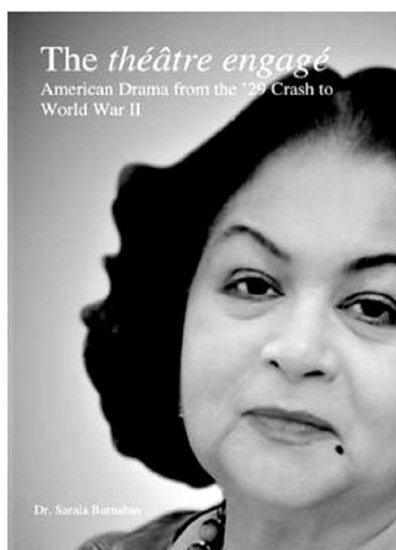
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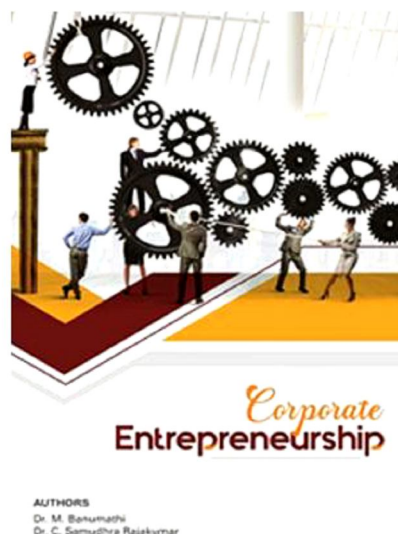
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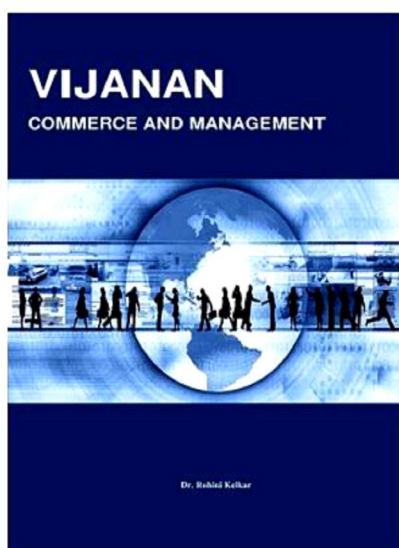
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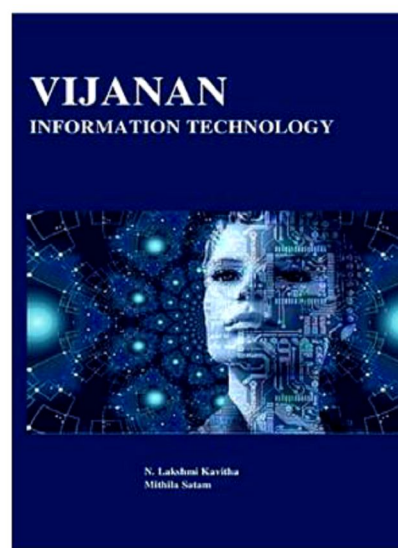
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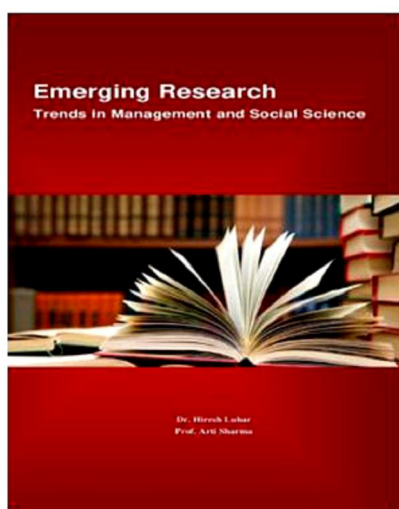
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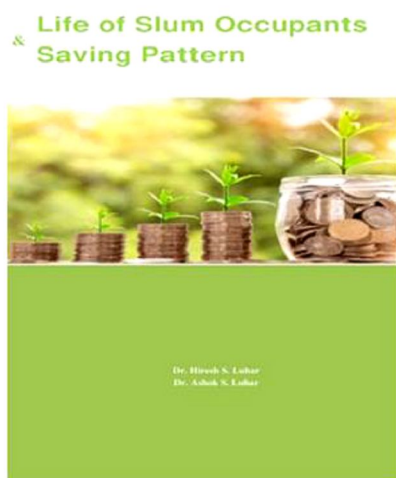
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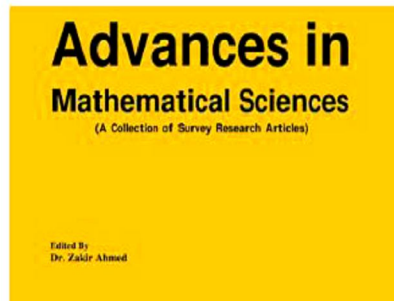
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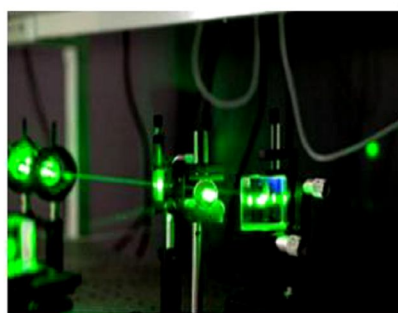


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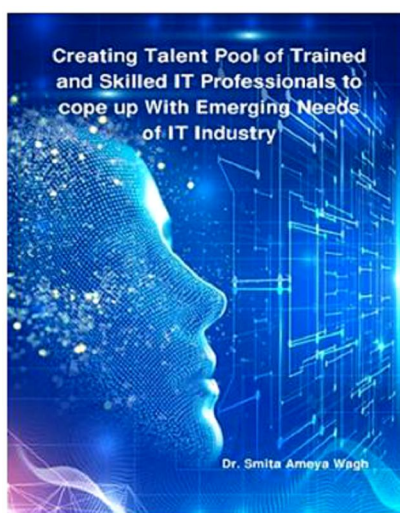
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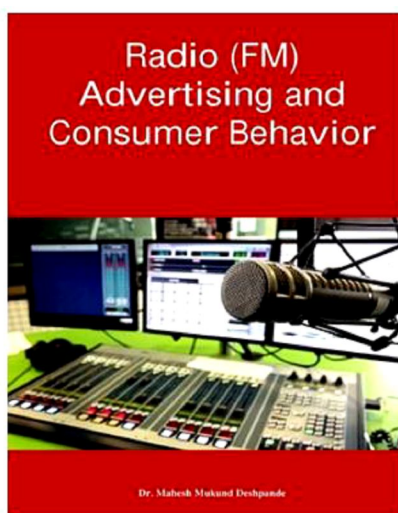
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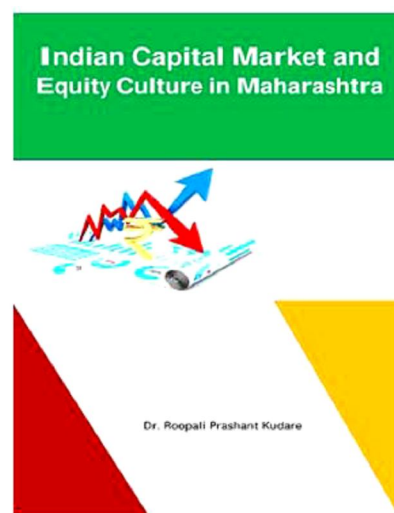
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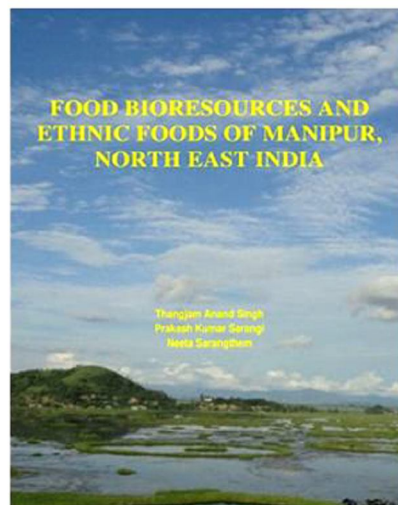
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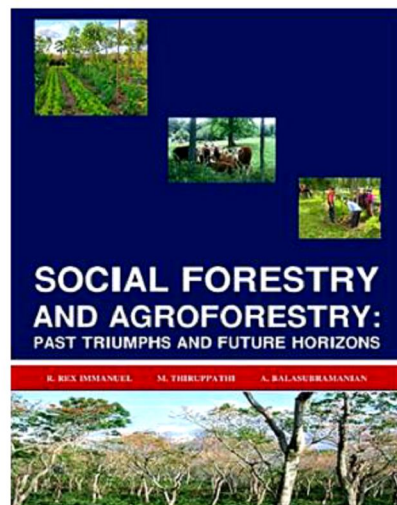
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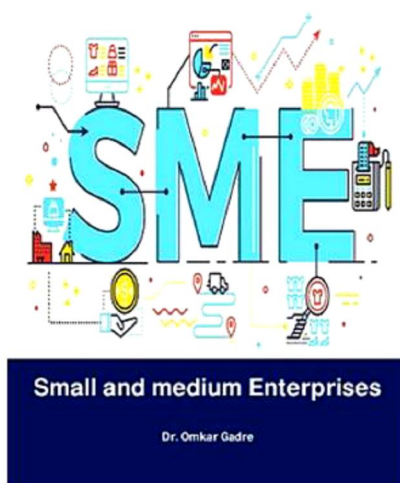
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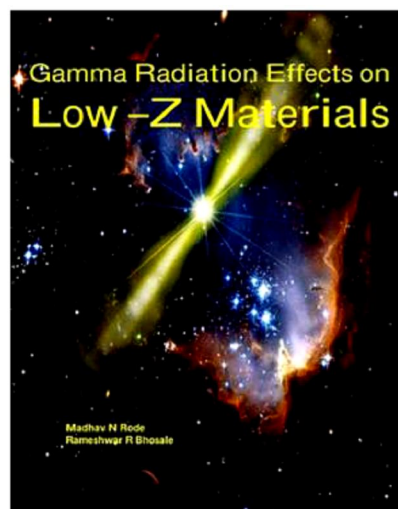
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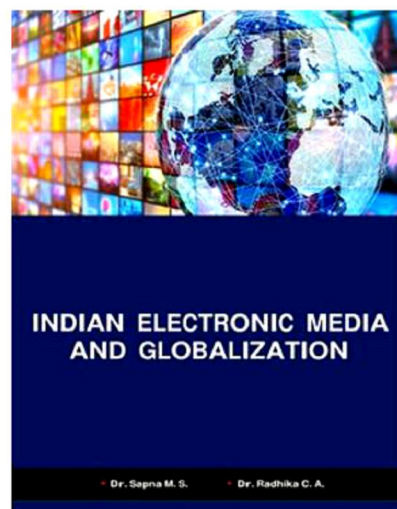
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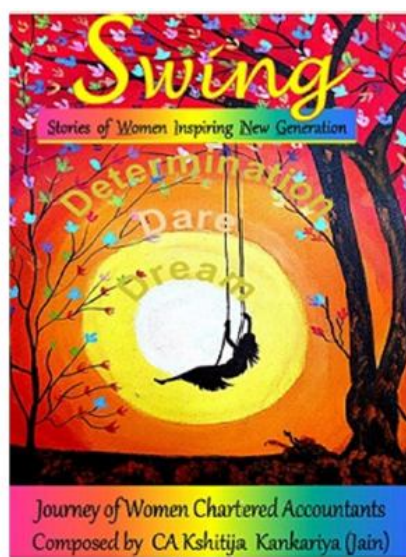
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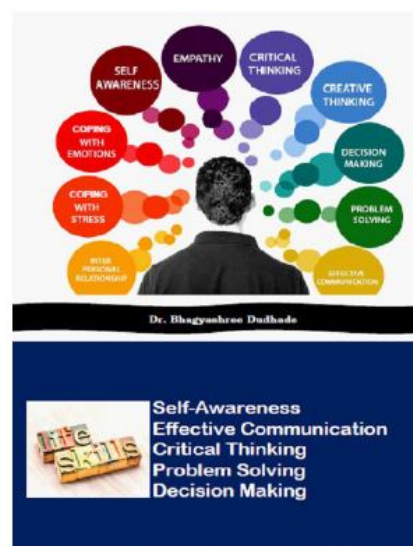


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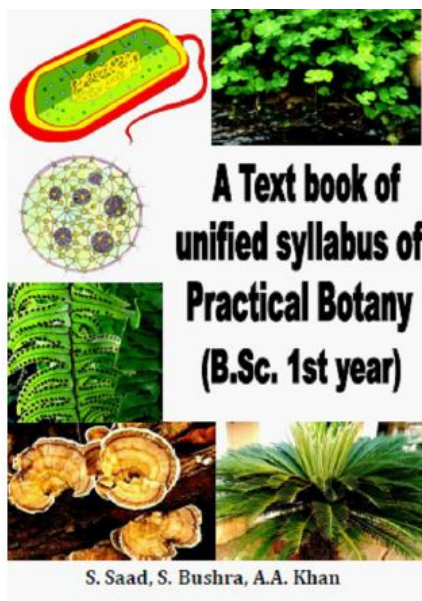


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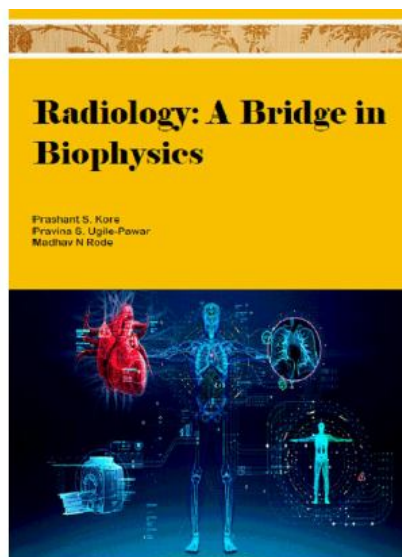
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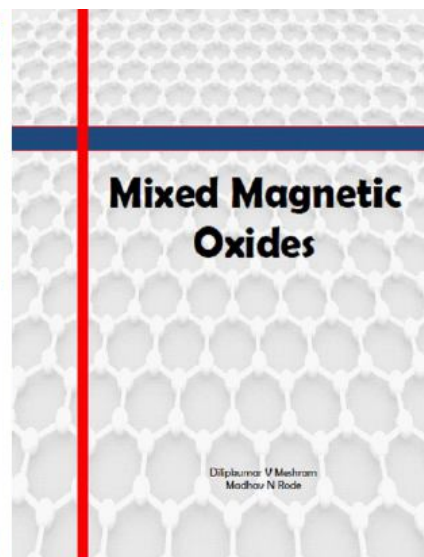
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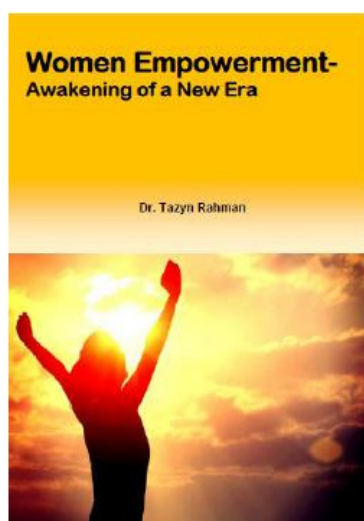


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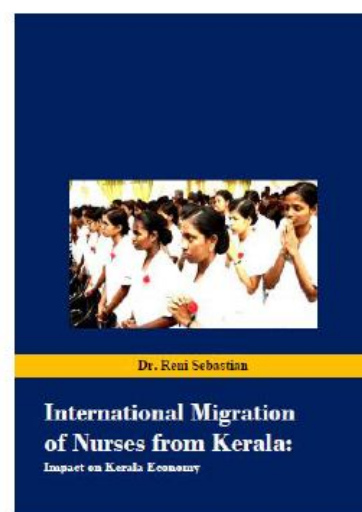


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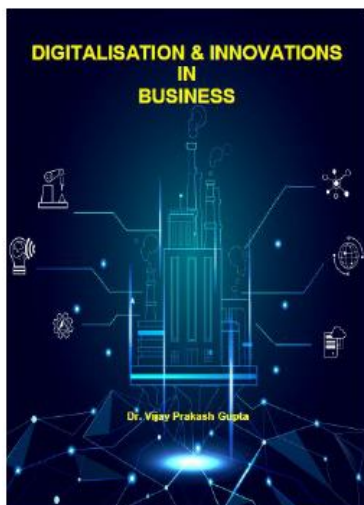
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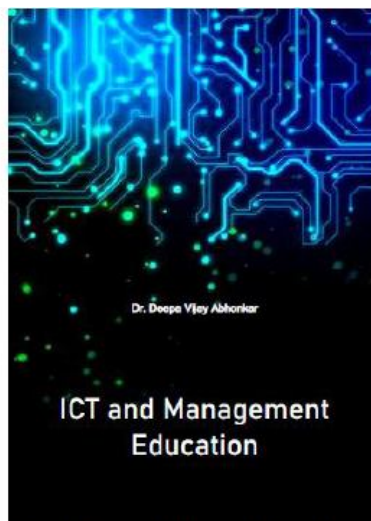
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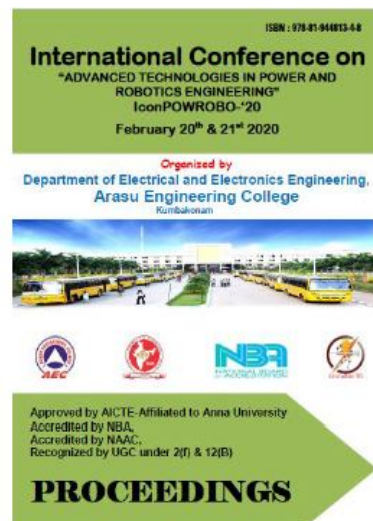
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