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FOR UG AND PG STUDENTS' 2019

EMERGING TRENDS OF KNOWLEDGE INTEGRATION FOR SUSTAINABILITY

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Bangalore-100

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FOREWORD

From the Pen of the Principal,

On behalf of St Francis de Sales College, I extend a very warm welcome to all the participants of this two day National Seminar on "Emerging Trends of Knowledge Integration for Sustainability". SFS College has borne the responsibility of excellence and is always committed to ensuring that the students have their own space to learn, grow and broaden their knowledge horizon by indulging in various learning spheres such as seminars and research presentations.

Today globalization, privatization and digitalisation have dramatically reshaped the dissemination and integration of knowledge in all fields and created tremendous opportunities for sustainability, particularly in transnational and global domains. Multiple educational institutions have collaborated with international institutions to give to their students a sense of these emerging trends. This two-day seminar would discuss and deliberate on the dynamics of "emerging trends of knowledge integration for sustainability" in the country and across borders.

The seminar aims to put diverse perspectives under one roof and provide opportunities for face-to-face exchange of ideas, equipping our students with the knowledge, trust and a constructive approach to study and collaboration in the future. The topics and sub-themes for this seminar are indicative of relevant research areas to provide the student presenters with innovative prepositions on the topic. Some of the sub-themes include: "Analytics and Artificial Intelligence in Commerce", Business Sustainability", "Integrating Science, Mathematics and Environment", "Human Beings and Consumer Globe", and, Prognosis of Data Science".

I would also like to thank our Vice-Principal, the faculties, the staffs, the organizers and the students for their commitment to planning and managing this event successfully. Without their encouragement and continuous help, the event would not have been possible.

I hope that this two-day seminar will serve as a medium for us all to reflect on the topic of discussion, challenge us to learn something new, and at the same time inspire us. Thank you!.

Fr. Dr. Roy P K

Principal, St. Francis de Sales College, Bangalore-100

About the seminar

A holistic approach that balances the competing demands of the growing population in various sectors is essential in achieving a sustainable future. "**The student national seminar**" is conducted annually for the under graduate and post graduate students with an intention to give the students an exposure to research, publication and knowledge transfer. Also it aims to culminate the outcome for efficient resource management for a better environment and economy suitable for a developing society.

About the College

St. Francis de Sales College is managed by the Missionaries of St. Francis de Sales (MSFS) of the South West India Province, who firmly believe that 'the education of the heart is the heart of education' as propounded by its founder, Fr. Peter Marie Mermier. The College is named after St. Francis de Sales, the patron of the MSFS. At present, the College offers BSc (PCM: Phy-Chem-Maths, MEC: Maths-Elec-Comp, CJP: Comp-Journ-Psy), BA (JPE: Journ-Psy-Opt Eng, SEP: Soc-Eco-Psy, HEP: His-Eco-Pol Sc, HES: His-Eco-Soc), BCom (FA, Voc-Travel), BBA, BCA, MCOM (Reg, FA), MSc (Psy, Maths), MA (Eng, Eco) and PG Diploma (HR, Counselling). The College also runs an Evening College to cater to the working youth and to educate them. The College has obtained the 2(f) and 12(b) recognition under the UGC Act of 1956. Now with all these new programmes introduced, the College stands ready to become an autonomous college in the near future.

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Inaugural Address

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CONTENTS

TECHNICAL SESSION 1-ANALYTICS AND ARTIFICIAL INTELLIGENCE IN COMMERCE

Artificial intelligence and its importance in indian business
Salman Kankudti

Impact of online advertising through social media on students and working people in bangalore
Shambhavi. V. Salimath And Stanicadevinaperis

Challenges and solution of e-commerce in india
Tenzingwoser And Yamini Ganesh

A study on manpower planning and its effectiveness in an organisation
Vinaya Shree. V.S And Vishnu Thejas

The role of emotional intelligence in commerce
Serene .S. Ann

TECHNICAL SESSION 2- BUSINESS SUSTAINABILITY

Business Communication In Digital Media (Social Media)
Amal Joseph, Joseph Kj, Sreevalsan

To Create An Awareness Among Youth The Effectiveness Of Corporate Social Responsibility
Deeksha P Reddy

Analysis Of Employee Engagement In Sfs Institution

Miss. Neha. D. Madyasta, Miss. Lakshmipriya. P, Yogesh .R .Nithya .P.

Recent Trends In Corporate Social Responsbility
Shivani S.

A Brief Introduction Of Forensic Accounting And Its Types
Maria Tejashwini.L

Impact Of Cashless Economy "Issues And Challenges"
Pankaj Sharma

Impact Of Cashless Economy: Issues And Challenges
Swaroop, Ankit Jha

Impact Of Cashless Economy In Business
Subin Vince, Sathwik Shastry K.

TECHNICAL SESSION 3- INTEGRATING SCIENCE, MATHEMATICS AND ENVIRONMENT

Climate Change And Its Impact
Sharon Stanly, Aneesha Chacko, John Jose Jino

Mathematics In Natural Environment
Anna Elizabeth Sebastian, Divya Ann Chacko, Kessia Binoy

Pthalate Contamination- A Review
Rubyka B. K. And Jyothismitha N

E-Waste Management
Chethan R & Chethan M

The Earth Without Lungs- The Amazon Rainforest
Diwakar D, Milton S, Surya P, Tonmoy Khanal

Climate Change And Its Impacts
Harshini Alamelu C.M & Varshini Gomathy C.M.
,
Alternate Resources
Kavya M. And Vijaykumar K.

E – Waste Management-Major Hazardous Component Of E-Waste, Mercury
Muktha D S, Lakshmi Priya R, Pooja P R, Bibi Fathima Aga

Mathematics For Environmental Science
Anjana P, Bhavana M, Deepika V, Shabrintaj R

Alternate Energy Resources
Sushma .N

A Study On Waste Management With Reference To BBMP In Bengaluru
Varsha.S And Shwetha.M

E- Waste Scenario In India- Environmental Problems And Current Management
Nayanashree B., Kolli Tanuja, Amrutha R., Shalini R.

E-Waste Management
Velmurugan .M And Joel Leefort . Y

TECHNICAL SESSION 4- HUMAN BEINGS AND CONSUMER GLOBE

Sustainable Agriculture: A Pathway to Sustainability
R. Anusha

The effect of Advertisement on consumer buying behaviour and the influence of gender
Neha Susan George And Shameema P. M

Psychology in the success of consumer globe
B. Shivani

A Critical study of Edgar Allan Poe's short story: The Man of the Crowd
Seshikala And Supriya Skylight

Selection of products between well- established brands and Patanjali Products

TECHNICAL SESSION 5- PROGNOSIS OF DATA SCIENCE

TECHNICAL SESSION 1

ANALYTICS AND ARTIFICIAL INTELLIGENCE IN COMMERCE

E-COMMERCE & IT'S APPLICATION

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Abstract

Now a day E-commerce is growing popular in emerging economy. It was started in 1995. E-Commerce involves not only trading but also carries purchasing mechanisms via net. A client who purchases goods via net is known as cyber consumer. While in some cases, E-commerce makes it possible to highly customize products, in particular when the electronic commerce site is linked with the production system of the enterprises. Some of the examples are business cards, customized items such as t-shirts, cups, caps, medicines etc. The modern electronic commerce generally use the world wide web[www] for at least one part of the transaction's life cycle, although it may also use other technology like E-mail.

Keywords: E- learning, commerce, communication

1. Introduction

E-commerce (electronic commerce or EC) is the buying and selling of goods and services, or the transmitting of funds or data using internet. E-commerce or electronic commerce is a methodology of modern business, which addresses the requirements of business organizations. It can be broadly defined as the process of buying or selling of goods or services using an electronic medium such as the internet. E-commerce refers to paperless exchange of business information using following ways as (i) Electronic data exchange [EDI], (ii) Electronic mail [E-mail], (iii) Electronic fund transfer [EFT], (iv) Electronic publishing, and Digital library

With advancement in technology and with the popularity of the internet, more and more people are turning to the web for a variety of purposes. The internet is no longer limited to searching information or connecting with the people but is a platform where you can also buy and sell products. An e-commerce website is website which allows your business you sell products and services to their online audience. These days an increasing number of consumers prefer making most of their purchases online and in such a scenario, having an e-commerce website for your business is the need of the hour.

Having an e-commerce website gives you a certain competitive edge over those who may still not have gone online. Customers these days are looking for the easiest and cheapest way to make their purchasing and thus search online for their desired products and services. In such a case, the presence of an online store not only helps you to retain existing customers but also attract new one.

2. Growth of e- Commerce

India is rapidly marching towards becoming a digitally empowered society. The push for e-governance, the proliferation of smartphones increasing internet access and booming digital payments are fueling the country's journey towards a trillion-dollar digital economy by 2025. The widespread acceptance of digital is being seen as a catalyst for overall economic growth, and with the combination of favorable demographics and policy reforms, India presents a unique and powerful growth story.

With improving data affordability, consumption growth and newer financial products, the e-commerce market is set to grow, be it across e-tail, travel, consumer services or online financial services. From the next set of online shoppers, three out of every four customers are expected to come from tier II cities or beyond, and a vast majority of them would be less Tec savvy, seek greater transparency from brands and prefer consuming content in local languages. India is expected to witness a surge in the consuming class.

- By 2022, the Indian middle class will be the largest segment of the population.
- By 2025, India's contribution to the global middle-class consumption would be approximately on par with china's (~15%).
- By 2027, India's middle class is expected to overtake that of US and china, post which India is expected to domains.

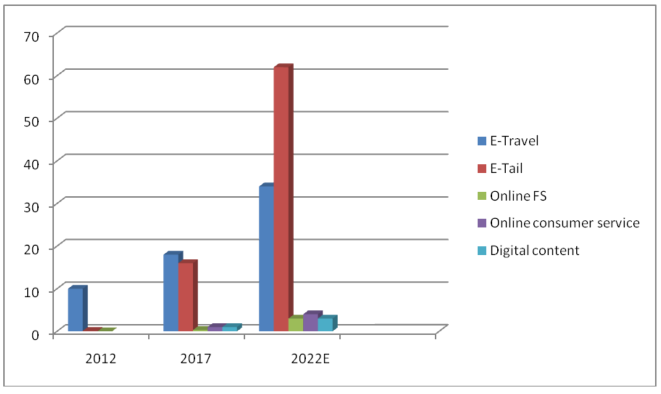

Fig. 1 E-commerce market-India, FY2012-22E, billion USD (Source: secondary research, PWC analysis)

- The current market of~35 billion USD is expected to grow at a 25% CAGR over the next five years.
- E-tail and e-travel, together, will continue to hold>90% share of e-commerce, while online financial services are expected to witness the fastest growth.

Features of e-Commerce

Non-cash payment- E-commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website, and other modes of electronics payment

24x7 service availability - E-commerce automates the business of enterprises and the way they provide services to their customers. It is available anytime, anywhere.

Advertising/marketing – E-commerce increases the reach of advertising of products and services of business. It helps in better marketing management of products/services

Improved sales – Using e-commerce, orders for the products can be generated anytime, anywhere without any human intervention. It gives a big boost to existing sales volumes

Support – E-commerce provides various ways to provide pre-sales and post-sales assistance to provide better services to customers.

Inventory management – E-commerce automates inventory management. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.

Communication improvement – E-commerce provides ways for faster, efficient, reliable communication with customers and partners.

Dos and Don'ts in e-Commerce

Whether you are selling products or services on your website, there are specific main stays that a business either should or should not do to ensure that you site is successful, productive, and efficient. To help you enhance your e-commerce site and improve your user's experience (and loyalty), here are the top areas to either do or don't do with regard to your business website.

- ***Test liked its going out of style:***

The very first thing that you need to do is make sure that you are consistently testing everything throughout your website. It's utterly the most important thing do to ensure that your site is running to your (and your clientele's) expectations.

- ***Encourage those impulses by up-selling:***

Let's face it people (in general) operate on impulses, and if someone is buying from your e-commerce website, you need to ensure that you act on their buying behavior, in other words, if they are about to checkout and receive that euphoric gratifying feeling of an outstanding purchase, bring them back and ask them if they want more. As an example, if the clients are buying an MP3 player, during the checkout process bring them to a screen that ask them if they want to include a docking station to their purchase because the docking station will significantly improve their experience with the MP3 player.

- ***Falling to plan is the same as planning to fail:***

Blindly entering into an E-Commerce website is not the smartest or the safest way to begin your E-Commerce site. However, if you develop an online marketing plan that integrates offline strategies as well, you will realize more success in higher frequencies/volume. So, as you move forward with your E-Commerce site, makes sure that you implement both a corporate and service marketing plan to increase your sales.

- ***Images speak an infinite number of words:***

If you haven't already, hire a professional photographer (unless you're one yourself) to take detailed, clean, crisp, and engaging images of your products and services. Nothing does a product more justice than a bright focused image that describes the product through the picture. Along with that, the images need to be implemented throughout the product page and the entire website itself.

- ***Failing to Planisthe Same as Planningto Fail:***

Blindly entering into an e-commerce website is not the smartest or safest way to begin (or continue with) your e-commerce site. However, if you develop an online marketing plan that integrates offline strategies as well, you will realize more success in higher frequencies/volumes. So, as you move forward with your e-commerce site, make surethat you implement both a corporate and product/service marketing plan to escalate your sales.

3. Benefits of e- Commerce

- The new markets could be accessed through the online and extending the service offerings to customers globally.
- Internet shrinks the globe and broadens current geographical parameter to operate globally and no added sales staff
- Retaining the customer and the customer services could be improved drastically.
- Streamline business processes and administrative functions
- A catalogue which is quickly and easily updateable. This means that when prices or stocks are changed, you don't have to have hundreds or thousands of obsolete catalogues lying around. You don't have to wait for the printer to deliver that catalog before the new prices can come into effect.
- Using e-commerce, organizations can be expanding their market to national and international markets with minimum capital investment. An organization can easily locate ore customers, best suppliers, and suitable business partners across the globe.
- E-commerce helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper-based information by digitizing the information.
- E-commerce improves the brand image of the company and helps the organization to provide better customer services.
- E-commerce helps to simplify the business processes and makes it faster and efficient.
- E-commerce reduces the paper work

4. Traditional commerce Verses e- Commerce

Traditional commerce	**E-commerce**
Heavy dependency on information exchange from person to person.	Information sharing is made easy via electronic communication channels making little dependency on person to person information exchange.
Communication/transaction is done in synchronous way. Manual intervention is required for each communication or transaction.	Communication or transaction can vet done in asynchronous way. Electronics system automatically handles when to pass communication to required person or to the transactions.

It is difficult to establish and maintain standard practices in traditional commerce.	A uniform strategy can be easily established and maintain in e-commerce.
Communications of business depends upon individual skills.	In e-commerce or electronic market, there is no human intervention.
Unavailability of a uniform platform as traditional commerce depends heavily on personal communication.	E-commerce website provides user a platform where all information is available at one place.
No uniform platform for sharing as it depends heavily on personal communication.	E-commerce provides a universal platform to support commercial/business activities across the globe.

5. Conclusion

In general, today's businesses must always strive to create the next best thing that consumers will want because consumers continue to desire their products, services etc. to continuously be better, faster and cheaper. In this world of new technology, businesses need to accommodate to the new types of consumer needs and trends because it will prove to be vital to their business' success survival-commerce is continuously progressing and is becoming more and more important to businesses as technology continue to ad Vance and is something that should be taken in advantage of and implemented.

From the inception of the in telnet and e-commerce, the possibilities have become endless for both businesses and consumers. Creating more opportunities for profit and advancements for businesses, while creating more options for consumers. However, just like anything else, e- commerce has its disadvantages including consumer uncertainties, but there is nothing that cannot be resolved or avoided by good decision-making and business practices.

There are several factors and variables that need to be considered and decided upon when starting an e-commerce business. Some of these include: types of e-commerce, marketing strategies, and countless more. If the correct methods and practices are followed, a business will prosper in an e-commerce setting with much success and profitability.

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EFFECTIVENESS OF E-LEARNING

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Abstract

Entry to the information age and effective life in information -oriented society requires an understanding of its characteristics. One of the social institutions that will undergo extensive changes at this age is general and higher education and training institutions. Digitalization of education is nothing but the technology development in the field of education and it refers to the use of digital technology to approach and teach students. The study explodes preference and attitude of student towards e-learning in selected higher education institutions in Bangalore. Google forms and questionnaire were used to collect data from the sample of students. They use Mobile technologies extensively but are unfamiliar with other collaborative e-learning tools. Finding show that students have positive attitude towards e-learning because they find easy to use and helpful for their course of work. The overall learning was studied in history and in the next session of effectiveness and learning was briefly examined. The overall benefits of e-learning include the promotion of learning, independence and individual satisfaction, learning at anytime and anywhere on their individual needs. The results of studies suggest positive effects of e-learning and thus it is suggested that this approach would be more useful in education.

Keywords: E-learning, education, attitude, e-learning technology, information and communication

1. Introduction

1.1 Learning – A Process

Learning is the acquisition of knowledge or skills through study, experience, or being taught. Electronic learning is the learning to utilize electronic technologies to access educational curriculum outside of a traditional classroom. Life-long learning is quickly becoming an imperative in today's world. E-learning or (e-learning) is a type of technology supported education/learning where the medium of instruction is computer technology.

1) Learning is a process to achieve knowledge, skill and ability to make decisions and performance that ultimately leads to a change in their behavior.
2) In the present era, education has a basic human right and it's been identified as the cause of change

in social progress.

3) And at the same time with the rapid changes of the new techniques and skills in information technology and its impact on the ways and means of living. Education process is one the fundamental pillars of society changes, too. The current study examines student's preference of e-learning and awareness of new learning technologies. As notes, e-learning innovation research includes the study of preference and attitude of electronic learning after an innovation has been adopted for classroom use. The current research examines the perceived consequences of preference and attitude by a group of students of few colleges in Bangalore to identify specific characteristics that affects the adoption of e-learning.

In the following analysis, the authors investigate the research into the effectiveness of e-learning. The paper is structured around three research questions:

A) How is the effectiveness of e-learning defined?

B) How is the effectiveness of e-learning measured?

C) What makes e-learning solutions effective?

The aim of the literature study is to organize similar research in order to better understand the characteristics and as well as connection between the applied concepts.

2. Review of Literature

In India, globalization has generated a good vibration and life for education. This study shows that there existed positive relationship between perceived usefulness, perceived ease of use, computer knowledge, management support and intension to adopt where as there existed negative relationship between normative pressure, computer anxiety and intension to adopt.

With communication between communities and emergence of different needs and innovation human entered a period which it is called information era. Increasing and strong tendency towards e-learning shows various benefits of this method compared to traditional methods of instructions. In addition, many educational psychologists believe that learning should be organized in a way that each learner is based on their ability and engaging in learning activities. In this regard, it should be noted that e-learning is an individual training where learners are able to achieve educational goals based on their own talents and, in fact, they learn and this is one of the educational goals, because learning continues throughout life.

Students learning in tertiary institutions all over the world have undergone tremendous transformation, especially since the advent of information and communication technology.

Figure 1. History of e- Learning

According to (Adesuyi et al, 2014) showed that students have a positive attitude towards e- learning because they find the system easy to use and useful for their course work.

Also, attitude influences the intension to use an e-learning system. Specifically, the study looked at the relationship between attitude and e-learning with the application of technology acceptance model. In research paper concentrates on the Indian education scenario-learning content preparation and preparation tools, application of e-learning to spread education to the remote areas, pros and cons of e-learning and future of e-learning in India. Although e-learning has potential in adoption has been slow and will a major marketing and awareness affect.

Today's student grows up with the internet and digital devices study was conducted with the participation of hospitality programs. A web-based survey was developed to understand student's perception and satisfaction with online classes in hospitality.

Seldon & Abidoye, 2018 in " The fourth education Revolution" has explained about the education how intelligent one can be after reading through e-books and online course of course, there is a huge different between human intelligence and artificial intelligence but the study technology in education is driving out the traditional approach of studying. Thomas in his book 'Digital education: opportunities for social collaboration' states that in its salient features about media studies, digital education, technology transfer, cultural studies and many more Scott Blue fin has published a knowledge book on digital education named as critical change the way we learn in the digital era. This e-learning is something unconditional in the sector of education.

Christina and Jennifer, 2019 envisages on E-learning applications both for student and teachers. Personal interview of many personalities plays a major role in forming this research paper. Technological advancement has led to significant changes in the way university education is being provided in the developed countries. Students entered the university with computer skills which are critical to the introduction of e- learning; male students were more likely to use the internet than female students; there was a relationship between the length of time students have been using the internet and frequency of use of the internet; students preferred mixed mode and web supplemented course in the immediate future than web dependent and fully online course.

After 2010: in this decade, smartphones' have succeeded personal computers in internet usage, and every information is ready at our fingertips. online course has become more popular and creating a demand too. In india,78% of the education has been digitalized and this number is actively growing day by day.The reported findings might be of interest to academics, administrators and decision makers involved in planning ,developing and implementation of future e-learning strategies .The preferences of instructors and students for design and pedagogy features of online instruction at the post graduate level which includes the high level of agreement on design and pedagogy features by instructors and students at the similarities in rank order by both students earning regular university credit and those pursing professional development goals. When compared with the ranking of instructors and students, low preferences were being placed on social interactive features.

3. Objectives

- To determine the impact of preferences and attitude of students which will affect the intension to use e-learning.
- The main objective of the study is to find out the implication of digital education in the country.
- To understand the student's perception of digital learning and how well they have adopted them in their curriculum.

4. Learning Methods: E-Learning Used To Facilitate Knowledge Transfer

- Web- based learning: this form of training is accessed via web browsers or through the corporate intranet.
- Computer based training
- CD-ROM based learning
- Webinars
- Virtual classroom
- Mobile learning
- Video -based learning
- Custom E-Learning
- Empirical study- Brining context into the literature study?

The empirical study aimed to discover if, how and why an e-learning program would be successful in improvising science teachers work practice. Thus, the empirical study lives up to the criteria of the literature study, as it focuses on the effectiveness of e-learning for working professionals. It also explores some of the challenges highlighted by the literature study.

The solution and learning design focused on developing competent teaching methods, for natural science. In this project, effectiveness is understood as the transfer of learning which positively impacts teaching practices.

The approach to gathering empirical data was specifically designed to capture some of the complexity, possibilities and challenges of teaching practices, both expected and unexpected the preliminary results of the empirical study are included when they contribute to answering the research questions of the paper.

- How is the effectiveness of e-learning defined?

This means that the effectiveness of e-learning is largely defined based on how well the

e- learning performed, compared to traditional face to face teaching with the same content. A

given e-learning solution must, therefore, entail these factors to be effective when compared to face to face teaching.

5. Benefits of E-learning

There are 8 benefits of E-learning for students

- Cost effective: E-learning removes the need for costly printed course materialsand onsite instructors.
- Online learning: Accommodates: everyone's needs. The online method of learningis best suited for everyone
- Offers Access to update content
- Quick delivery of lessons
- Scalability
- Consistency
- Reduced costs
- Effectiveness

Technological advancement has led to significant changes in the way university education is being provided in the developed countries.

6. Learning methods in India:

Learning is the process of acquiring new knowledge, modifying the existing knowledge, behavior, skills and values which may involve synthesizing different types of information.

Learning may also be viewed as a process, rather than a collection of factual and

procedural knowledge. Learning is based on experience. Learning produces changes in the organism and the changes produced are relatively permanent.

In India, learning makes a vast sense and it is a gateway for many of the career opportunities for millions of people.

E-learning tools:

a) Google
b) PowerPoint
c) you tube
d) G-mail
e) Wikipedia

f) Blogs

g) Skype

The key factor influencing effectiveness:

With communication between communities and emergence of different needs and innovation

E-learning offers the ability to share materials in all kinds of formats such as videos, slideshows, word, documents and Pdf’s. This is especially important if the e-learning training is being given to employees in a sector where keeping up to date on industry developments is of the utmost importance.

This personal interview was conducted with an intention of collecting primary data forthe study. There were different set of questions asked for both students and teachers in the form of questionnaire.

7. Findings in e-learning

In this present study we found that digital learning is also increasing the level of confidence in the minds of students. Teachers and students are getting high level of experience in using the technology.

The student’s attitude seemed to indicate that their preferred computer tools and technology for their academic work. The students respond of higher educational institutions, were slightly positively disposed towards e-learning and believed mixed mode E-learning to be beneficial than fully online learning course. The positive attitudes and the preference of students clearly shows their

intension towards e-learning course. This study suggest that the future electronic learning initiatives have great potential in Bangalore institutions for mixed mode e-learning course.

8. Conclusion

E-learning is not just a change of technology. It is part of re -definition of how we as a species transmit knowledge, skills and values to younger generations of workers and student.

Large range of tools is available for teaching and learning. It involves teachers and students. Most commonly the students have access to smart mobile phones and internet. The usage of other tools and technology (like, laptops tablets, educational application, web educational portal) among the students has been reduced. The students highly preferred computer tools and technology for their academic work. The student’s attitude seemed to indicate that their preferred computer tools and technology for their academic work. The students respond of higher educational institutions, were slightly positively disposed towards e-learning and believed mixed mode E-learning to be beneficial than fully online learning course. The positive attitudes and the preference of students clearly shows their intension towards e-learning course. This study suggests that the future electronic learning initiatives have great potential in Bangalore institutions for mixed mode e-learning course.

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ANALYZING THE USP AND UNDERSTANDING THE CUSTOMERS PERSPECTIVE OF LOANS AND ADVANCES ON SYNDICATE BANK

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Abstract

Compared to the different types of the banks of their interest rates, company performance and schemes used in their banks, based on the secondary data Unique Selling Proportion has to be analyzed on loans and advances offered by Syndicate bank. By finding unique selling proportionofthebankwecanhavetheuniquefeatureofthecompanyanditcreatesthecompetitor in themarket.A unique selling proposition makes your differences cleartoprospectsand compels them to give your brand strong consideration.Youenablethepurchasing choice of the prospect to become very arbitrary without a USP. In such casesbetter quality, elite service and brand reputation are the common characteristic on which acompany creates a USP. By analyzing the USP of the company, the revenue typicallyimprovesand exceeds expectations. Consumers tend to give more consideration to the product options before taking the loans.Hence this study was aimed at studying customer's perspective of loans and advances on syndicate bank and thus a sample of the 80 respondents was collected different regions in India like Bangalore, Chennai, Hyderabad and Delhi.

Keywords: Analyzing the unique selling proportions, customer's perspective, and long-term instalments

1. Introduction

Loans are one of the sources of the long term finance while the advances are granted by the banks to meet short term requirements that are to be repayable within one year. Interest is to be charged on the both as well as repayable either in a lump sum or installment or on demand. An advance is a credit facility provided to the big corporations to fulfill their daily needs like salary and wages, admin expenses, material expenses etc. Banks charge lower interest rates and it is cheaper and it is convenient for business purpose. In this research, I am going to study about the Analysis of USP in loans and advances offered by the syndicate bank. It helps us to identifying the unique selling proportion of the banks. The main important of studying USP is to know the unique features of the bank by comparing the other banks of their loans, advances and interest rates. Loans are provided for the people who are in critical circumstances which it may occur at any time. In anyone's life a situation may come when you required cash suddenly. It may occur any kind of emergency huge amount of money.

There are different types of loans like home loans, personal loans, student loan, business loan etc. Different lenders have different policies. If you get loan for long term with low rate of interest then it is beneficial for you.

1.1 Syndicate Bank- Unique Selling Proposition

- **Loan approval's within 15 minutes**

In a first ever platform by public sector banks, syndicate bank has worked on a software mechanism to enable loan approval within 15 minutes. This new innovation would cater to loans within limits of Rs. 5 cr for housing, retail and MSME segments can engaged using online platform.

This would provide an edge over other competitor's for loan approval. However, it has a limitation of not being able to cater to agri-business loans and corporate clients. (Money & Banking, 2019) The vertical would comprise of legal and credit experts who would help branch managers with the recovery of dues. The members of SAM have been given training on insolvency and bankruptcy code (IBC) and the functioning of the National Company Law Tribunal (NCLT).

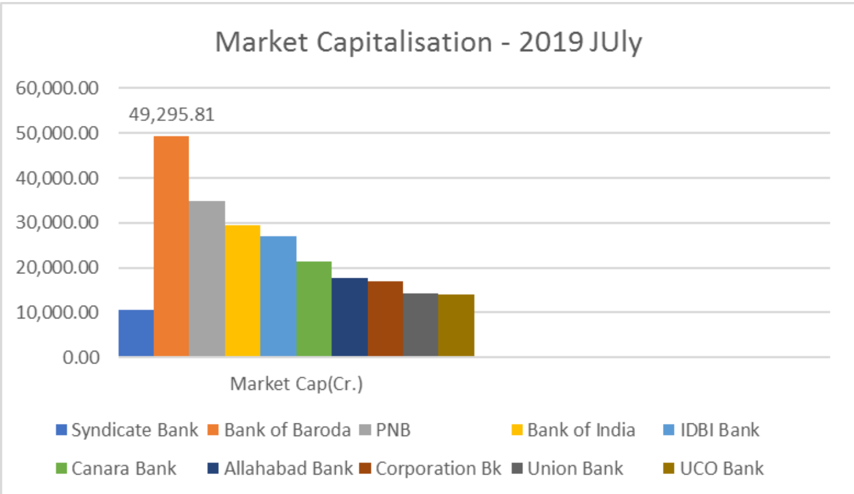


Figure 1: Market Capitalization of Syndicate Bank comparison with Competitors

Bank of Baroda has been holding a significant share of Market when compared to Syndicate Bank, which in year 2019 holds a small portion of Market share. Hence indicate a need to gear up and to become one among top-runners. Banks major business is lending and borrowing and through this process creation of Interest, which is a major component of its profits. For the year 2019, as per the above data, it may be noticed that Syndicate Bank is among the top ten public sector banks creating interest. Therefore, indicating a positive move towards acquisition of higher market share.

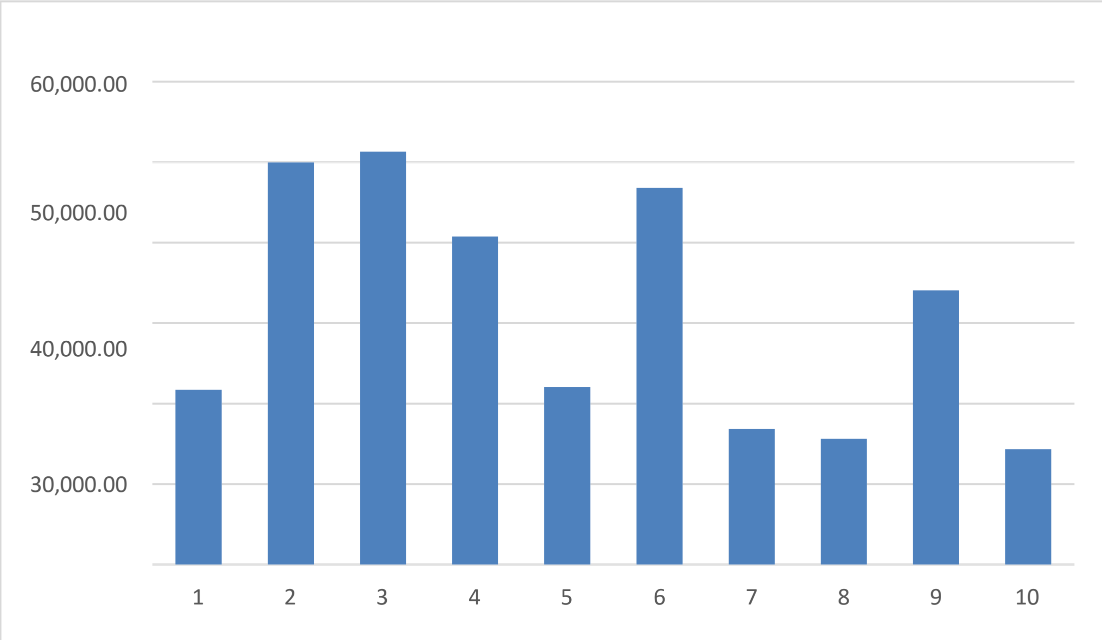


Figure 2: Net Interest Income

From Table 1 it is clear that syndicate bank is striving towards credit creation through various customized schemes under each sector. It has a variety of schemes especially about35 schemes for MSME sector, which is the most dynamic and fast-growing sector in the current scenario. Even in the Union Budget 2019 many provisions have been given to this sector and the therefore present customized schemes of syndicate bank may be highly useful in credit creation.

Allahabad Bank	**No.**	**Andhra Bank**	**No.**	**Syndicate Bank**	**No.**

Agriculture	3	Retail sector	14	Priority Sector Loans	3
Small Business	4	Agriculture	4	Agriculture Loan Products	19
Government Sponsored Schemes	4	MSME	3	MSME	35
Traders Loan	3	Corporate	5	Corporate Loans	6
Health care	3				
Total	**17**		**26**		**63**

Table 1. Analysis of Loans and Advances Schemes

2. Literature Review

According to the Rajiv Ranjan and Sarat Chandra Dhal*, In the banking literature, the problem of NPLs has been revisited in several theoretical and empirical studies. A synoptic review of the literature brings to the fore insights into the determinants of NPL across countries. A considered view is that banks' lending policy could have crucial influence on non-performing loans (Ranjan and Dhal,2003). Reddy (2004) critically examined various issues pertaining to terms of credit of Indian banks. In this context, it was viewed that 'the element of power has no bearing on the illegal activity. A default is not entirely an irrational decision. Rather a defaulter takes into account probabilistic assessment of various costs and benefits of his decision'. Mohan (2003) conceptualized 'lazy banking' while critically reflecting on banks' investment portfolio and lending policy. In a study of institutional finance structure and implications for industrial growth, Mohan (2004) emphasized on key lending terms of credit, such as maturity and interest-terms of loans to corporate sector. The Indian viewpoint alluding to the concepts of 'credit culture' owing to Reddy (2004) and 'lazy banking' owing to Mohan (2003) has an international perspective since several studies in the banking literature agree that banks' lending policy is a major driver of non-performing loans (McGoven, 1993, Christine 1995, Sergio, 1996, Bloem and Gorters, 2001).

3. Research Methodology

3.1 Objectives

Primary objective:

- To build the relationship with the customers and to follow up them, make sure that they are satisfied with the product.
- To know the Consumer perception towards Advance Product
- To find out the services that another bank given to their customer.
- To maintain good relationship with the corporate employees.

Secondary objective:

- Identifying the Unique selling proportion of the syndicate bank on loans and advances.
- Analyzing the respondent's data by using SPSS.

3.2 Research design

In this project, exploratory and descriptive research designs have been used to analyze the data. The descriptive quantitative research was followed as part of this study, we are able to analyze the customer's perspective view as part of outcomes of the study. In this research design data collected method has been used. In descriptive research design the observational and surveying methods are used in this research. It is used to describe the behavior of the sample population.

3.3 Research sample:

The sample was randomly selected and consisted of 80 respondents.

3.4 Area of study:

Hyderabad, Bangalore, Chennai and Delhi

3.5 Data collection and analysis:

A paper-based survey was conducted through questionnaire and the responses were entered into a SPSS data file to support data analysis. For the purpose of data analysis percentage analysis was used and visual aid like pie chart were used to display data using excel.

3.6 Data Analysis and Interpretation

The findings that were obtained after analyzing the data collected as part of the primary survey are as follows:

3.6.1 On which bank do you depend on regular transactions?

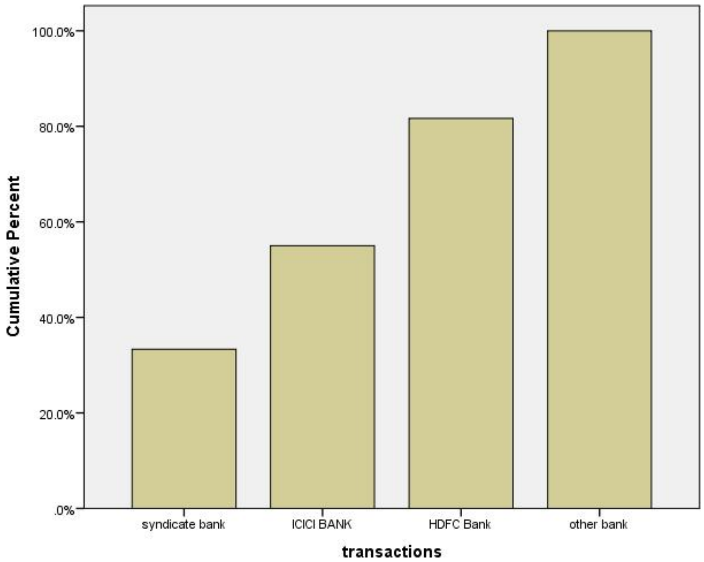


Figure 3: Regular transactions

As shown in fig 3, the respondents had chosen other banks and majority customers preferred HDFC bank for the regular transactions, only 38% were using syndicate bank.

3.6.2 Are you aware of the products and services provided by syndicate bank?

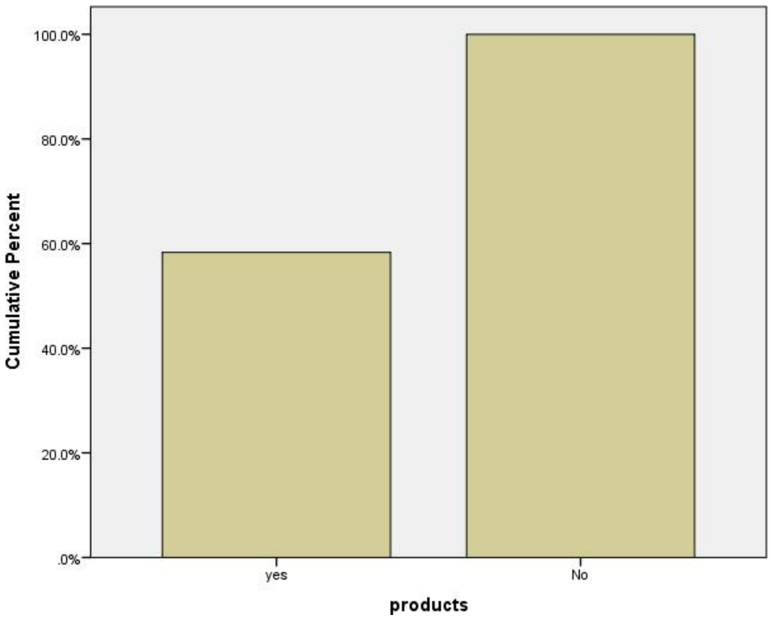


Figure 4 : Awareness of syndicate bank products

The 60% of the customers are aware of the products of the syndicate bank.

3.6.3 Are you aware of the advanced products (loan segment) of syndicate ank?

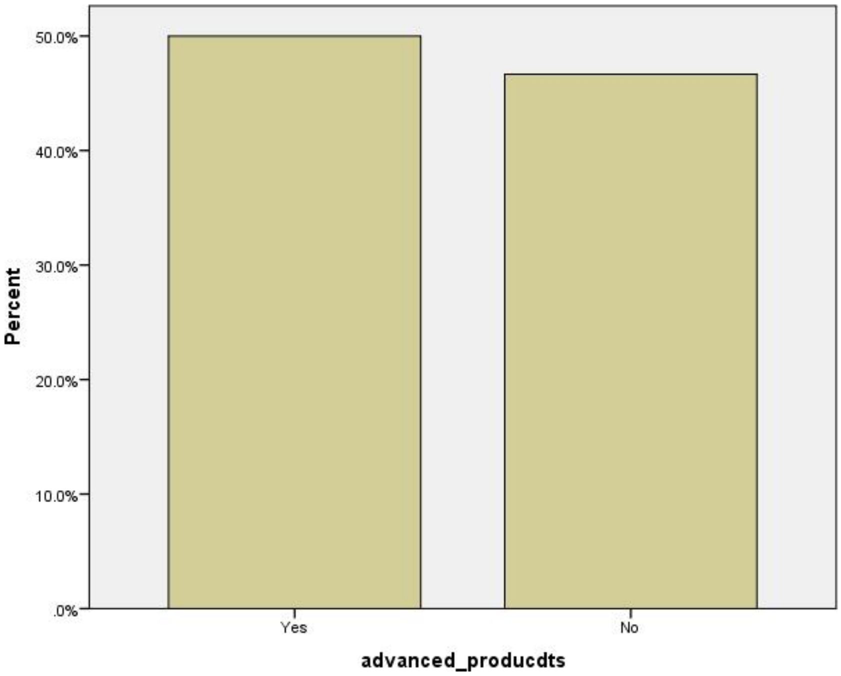


Figure 5. Advanced products

The advanced products were aware by 52% of the customers.

3.6.4 Which bank do you prefer for taking loans?

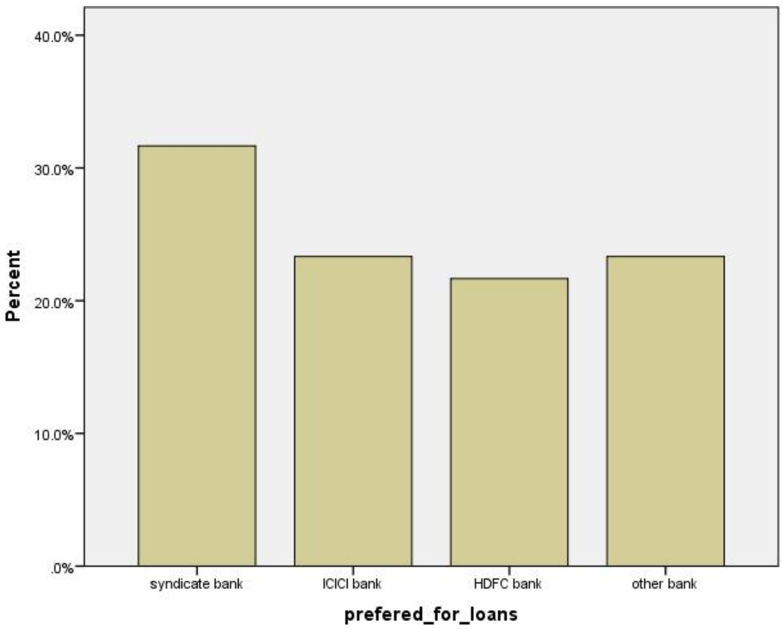


Figure 6. Preferred for loans

As per the customer preferred syndicate bank 33% and ICIC, HDFC and others were preferred for taking loans.

3.6.5 Which loan product of syndicate bank have you used?

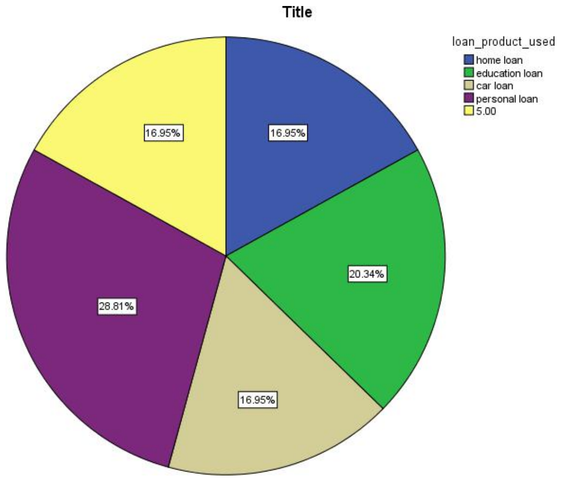


Figure 7. Usage of loan product

The majority of the customers preferred to take the personal loans. Car loan and other loans are preferred in the same percentage i.e., 16.95%.

3.6.6 What do you feel about the services providing by syndicate bank on advance products?

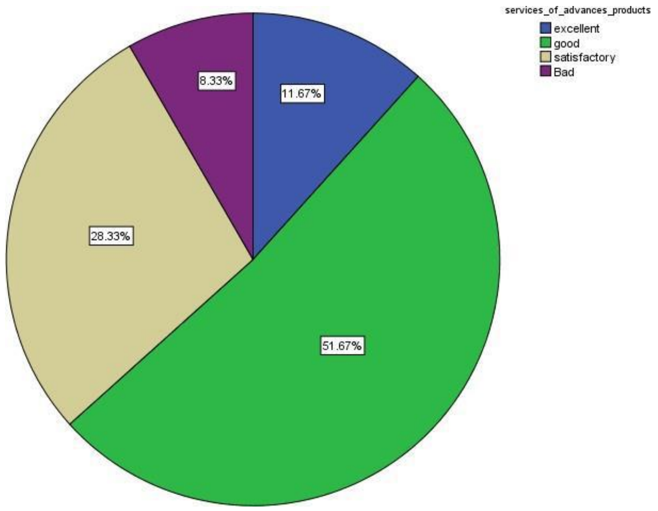


Figure 8. Feel about the services providing by syndicate bank on advance products

Majority customers are satisfied with the services provided by the syndicate bank.

3.6.7 Which features do you like most in loan segments of syndicate bank?

Most of the customers like simple and fast processing system in the loan segments in the syndicate bank.

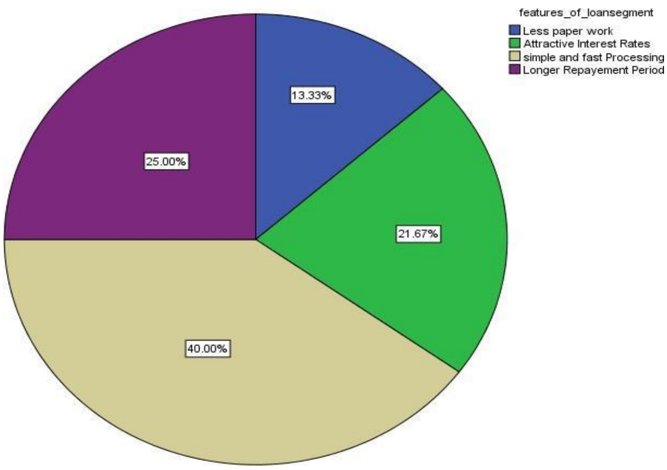
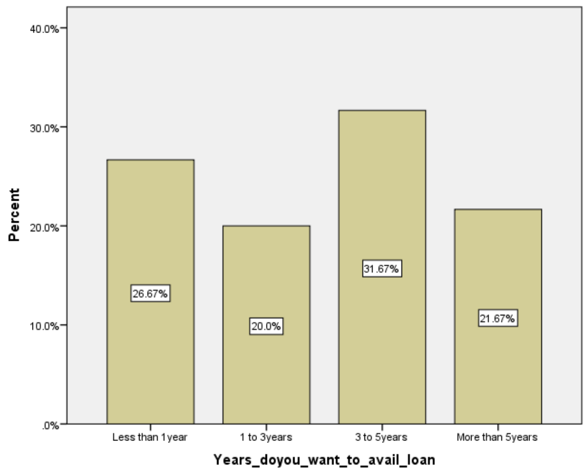


Figure 9. Features in loan segments

3.6.8 How many years do you want to avail loan?

The chart (Fig. 10) shows that the 31.67% of the customers prefers to pay the installments in 3 to 5



years and 20% preferred to pay in 1 to 3 years.

Figure 10. Number of years the people want to avail loans

3.6.9 How do you prefer to pay your Installments?

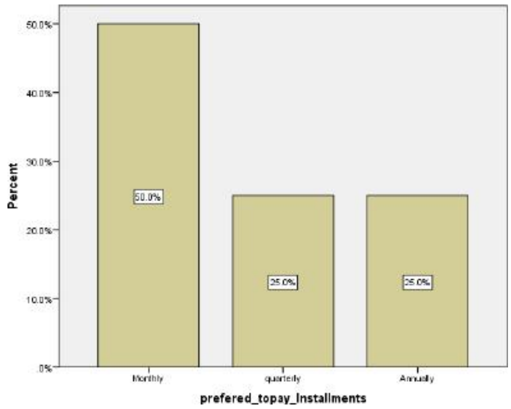


Figure 11. Preferred installment patterns

In this case 50% prefer to pay monthly installments whereas quarterly and annually are 25%.

3.6.10 Are you assessed of tax?

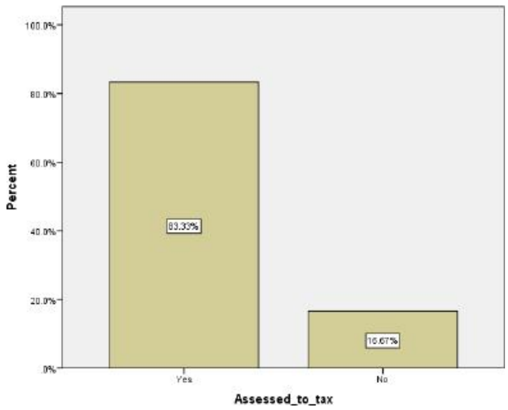


Figure 12. Percentage of customers assessed to tax

As it is a basic question majority of them are assessed to tax.

3.6.11 Are you aware of Tax Deduction on purchase on loan is done up to a certain limit?

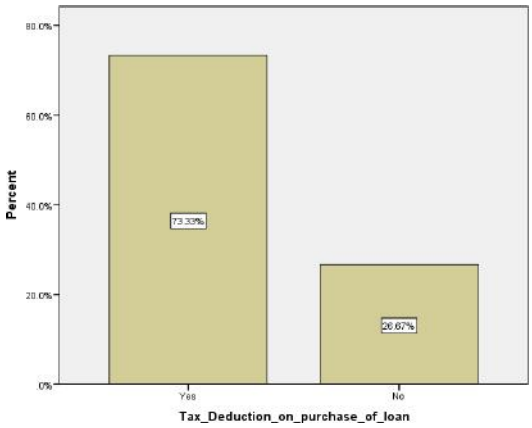
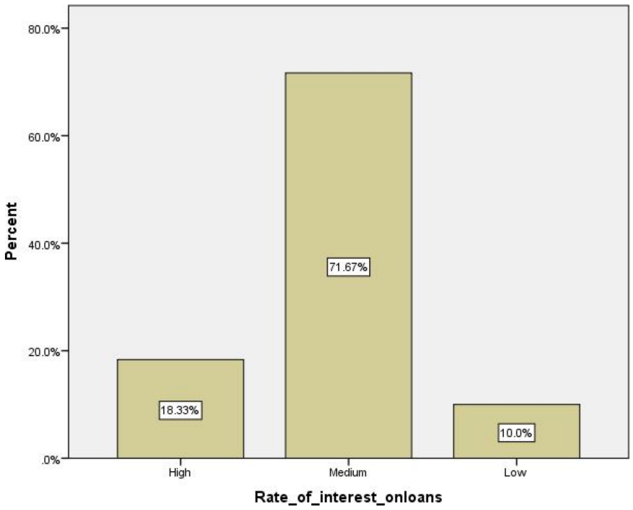


Figure 13. Awareness of Tax Deduction on purchase on loan is done up to a certain limit

In this 73.33% are the aware of tax deduction on the purchase of loan.

3.6.12 Is the Rate of Interest on loans is very low compared to other banks?

Figure14. Rate of Interest on loans



Compared to other banks 71.67% of customers gave feedback on rate of interest on loans are medium.

4. Findings & Limitations:

4.1 Findings:

- All of syndicate bank customers are satisfied with the services provided by thebank.
- Many of these customers satisfied with the low interest rate and longer repayment period of the advanceproduct.
- A response from customer care is so clear &good.
- Many customers have no time to call customer care so that they are not able to know about the service & features of syndicate bank advanceproduct.
- Most customers are shifted from other bank's advance product syndicate bank because of hidden charges, high interest rate, less repaymentperiod.
- Government employees are more concern than private employees for advance product.
- Identification of USP of loans and advances offered by syndicate bank.
- Data have been analyzed through SPSS.

4.2 Limitations of the study

- Loans of the large amount have certain terms and conditions that one has to follow such as provision of quarterly management information.

- Loans are somewhat less flexible, because we have to pay interest on funds which we have used.
- Cash flow problems can arise if your customers don't pay interest promptly and problems in making monthly repayment will arise.
- Loansareeithersecuredagainsttheassetsofthebusinessarepersonalbelongings, Example: our home
- Though interests are use in secured than unsecured but if he/she doesn't make the repayments, our assets can be at risk.
- If we want to pay the loan before its maturity there are some additional charges to be paid.
- Processing fee is charged by the banks in terms of percentage is so higher the loan amount, higher would be the fee.

5. Conclusion

These findings show that after analyzing the unique selling proportion of syndicate bank on loans and advance the Loan Approval's within 15minutes and variety of the schemes under loans and advances. It improves the credit rating of the bank. These findings show that customer preferences vary largely depending on what product they choose to buy or the age group that the belong to the target customer. In this the most of the customers are aware of the syndicate products. Compared to other banks rate of interest the syndicate bank has medium rates. 50% of the customers prefer to pay monthly installments and 37% are interested in long term borrowing loans. Services provided by syndicate bank are satisfactory by the customers. As per the survey the customers preferred personal loans compared to other types of loans. Hence the syndicate bank has been improved in sanctioning personal loans in the past 4 years.

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A STUDY TO ANALYSE THE IMPACT OF EXPERIENTIAL COMMERCE ON CONSUMERS

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Abstract

In today's evolving business scenario, growing market competition has increased the pressure among businesses. Traditionally, price was the main differentiating factor to acquire and retain customers. However, the rising competitive landscape and the emergence and growth of e-commerce platforms put various brick-and-motor stores at risk. Thus, businesses focused on reducing prices, which in turn affected their profit margins. This increased the need to come up with an alternative to the price reduction model, thus giving rise to the concept of experiential commerce, which focuses on relationships instead of price. Experiential commerce refers to improving the in-store experience of customers by offering additional services beyond the traditional ones. This is predominantly used in retail and hospitality industries. Hence, to remain competitive and differentiate themselves, businesses are focusing on providing an experience rather than just products. Further, technology is a key facilitator which is creating opportunities for the same. The main objective of this paper is to analyze the effect of experiential commerce on consumers as well as businesses. It also aims to provide an overview of the current scenario of experiential commerce in India. Further, it gives a brief on the role of technology in facilitating the use of experiential commerce.

Key words: Experiential commerce, consumer behavior, retail, hospitality, technology

1.Introduction

In today's business scenario, organizations operate in a highly competitive environment where the thirst for something new is unquenchable as customers are not satisfied with the bare minimum. Further, as the internet is taking over every aspect of our life, business is no exception to this emerging trend, thus giving rise to e-commerce. Since these platforms provide customers with a wide range of products at nominal prices at their doorsteps, the very purpose to visit a brick-and-mortar store is reduced to a great extent. Initially, retail and hospitality industries introduced offers, free services, return policies, free delivery, etc. to compete with the growing reign of e-commerce. Eventually, organizations initiated the process of changing their products in order to incorporate the opinion and desires of customers. Hence, as change is inevitable and constant, it requires businesses to be more creative rather than just provide customers with the bare minimum. This is where creativity plays a major role in improving the portfolio of an organization.

Currently, a new trend that is emerging to improve customer satisfaction and maintain customer retention is “Experiential Commerce”, which aims to engage with customers in a way that will build and maintain relationships and not merely conduct business. In other words, it provides customers with an experience rather than just providing them with a product. This includes additional amenities such as spas, cafes, theaters, art exhibitions, in-store kiosks, 3-D experiences, pop-up shops, digital payments, lawns, play areas, personalized service, and other tech-enabled solutions. For instance, a clothing store has additional facilities such as cafe, play area for kids and digital payments for hassle free transactions. Here, the main purpose of the store is to sell clothes, however, the additional facilities are provided to attract customers and also enhance the in-store experience of customers.

Various companies / brands that are using the concept of experiential commerce to engage with customers better include Nike, Starbucks, Apple, Samsung, Alexander McQueen, Adidas, Dinner in the Sky, Dinning in the dark and Rollercoaster Restaurant

Experiential retail: Experiential commerce in retail industry is known as experiential retail, which has gained significant traction over recent years. According to JLL Retail’s report "Six Dimensions of Retail Experience," the main parameters which customers expect to experience in store outlets are convenience, human interaction, accessibility, immersive and tailored experience of shopping. This has given rise to the concept of Retailtainment, which is a combination of retail and entertainment. Further, according to JLL report “Top 20 Best Retailers at Delivering Experience”, the top five retailers who topped the list are Apple, Victoria’s Secret, Ulta Beauty, Bath & Body Works and IKEA.

Samsung has experiential stores in New York, Manhattan and London. These are pop-up stores which allow customers to view products and learn how to use the advanced features and new technologies. It also has gaming sessions, lounge area, recording studio and concerts. Further, Ikea, the furniture retail company allowed 100 fans who won a challenge on Facebook to spend the night at their warehouse in Essex. The fans were given massages, salons and expert advice on how to select the perfect mattress.

Experiential dining: Experiential commerce in the hospitality industry mainly the food and beverage sector is commonly known as experiential dining. This concept is gaining popularity mainly because consumers no longer want just food, they are also looking for experiences such as unique locations, and theme based concepts and theatrics. Examples include Dinner in the sky, a Belgium-based company that offers food at tables suspended from a crane, and Dining in the dark, which provides customers with an experience where use of other sense organs are enhanced. These examples of experiential commerce from around the world indicate that this new concept is gaining significant popularity.

2.Literature Review

Alice Chen (2018): The paper focuses on finding a relationship between experiential retail and reuse of historic buildings, and benefits of experiential retail by reusing such buildings. The paper covers 5 case studies, where reuse of historical buildings has been executed. One such example is Domino Sugar Project, New York City - Industrial adaptive reuse. The findings ofthe study were that the interactions between people and place create unique emotional bonds, and improves customerexperience.

Jan Racky Alvarez Masa (2017): The paper aims to study the relationship between the external environments that stimulate the customer's sense of satisfaction. It also speaks on how situations and stimuli affect the behavior of consumers. Environmental or external stimulus can have a positive or negative impact on a consumer's behavior. A few factors that help elevate customer experience are ambience, temperature, lighting, service and personal interpretation.

3. Research Objectives

- To provide an overview of the current scenario of experiential commerce in India and also identify companies that are using this concept.
- To analyze the impact of experiential commerce on consumers and their response toit.
- To study in brief the role of technology in facilitating the use of experientialcommerce.

4. Research Methodology

The paper is based on both primary and secondary data. Primary data was collected through circulation of questionnaires and is used to analyze the impact of experiential commerce on consumers. Data was collected through convenience sampling, and the sample size for this purpose was 150. Further, secondary data is collected from various sources such as newsarticles, websites, reports etc. Additionally, the paper primarily focuses on retail (includes apparel, cosmetics, electronics etc.) and hospitality (include restaurants, hotels, cafe, pubs, etc.) industries.

5. Emergence of experiential commerce in India and reasons for companies adopting it

During recent years, the retail and hospitality sectors have emerged as the key industries contributing to the growth of the Indian economy. This trend is expected to continue owing to factors such as growing population, increase in purchasing power of consumers, changing lifestyle and government initiatives. Thus, to leverage the expected growth various players have entered the Indian retail and hospitality markets. Further, constantly changing preferences of consumers make it crucial for businesses to ensure that they stay relevant to customers mainly millennial generation who tend to mostly shop as well as order food online. Thus, the rising competition along with the increase in tech-savvy customers has increased the need for digital transformation and innovation in Indian brick-n-mortar stores. As a result, various Indian playersare focusing on transforming their businesses by providing customers with an experience that will be memorable, boost customer engagement and gain loyalty. This helps businesses to differentiate themselves and build a lasting relationship with their customers. Further, this has also led to the advent of a new idea of “retail restaurants” which provide customers a place to shop as well as eat. Some of the companies / brands in the retail industry that are currently using experiential retail include Fabindia, Nicobar, Lifestyle, Decathlon, Baggit etc.

Fabindia, a popular ethnic retailer, launched the ‘Fabindia Experience Center’ in Delhi, Mumbai, Bengaluru, Chennai and Hyderabad. The Center includes a FabCafé, an Interior Design Studio, Organic Wellness Center and an Alteration Studio, in addition to its usual product offering. In other words, it offers apparel, food, kids play area, wellness, etc., all under one roof, with a view to build a lasting relationship with its customers. Some of the hospitality businesses that are currently exploring experiential dining include Plum cafe, Beer cafe, Writers cafe, Hanging restaurant etc.

Plum cafe in Mumbai, offers food along with beautiful ambiance and creative decor products, designed by Bent Chair. It allows customers to buy anything that they like in the restaurant i.e. from the spoon they are eating in to the paintings on the wall. The inspiration for this concept was to cater to the needs of millennial population who are looking for the best experience, ambiance, and decor mainly for their social media posts.

6. Impact on consumers

As mentioned earlier, primary data was collected to analyze the impact of experiential commerce on customers, to understand customer preferences and study their response to such places. The sample size was 150.

a) Sample demographics

75% of the respondents were female and 25% were males. Further, majority of the respondents i.e. around 62% were between the age group of 21-35, and 24% were below 20 years of age

b) Frequency of visiting stores

Around 38% of the respondents shop for clothes, electronics etc. once in 3 months and 37% shop monthly. Further, around 47% of the respondents visits café, restaurants, hotel or bars monthly. This indicates that customers visit food and beverage stores more often.

c) Do you decide on the place based on experiences such as DJ, karaoke, availability of books, art classes, live music, stand-up comedy, virtual reality etc.?

55% of the respondents say that their decision to visit places is sometimes based on experiences, whereas 23% say that their decision is always based on experiences.

d) Do the places you visit frequently have the following?

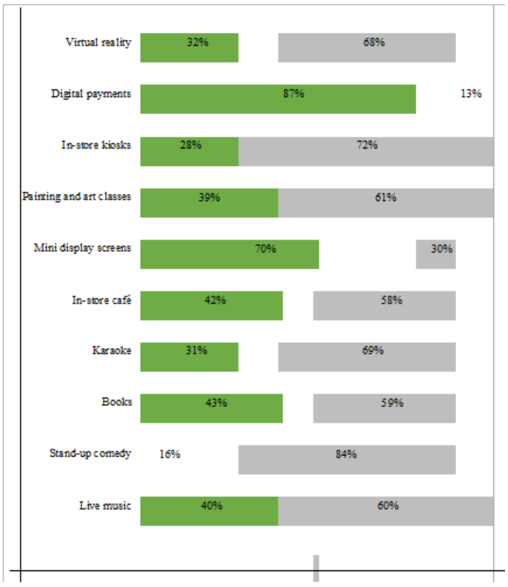

Figure 1. Relationship between place of visit and facilities available

Majority of the respondents agree that the places they visit often have digital payments, mini display screens, in-store café and live-music.

e) Do you wish / plan to visit places which have live music, stand-up comedy, karaoke, mini display screens, books etc.?

52% of the respondents plan to visit experiential places in the near future, thus indicating that customers are curious / keen to explore new experiential places.

f) Which social media tool influences you the most to visit new experiential places?

Majority of the respondents i.e. 63% say that Instagram influences them to visit new experiential places. The next most influential social media platform is YouTube which is 11%

g) Please rate the following amenities in stores / restaurants based on your preference.

The most favorite amenities that customers prefer are digital payments, in-store café, mini display screens and live music

h) How often do you prioritize experience over price?

Majority of the respondents i.e. 70 % prioritize experience over price occasionally, whereas 25% prefer experience always. This indicates the gradually shift of customer preference towards experiences.

7. Technology a facilitator

Technology is disrupting every industry and thus retail and hospitality industries are no exemptions. As discussed earlier, changing customer preferences, increase in tech-savvy consumers and increasing competition from e-commerce platforms, has increased the need for transformation in traditional retail and hospitality industries. Thus to stay relevant and competitive in the market, various brick-and-mortar stores are turning to technology. Emerging technologies such as artificial intelligence, facial recognition, virtual reality, robotics and augmented reality are facilitating the transformation of both retail and hospitality industries. These innovative technologies help in improving productivity and efficiency, along with providing a convenient and hassle-free in-store experience for customers. Hence, retailers are gradually adopting the use of these technologies to create such experience in their respective stores. Thus, technology is a key factor that is facilitating companies in providing an experience rather than a mere product.

An example of how companies are leveraging on technology to enhance experience is Myntra's offline stores for its in-house brand 'Roadster'. The customers can navigate the store without any staff assistance and self-checkout within 30 seconds. They just have to place the products in an RFID (Radio-frequency identification) enabled tray, which automatically captures information and provides the bill. Through this, the company aims to eliminate the problem of waiting in queues, which is the main reason people opt to shop online.

Another example is the Robot restaurant which was inaugurated in early 2019, in Bangalore. The stand out characteristic of this restaurant is that food is served by robots and not human staff. As customers enter, the robots welcome and escort them to their tables. In every table, there is a tablet via which customers can scan the menu and place their order after this the robots deliver the food.

Other companies that are using technology to enhance experience are Amazon, Rebecca Minkoff, Sephora, Ikea, Marriott, Carrefour, etc.

8. Finding and Analysis

From the above findings, it is clear that customers expect a multidimensional retail or dining space with added features that will make their stay more comfortable, convenient and entertaining. Dining and shopping has become more of an experience than a necessity. As our dominant respondents were young adults i.e. individuals between the age group of 18- 35, it is safe to say that the current generation is looking for convenience like digital payment platforms, and entertainment amenities such as digital screens, art exhibitions and live music. It is also noticed that they look forward to experience new technologies such as virtual reality. Further, with the internet having the upper hand in this era, it is clear that people get influenced by social media platforms like Instagram and YouTube to visit new experiential places. Further, youngsters who are more tech-savvy and social media enthusiasts, are exploring more experiential places mainly for social acceptance and for their social media updates i.e. Facebook and Instagram post and statuses. Further, individuals above the age of 40 seem to prefer digital payments and books rather than entertainment options.

9. Conclusion

In India, the concept of experiential commerce is relatively new but is gradually gaining popularity. This is clearly evident through the examples of Myntra, Plum café, FabIndia, etc. Further, various companies are increasingly adopting various innovative technologies with a view to improve productivity and efficiency, provide a convenient and hassle-free in-store experience for customers and attract younger population Thus, with the help of technology businesses are in the progress of transforming their stores to make them digitally empowered, interactive and entertaining.

Through this research, it is clear that customers prefer places that offer new and unique experiences. Thus, for businesses to survive and ensure that they meet customer needs / demands, it is essential for them to upgrade their facilities according to customer preference. Along with increasing the footfall of the stores, it also helps them to fight competition from e- commerce platforms, gain customer trust and loyalty.

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STUDY ON CONSUMER AWARANESS ON SOCIAL MEDIA MARKETING

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Abstract

Social Media Marketing has become the most powerful mode of marketing for companies seeking to reach out to their prospects and customers. Firms are increasingly relying on it, In order to achieve their marketing objectives. Social media has provided new opportunities to firms to engage consumers in social interaction on the internet. This study examines the impact of Social Media platforms in relation to the consumer decision-making and buying behavior patterns. Social Media platforms is increasingly and effectively bringing brand awareness and on realize repeat purchases that bring about customer loyalty. This study is to analyse the impact of social media marketing on the consumer behaviour.

Keywords: Social Media Marketing, Consumer Behaviour

1. Introduction

The inception of Social Media Marketing (SMM) is one of the mighty development in the history of commerce. This particular technical revolution has drastically revolutionized the traditional marketing approaches and brought marketers to a new era. Consumer behaviour is an important aspect of marketing as it assists marketers to devise strong and robust marketing strategies and techniques. Today, organisations are employing social media techniques in order to change consumer behaviour and to win their loyalty. The number of social media users growth has attracted marketers. Marketers have recognized that social media marketing as an important part of their marketing communication strategies. Also, social media helps organizations to communicate with their customers. Social media have changed how consumers and marketers communicate. It enables businesses to reach a worldwide customer population. Communication through social media leads to a new form of consumer socialization, and has an impact on consumer decision making. Social media, especially social networking sites, provide a virtual space for people to communicate. These interactions help marketers determine the customer needs. Consumers tend to make purchases based on the recommendations by friends or connections on social media. Those recommendations could help brand attitudes, purchasing attitudes, and advertising attitudes. Key business factors of social media allow consumers to estimate products, make recommendations to contacts or friends, and share any of the purchases through their social media.

The objectives of the present study are as follows:

- To study the consumer awareness on Social Media Marketing.
- To study the impact of Social Media Marketing on Consumer Behaviour.

2. Hypothesis

H0: There is a positive impact of Social Media Marketing on Consumer Behaviour.

H1: There is a negative impact of Social Media Marketing on Consumer Behaviour.

3. Methodology of Study

Both primary data and secondary data has been used for the research paper.

- **Primary data**

This includes questionnaire survey of people from the study area.

- **Secondary data**

This includes various published articles from journals, books and internet websites.

4. Sample Design

The present study has been conducted in electronic city . Due to limitation of the time and cost, the questionnaire was collected through convenient sampling method. A total of 50 cases were considered for the analysis.

5. Analysis and Interpretation

The analysis of the data has been done based on the primary data. The results and interpretation is as follows:

5.1 Gender and age

From the chart (Fig 1a) we can identify that there were totally 58% of female respondents and 42% of male respondents. It is clear that from the chart (fig 1b) that 66%of the respondents fall between the age of 18-25 and 28%of the respondents fall in between 25-45 and 6%ofthe respondents falls in the category of the age group 45and above which is declined compared to the age of 18-25.

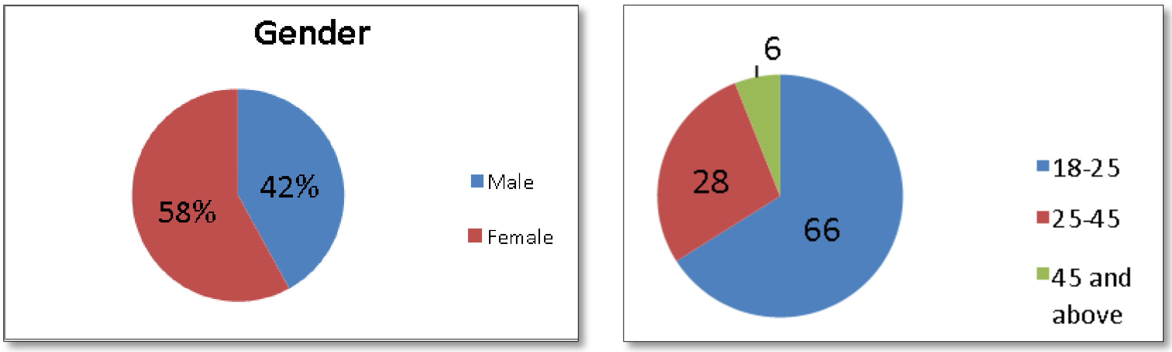


Figure 1. a) Gender of the respondents b) Age of the respondents

5.2 Awareness about Social Media marketing among consumers

90% of the respondents are aware of Social Media Marketing where as just 10% of the respondents are not aware of Social Media Marketing (fig 2).

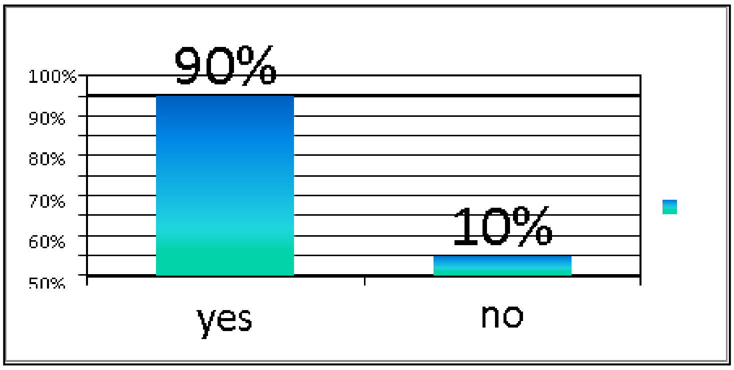


Figure 2. Awareness of respondents on social media marketing

5.3 Social Media services used by the respondents in the past 30 days

From the above chart we can clearly say that the majority of the respondents are using Youtube - 28%, followed by Facebook - 20%, Instagram - 17%, Google - 14%, Twitter 6%, Linkedin 5% and others 10%. So the linkedin users are less compared to all other social media users.

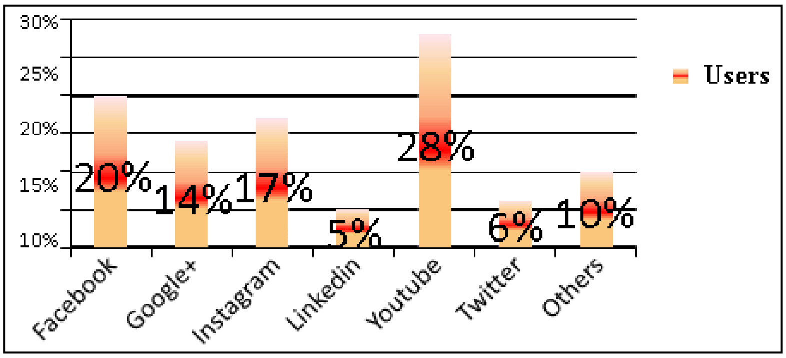


Figure 3. Usage of social media services by the respondents in 30 days

5.4 Average time spent on Social Media per week

The chart (fig 4) shows that majority i.e.36% of the respondents spend **more than 10 hours** per week in Social Media and 14% of the respondents are spending **less than 3 hours** per week in Social Media.

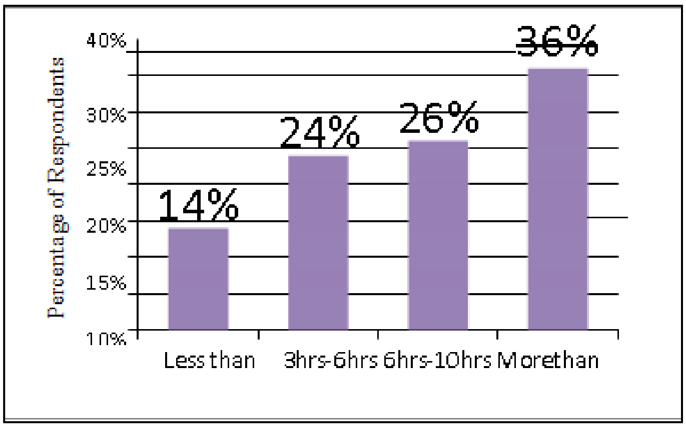


Figure 4. Average time spent by the respondents on Social Media per week

5.5 Top reasons that influences shop Online

The graph (fig.5) tells us that majority(25%) of the respondents feels to go for online shopping as it saves time, secondly price(20%) will also influence them inconducting online shopping. Wide range of selection(19%), fast delivery(13%), free returns(13%) and product comparison(10%) also influences consumers.

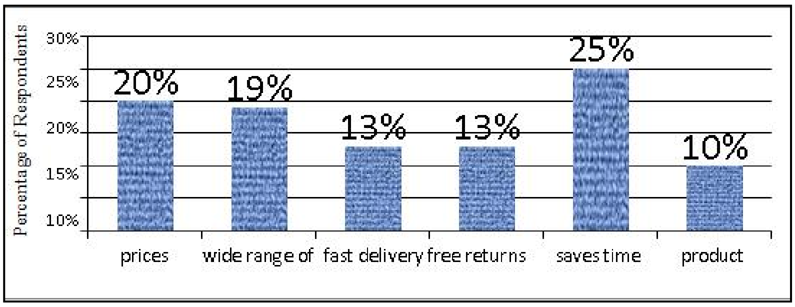


Figure 5. Factors influencing online shopping

5.5 Whether advertisement in social media changes consumer perception about a firm's product or not?

The graph (Fig. 6) says that only 8% of the respondents are of opinion that Ads in SMM changes consumer perception about a firm's product and 22% of the respondents believes that Ads in SMM does not affect their perception. 70% of the respondents are of opinion that it may or may not affect their perception about a firm's product.

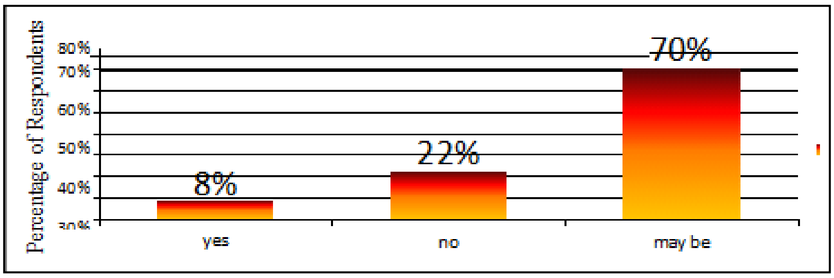


Figure 6. Effect of social media on consumer perception

5.6 Whether consumers buy products after watching its Ad in Social Medias or not?

The graph (Fig. 7) shows that 44% of the respondents does not buy products after watching its Ad in Social Medias whereas 30% of the respondents do buy products after watching its Ad in Social Medias and 26% of the respondents were neutral.

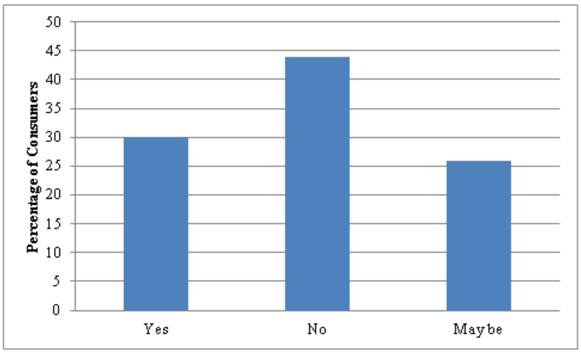
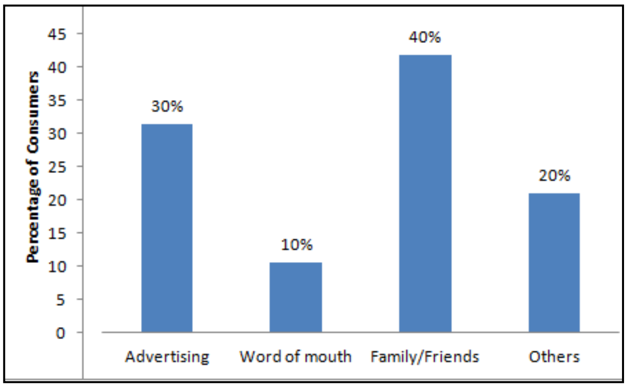


Figure 7. Influence of advertisements on social media on choice of products

5.7 What influences a consumer to buy a product?

It is clear that family/friends (40%) influences a consumer at a higher rate to buy a product followed by advertisement (30%),word of mouth(10%) and others(20%) (Fig. 8).



. Figure 8. Factors influencing a consumer to buy a product

5.8 Suggestions made by the respondents to others to shop a product based on online advertising

The information in the chart (Fig. 9) shows that 64% of the respondents suggest others to shop a product based on online advertising whereas 36% of the respondents are not.

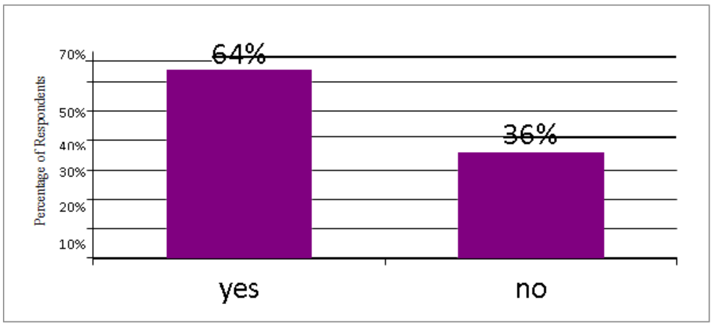


Figure 9. Suggestions of respondents to others on shopping and online advertisement

6. Findings

- Majority of the respondents are aware of Social Media Marketing.
- People are more engaged in Social Media platforms.
- More than half of the respondents would like to suggest others to shop a product based on Ads in Social Medias.

- Highest percentage of respondents are getting attracted towards Social Media Ads than other forms of Advertisements.
- Many of the respondents purchases products/services by getting influenced by the Ads in Social Medias but still there are good Number of people who are not getting influenced by the Ads in Social Medias.
- Highest rate of respondents are strongly agreeing that Social Media is a means of giving consumer a voice.
- Maximum number of respondents are of opinion that communication in Social Media can make a product more reliable, credible, attractive, desirable and memorable.
- Communication on social media creates a positive image for a company**.** Social Media Marketing brings awareness among consumers.
- Comments and posts by other social media users about a firm's product isvery useful to the consumers.
- Respondents are of opinion that Advertisement in Social Media is necessary.
- Reviews about a product has an impact on the consumer buying decision.
- More than half of the respondents are commenting/posting/liking firm's product in Social Medias.
- Branded Ads, Price revealing Ads and offers oriented Ads are grabbing consumer attention to a greater extent.

7. Suggestions

- The firms have to ensure that they encourage the customers to join the conversation about their products on Social Media. Try hosting a contest wherecustomersenterbypostingaphotoofhowthey'reusingyourproduct.
- Post content that the followers will find valuable and post it often. Connect with customers and gain valuable insight from them.
- Spark discussions among the followers by asking questions and encourage them to comment and share the posts.
- Run contests on Social Media in a smart way. Promote it on the firm's blog and in an advertising campaign.

Conclusion

The development and quick growth of online social networks enables customers to do several kinds of activities that include blogging, chatting and interaction, gaming and entertainment, as well as messaging. Networking through social media lets consumers express their opinions, thoughts, and perceptions, and share their knowledge and experiences with other users. This feature aids marketers in appealing to potential customers at low price and electronically. The ability to address inquiries, rectify comments, and revise online marketing approaches competently is one of the advantages of advertising using social media networking. Brand awareness and brand image can be endorsed using the Internet if marketers make use of the opportunity. To reach the audience, social media offers brands an expression, a comprehensive audience, and openness to influence the audience; these aspects contribute to form the gains of advertising by social media networking.

Customers realize that they have influence and authority over social media, and, as a result, it is important that effective, efficient, and interactive marketing strategies are in place that allow customers to give feedback to the retailers. Social media is a social tool that allows people to communicate and interact with one another. Social media is not just related to reading and analyzing information from a customer; it also allows the customer to share and spread information as well as to make content that can help others to participate. Social media has been growing in popularity and usage in recent years. This shows that since social media helps connect people and improve interactions among people around the world, people appreciate Social Media platforms which can be helpful and effective for them. Social media is a great platform for brands to reach their customers. There is a greater impact of Social Media Marketing on consumer Behavior.

Limitations of the Study

- Time Constraint and matter of monetary constraint : There was time constraint and matter of money constraint, so the sample size is short.
- The questionnaire might have excluded some factors therefore the analysis and interpretations might be exhaustive.
- The samples are selected at random basis.

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A STUDY ON THE IMPACT OF DIGITAL MARKETING ON CUSTOMER PURCHASING BEHAVIOUR WITH SPECIAL REFERENCE TO PHARMACEUTICAL INDUSTRY

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Abstract

In today's world of technological advancement, people are well aware and keep themselves updated of things around them. Digitalisation renders every fast with accuracy, checking all parameters that effect decision making and so on. Pharma industry has been slow in realizing the importance of advancement in digital marketing. The study examines various digital strategies that can affect the consumer purchasing behaviour in the pharma industry. The main objective of this study is to find out the impact of digital marketing on customer purchasing behaviour with particular reference to Pharma industry. The research also aims to propose digital marketing strategies for creating positive impact on customer and also evaluate the awareness of digital marketing among customers. The study also helps the e- marketers of Pharma industry to understand the impact of digital marketing and also technology helps to increase the volume of sales and meet customer expectations as well. Both primary and secondary data are collected for the purpose of study. Hence, digital marketing gives a platform to share and view the contents of products and services and also share information with regards of features of different kinds of products and services.

Keywords: Digital Marketing, Pharma Marketing, Customer Purchasing Behaviour

1. Introduction

As the technology era has begun, digital marketing has created a big force in changing course of the business from industries to organization to get better results for the future. With current changing business environment, the competition in the industry is tremendously increasing which has let the pharmaceutical industries to look ahead and become active digitally and also become strong to beat it's competitors from the market place. A research study shows that on an average 64% of doctors have smart phones and where these doctors try to find out their daily products/medicines for day-to-day running of the business or purchasing online. Therefore, digital marketing is occupying a considerable role in shifting the outlook of buying behaviour.

The Indian consumer today is becoming aware of the current scenario and checking the health options online. The internet has been a big boost for Indian consumers. The pharmaceutical industry is the top most science and research-based industry that deals with drugs and related techniques. It manufactures almost all types of drugs ranging from simple ones to common diseases that are complex in nature. The pharmaceutical industry in India ranks 3rdin Global level with respect to sales volume where the sales in Indian pharmaceuticals increased by 17.6% of CAGR (Compound Annual Growth Rate) in the year 2016. Some of the major Indian Pharma companies are Dr. Reddy’s, Sun Pharma, Ranbaxy etc. These companies have subsidiaries in other countries like US, UK, Germany, Brazil,Australia etc. Mobile application considered less expensive for pharmaceutical companies to encourage the customer engagement with the purpose of providing personal and relevant information, including helping patients to find solution to their problems.

2. Review of Literature

Parabal&Alok, Feb 2019) A study on “online pharmacy in India – a study on digital marketing perspective’’. The objective of the study was to analyse present scenario of offline and online pharmacies. To find out Gov. role in this perspective. The result of the study e- pharmacy is at its initial stage in India but it has the great potential in the near future.

(Ravinder&Priyanka, Feb 2018) A study on “awareness and behavioural outlook towards online pharmacy service among consumer in Delhi. “The objective of the study was to assess consumer’s awareness and behaviour towards the use of online pharmacy service. The result of the study consumers needs to be educed about the risk and benefit associated with buying medicine on the internet.

Andras& Robert, Aug 2018) A study on “consumers turning to the internet pharmacy market. “The objective of the study was to gather information on the frequency and attitudes of patients purchasing medications online, to attitude towards main supply chain channel perceived benefit and disadvantage findings many patients will purchase medications on internet on future.

Nalini&Amudhar, Jan 2016) A study on “online pharma retail is a promising /un promising avenue: An Indian context. ’The objective of the study was to study the basic issue and challenges related to online pharma retail in Indian context. The research showed that, of the study growth of the online pharmacy business depends on how much they will manage to fit themselves in to the legal framework.

2.1 Research Gap

The above literature reviews show that many of the studies focused on customers awareness of online pharmacy and also focused on perspective of uses on pharmacy. But our study concentrates on the impact of digital marketing on customer purchasing behaviour with special reference to pharmaceutical industry.

3. Statement of the Problem

Since the present-day people are exposing themselves more towards the social or digital media like mobile or online internet browsing, pharmaceutical industries is looking forward to digitally sound marketing technique by developing apps for mobile phones or selling medicines through online sites so that they can be active and meet demands easily. As, digital marketing is currently in high demand in Pharma industry, the study was chosen to investigate the digital marketing strategies adopted by Pharma companies and their impact on customer behaviour. This holds the problem statement or significance of the study.

4. Scope of the Study

The research study is typically used to find out the impact of digital marketing including all strategies on the purchasing beahviour of the customer in the Pharma industry. The study has also found the importance of digital media or mobile apps to reach customers and help them in finding out the right medicines or consult a doctor through online. The study has helped the e-marketers of Pharma industry to understand the impact of digital marketing and how they could use this technology to increase the volume of sales and meet customers expectations as well.

5. Objectives of the Study

- To evaluate the impact of digital marketing on customer purchasing behaviourin Pharma industry.
- To evaluate the awareness of digital marketing among the customers.

6. Research Methodology

6.1 Sample design: The study covers the awareness and impact of customer purchasing with reference to Pharma Industry. The number of samples surveyed in the study is 50. Samples of the respondents were collected through questionnaire. The facts and figures for the research study have been collected for the year 2019- 2020.

6.2 Source of Data: The study is based on both primary and secondary data. The primary data were collected from respondents through questionnaire. Thesecondary data were collected mainly from books and websites.

6.3 Tool of Analysis:

- Simple Percentage Analysis

The Percentage method is used in order to compare the data.

- Diagrammatic Presentation

The data collected is represented in the form of tables and graphs in order to give effective comparison mode.

7. Data Analysis and Interpretation

7.1 Gender and age group

Gender	**Frequency**	**Percentage**
Male	16	32
Female	34	68
Total	**50**	**100**

Table 1. Genderwise classification (SOURCE: Primary Data)

As per the primary data (Table 1) most of the respondents are female because women are cautious about their personal and health issues. Also, 64 % of the respondents are below the age of 25, 24 % of the respondents are between 25 to 35, 10% of respondents are between 35 to 50 and 2 % of the respondent is above 50 (Fig. 1). Here we can say that youngsters are more aware about the apps.

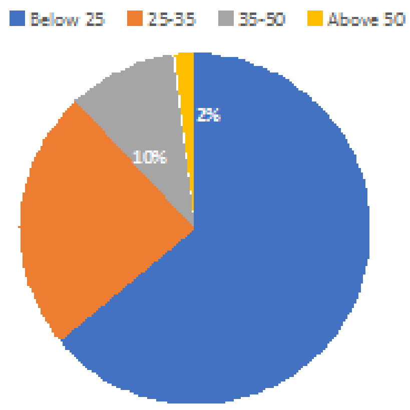

Figure 1. Age wise classification of the respondents (SOURCE: Primary Data)

7.2 Awareness about mobile app used in pharmaceutical industry

It is inferred that 20% of the respondents are aware and used the mobile apps offered by pharmaceutical industry, 64% of the respondents are aware but not used the mobile app and 16% of the respondents are not aware of the mobile apps offered by pharmaceutical companies (Fig. 2).

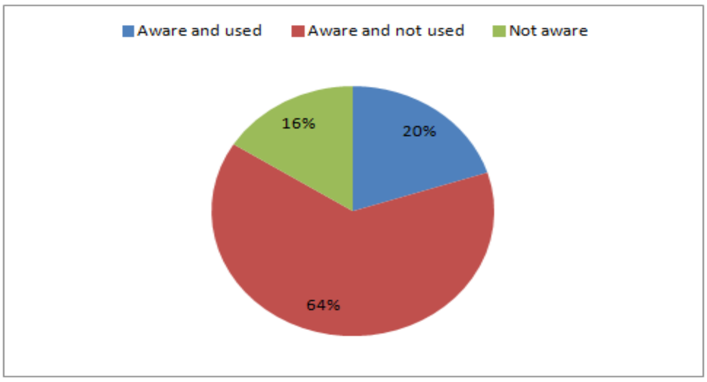

Figure 2. Awareness about mobile app used in pharmaceutical industry (Source: Primary data)

7.3 Source of knowledge about mobile apps in pharmaceuticals

From table 2 it can be inferred that 6% of respondents know the mobile apps through family, 36% of respondents know the mobile apps through friends/colleagues, 50% of respondents know the mobile apps through advertisement and remaining 8% of respondents know the mobile apps through other sources.

Knowing about mobile apps	**Frequency**	**Percentage**
Family	3	6
Friends/collegeaous	18	36
Advertisement	25	50
Others	4	8
Total	**50**	**100**

Table 2. Source of knowledge about mobile apps in pharmaceuticals (SOURCE: Primary Data

7.4 Factors influencing the usage of mobile apps in pharmaceuticals

(Table 3) shows the survey resuts for the factors influencing the usage of mobile apps in pharmaceuticals

What makes you visit purchasing medicine online	**Frequency**	**Percentage**
Cash bank & discount	11	22
Privacy/ Security	5	10
Convienance	19	38
Others	15	30
Total	**50**	**100**

Table 3**.** Factors influencing the usage of mobile apps inpharmaceuticals (SOURCE: Primary Data)

It can be inferred from the primary data (Table 3) that 22% of respondents visit the app because of cash bank &discount, 10% of respondents visit the app because of privacy/security, 38% of respondents visit the app because of convenience and remaining respondents visit the app because of other purposes.

7.5 Satisfaction of purchasing medicines online

It is inferred that 52% of respondents are satisfied to purchase medicines online and remaining 48% of respondents are not satisfied in purchasing medicines online. Here it can be said that purchasing medicines online can be helpful only in case of emergency as per the view that was given by the respondents and not for all situations.

Are customers satisfied purchasing medicines online	**Frequency**	**Percentage**
Yes	26	52
No	24	48
Total	**50**	**100**

Table 4. Satisfaction of purchasing medicines online (SOURCE: Primary data)

7.6 Consultation of doctor online

It is inferred that 40% of respondents are satisfied consulting a doctor through online and remaining 60% of respondents are not satisfied in consulting a doctor through online, that is because most of the respondents prefer meet doctor directly rather than online (Table 5, Fig. 3)

Are customers satisfied consulting doctor online	**Frequency**	**Percentage**
Yes	20	40
No	30	60
Total	**50**	**100**

Table 5. Consultation of doctor online (SOURCE: Primary Data)

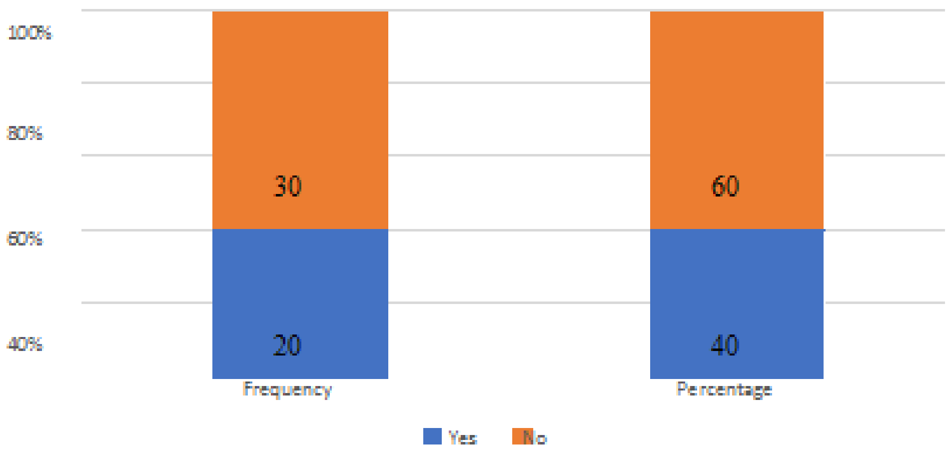

Figure 3. Consultation of doctor online (SOURCE: Primary Data)

8. Findings from the Study

The study indicated that most of the respondents are female as mentioned earlier that women are very cautious regarding their health and personal issues. Majority of the respondents are below the age of 25. Most of the respondents are aware of the of the mobile apps offered by pharmaceutical industries but not used. Majority of the respondents are having the knowledge of the mobile apps or came to know through advertisements. Most of the respondents frequently visit the mobile apps offered by pharmaceuticals due to their convenience. The main challenge or problem faced by the users of mobile apps offered by pharmaceuticals is technological issues. Most of the respondents are not benefitted from the mobile apps offered by pharmaceutical industries because they are not satisfied with medicine online or they have some privacy or personal issues. Majority are not satisfied are not satisfied of purchasing medicine online because they may not know if the medicine given by these apps is correct or they may not know if that drug contains any unknown chemicals in it.Finally,most of the respondents are not satisfied in consulting doctor online because they may not be aware if they are the actual qualified doctors or fake and moreover customers would prefer to meet doctor in personal until they are the family doctors.

9. Suggesstions

➢ Since majority of the respondents are only aware and not used the medical apps, we can suggest that pharmaceutical companies can promote the apps and make sure that customers are aware of pros and cons of using the app.

➢ More publicity and gift hampers should be given for the mobile apps for attracting more customers and most of the mobile apps users are graduate students so proper training program must be conducted in order to educate people about how to use the apps and the benefits using the app.

➢ More opinion should be collected from customers for improving its effectiveness.

➢ The apps offered by pharmaceuticals can establish a separate wing with trained staff to address the issues and problems related to the app service.

10. Conclusion

In this modern world, the importance of smart phones and internet are increasing day by day. Pharmaceutical companies are also moving further into the mobile world through the use of apps. Further the Pharmaceutical companies should come forward with more innovative ideas and strategies that can make the patient and doctor interaction fruitful and effective suggesting better ways for advancement in the healthcare sector. Further, the pharma companies should make sure that customers understand the pros and cons of the apps and the benefits that they can get using the apps. They must also ensure that certain discounts has to be given not only for the youngsters but also for the senior citizens. For the customers who are not aware of the mobile apps offered by pharma companies, it is the responsibility of the company to conduct certain programs to educate people about the awareness of the app. As most of the customers are facing some challenges in terms of privacy/security issues, accessibility or any other technological issues etc, it is the responsibility of the Pharmaceutical companies to see better ways to provide security against hackers so that no fraudulent activities take place. It can even grow better after solving these problems.

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DIGITAL MARKETING OF FOOD AND BEVERAGES ON YOUNG ADULTS

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Abstract

Social media marketing seeks to develop and mix marketing concepts with other approaches to influence the behavior that benefits individuals and communities for the greater social. An organization which adopts social media marketing to establish a reputation and sustain as a leader in the area has to be the source of current and relevant news in the respective field. The organization has to make the employees more accessible so as to create a healthier relationship with existing clients and thereby extend the current brand as on serving its prospective customers. With various tactics that draw companies to market food and beverages to the youth, the adaption of digital marketing is on the rise. The future business prospects have huge dependency on digital marketing innovation. Technical innovations are not only changing industries but their sustainability of using digital media. The use of digitalization has become part of everyday life. India is the price sensitive market and Indian consumers look for the comfort and ease which is truly attributed to online media used. Digital Channels provide the multiple ways to reach the consumer via e-mail, internet, phone and digital television. The broad objective of the study is to understand scope of digital marketing for future business prospects. The consumption of information technology in buying of goods and services will lead to bright future of India from business perspective. Indian Government has to increase the adoption rate of technology so that growth of industry can be sustained. The sustainable method of digital marketing can be proposed so that futures of Indian businesses are maintained.

Keywords: Consumption, Digital marketing, Technology, Traditional marketing, Organization, Youth.

1. Introduction

Digital media is so pervasive that customers have access to information any time and at any place. Gone are the days when the messages the customers got about products or services came from marketers and consisted of only what they wanted customers to know. Digital media has changed to an ever-growing source of entertainment, news, shopping and social interaction.

Above all, consumers can verify the claims of the company in the media itself, by seeking the opinions of friends, relatives, peers and so on. Customers are more likely to trust media, friends, peers, etc than the marketers' claim. People are looking for brands that can be trusted, and on the other hand, companies that know its customers are trying to extend personalization offers which are very much tailored to the customer needs and hence they are vigilant in maintaining communication skills that are relevant and effective. An organization which adopts social media marketing is mainly to establish a reputation as a though leader in the subject area, to be the source of current relevant news around a topic, to make the employees of the organization more accessible and create a healthier relationship with existing clients and to extend the current brand as on serving the young adults.

1.1 Layering of Media

Young people often use their mobile devices while using other media like television. According to research conducted by Google, 92% of teens use at least two devices simultaneously and 35% use their PC, smart phone and TV at the same time. A major snack company executive noted that this "layering of media" means that "for the first time we have a media channel that can work in conjunction with other media channels." Thus, an unprepared event like a power outage at the Super Bowl- the annual championship game of the National Foot Ball League (NFL), the highest level of professional football in the United States of America, the most watched television event of the year, as transformed into a major digital food marketing opportunity when Oreo Cookies sent out a tweet with an engaging visual and the tagline "You can still dunk in the dark." Within one hour, Oreo's tweet generated 16,000 re-tweets, 18,000 Face book shares.

Technology has caused a shift from product-centric to customer-centric business practices. The age of the customer has arrived and person-to-person engagement is both critical and profitable. Emphasizing customer experience was essentially re-engineered out of business processes in the 80s and 90s as increasing organizational efficiency and cost-cutting took centre stage. Today, however, is the age of the customer in which the customer is once again foremost. Organizations need to reverse-engineer current customer processes by looking at everything from the customer's point of view, states SAP's Bernard Chung, Senior Director, Solution Marketing. By identifying and mapping out the key steps of the customer journey, we can pinpoint bottlenecks, issues and barriers that prevent the delivery of great customer experiences.

Similarly, in the 2013 book Profitable Customer Engagement, Dr. V. Kumar provides a number of examples of firms that have moved away from a product-centric to a customer engagement philosophy and have reaped huge gains in profits from doing so. As stated in the Mastering

Adaptive Customer Engagements report by CMO Council in Jan 2015, " we can all see the writing on the wall: The age of the customer is here, and marketers must respond with highly adaptive customer engagements ood and beverage marketing that targets youth is fully combined with social media, broadcast, television media, movies, institutions, youth serving organizations and in the retail space. The rapid spread of digital devices and new media platform is often labeled as a "shift" to digital.

Traditional children's media outlets like POGO have gone digital and companies are shifting their media blend to incorporate digital and mobile marketing. Young consumers are not shifting away from traditional media, but rather each consumer is spending more time with more media, across all devices under the sun. This means that there are more and more opportunities to layer and reinforce food and beverages marketing to youth. The use of location info to target marketing messages in real time makes digital marketing campaigns much more effective at upholding and increasing sales of unhealthy foods and beverages.

1.2 Statement of Problem

Regarding the prevalence of over-weight and obesity among school children, Indian Pediatrics Association conducted a study on the adolescents report that obesity has emerged as one of the main issues that lead to global health problems affecting 200 million school-aged children world- wide, of which 40-50 million are categorized as obese. The factors contributing to childhood obesity are increased intake of high-calorie foods that are low in vitamins, minerals and micronutrients coupled with decreased physical activity. Various other studies done in India from 2008-2018 support a rising trend in the prevalence of overweight and and obesity in

children and adolescents. One of the powerful environmental factors that are influencing the rise in obesity is the ubiquitious presence of food and beverage marketing. Research into this problem leads to the issue of consumption of junk food habit which is the outcome digital marketing tactics through television advertising and social media. However, there is emerging research on how energy-dense, nutrient-poor (EDNP) food and beverages are being marketed digital media. Very few studies have closely examined online social media channels such as Facebook and Instagram, particularly among the youth, there is a need to understand the techniques and reach of EDNP food and beverage marketing through these web sites. A more complete picture of overall EDNP marketing strategies used through social media is needed to understand the extent of marketing across this media.

1.3 Relevance of the Study

Facebook and Instagramis the most popular social networking sites in the world. As of 2018, there are over 2.3 billion monthly active Face book users (MAUs) which have a 14 per cent increase year after year.1.59 billion people log into Face book daily (DAU), which represents a 23% increase each year. There are 1.15 billion mobile active users (MAU). The bulk of Face book content is individual users' personal profiles. Since November 2007, the site has embraced companies and brand developing their own pages. Face book brand pages function in a fashion similar to personal pages, with the exception that to receive brand page updates and content in their news feed, users must like a brand page, as opposed to initiating a friend request as they would from individual users. Brands can post images, videos, links, contests, offers, applications, polls, quizzes and a range of other digital and interactive media to their page timelines. Users who like brand pages can engage with the page by sharing their own content, commenting on page posts, and sharing page content with their own networks. Crucially, any activity that users engage with on brand pages may then appear in the news feed of the users' friends, effortlessly spreading marketing messages across these social networks in a biased manner. Generally speaking, those brands with more engaging content have great influence on the consumption habits of the participants.

1.4 Objectives of the Study

- To examine the key strategies used by the digital food marketing companies
- To verify the location-based techniques adopted by the digital food marketing companies
- To study the reward-based interactive-food and beverage marketing strategies adopted by the digital food marketing companies

2. Key Strategies of Digital Marketing

Digital food marketing works in conjunction with traditional marketing campaigns using television media, social media and print media. Nevertheless there are some key differences between digital and traditional food marketing tactics.

Digital marketing is harder for cognized just one quarter, 8-year-olds about half, and 10- year-olds identified about three-quarters of the advertisements shown. It also noted that similar studies on children's ability to identify television commercials have found that children can recognize commercials by the age of 6 and understand the persuasive intent around 8 years of age. Thus, digital advertisements are difficult for children to identify as marketing than television commercials. Digital marketing strategies such as food- company produced websites and applications (apps) with engaging, branded content for children are likely to be an even harder to identify than advertisements embedded in web pages.

Age (in years)	Recipients of advertisement commercials	Cumulative Frequency
0-6	25%	25%
6-8	50%	50%
8-10	75%	75%
Total		100%

Table 1: Viewers Ability to Recognize Advertisement (Source: Mark Blades' Children's Recognition of Advertisement on Television and web pages, 2018)

Whether or not young consumers can even identify marketing that utilizes new media as advertising is a key starting point when examining whether or not digital food marketing is biased or misleading to its target audience of child consumers, because deceptive marketing in the form of entertainment or news has been deemed a misleading trade practice with adults. It was concluded that the developmental sequence derived from the television advertising in other media, because we can no longer assume that the ability to recognize an advertisement always precedes the ability to understand the purpose of advertising.

2.1 Marketing is no longer a One –Way Communications

Traditional marketing tactics delivered a commercial message on television media, broadcast or in print media and that was the extent of the communication. The food and beverage marketing is interactive, distributed online and via handheld devices such as cell phones, notebooks, I-pads,

etc. and is driven by huge caches of data that consumers generate when they make online or mobile purchases. Marketers have exceptional access to consumer data that can be used to target marketing messages to increase sales. Marketing companies have extraordinary access to a huge amount of data about individuals, peer groups and demographic segments of the population that can be used to target and tailor marketing messages to maximize sales.

2.2 The influence of social marketing

Social media marketing seeks to develop and mix marketing concepts with other approaches to influence behavior that benefit individuals and communities for the greater social good. It is also designed to get consumers to share marketable messages. It is most effective when young consumers share marketable content without realizing that they have become marketable proxies for huge corporations. One of the great strengths of digital marketing derives from the viral nature of the various and growing social media platforms. The two behemoths, facebook and twitter, are all about sharing info within the user's network. Even smaller social media platforms are important for advertisers:

Vine, a short-form of video sharing service, has about 40 million users and similarity Instagram, a photo-sharing application, has about three times that number of users. Social media marketing predominantly comes from users to their network of friends and followers giving it the individual effect associated with word-of-mouth advertising. That is exactly what sellers want: information about their brands and products to be distributed through communications networks.

2.3 Location based strategy of digital marketing

In July 2017 Moto Messages goes on to say, Over 90% of text messages are opened and read by customers in 15 minutes. No other advertising medium has that relationship with the consumer and 75.7% cited increased brand awareness as the main benefit of undertaking mobile marketing. This category includes advertisers, content and applications providers, aggregators of third-party mobile content and internet marketing companies. Since consumers can now access the internet on their smart phones, even companies that send traditional commercial messages by e-mail to consumers participate in mobile marketing. Companies that make marketing calls and/or send short messages service texts to wireless phones also utilize mobile marketing techniques.

A major component of mobile marketing is the use of applications that consumers download to their mobile devices. Advertisers and app developers form relationships for their mutual benefit; advertisers get their ads out to the mobile audience, while app developers get paid when users click on the ads.

2.4 Location-based techniques

The power of mobile marketing is amplified by the fact that it can be combined with a user's location data by methods like offering free Wi-Fi. Location-based mobile marketing allows food and marketers to make pedestrians and drivers aware that they are in close proximately to fast food restaurants, make travelers aware that a certain product is available in an unfamiliar place, or alert youth food court when they enter a shopping centre's parking lot of special offers available in the food court. 87% of teenagers own mobile phones and they are more likely than adults to use their mobile devices for text messaging, social networking and accessing entertainment and information, making teenagers prime targets for location-based advertisements for unhealthy snacks, beverages and fast food.

2.5 Mobile apps

Apps running on smart phone operating systems equipped with global positioning system technology have access to information about consumers' geolocation, and can use it to provide specific service, such as identifying and connecting users playing a game with others playing the same game in a geographical area, delivering special offers or providing directions to a retail location. Even if a user's location is not essential to provide the service related to the app, apps may still collect location data. For example, advertisers can use location information to provide alert and service offers when a customer is near a unique store location. When the consumer checks in at the location, she provides a valuable marketing service to the food company because her location is broadcast to her friends on facebook or her followers on sites like foursquare.

Applications that require location information to provide a specific service to users and those that collect it unnecessarily may share that data with third parties involved in mobile marketing.

A study conducted by CMO in April 2018 says that Consumers are not going on desktop to share brand messages, rather they are going to mobile devices and it also shows that 86% of mobile usage is within apps. According to the mobile marketing association Indian companies spent 8 billion rupees on mobile ads last year, and the market is projected to expand 47 percent this year.

3. Reward-Based Interactive-Food & Beverage Marketing

Time limits, discount on multiples, rebates, lottery, online contests and rewards programs are examples of reward-based, interactive marketing. They are interactive and digital, because they are designed to drive traffic to a firms' website, mobile site or application(app) where young consumers are exposed to additional food marketing, branded-content and can have their user-data collected for future marketing purposes. Incentives-based, interactive marketing is designed to increase sales by motivating purchases directly by children and teens or indirectly by generating child-to-parent purchase requests for foods and beverages. Time limits, discounts on multiple, rebate, contests and reward programs marketing unhealthy foods and beverages to youth are a common marketing technique. This is likely due to the fact that rapidly evolving internet and mobile channels have made the interactive promotions industry more accessible to both marketers and consumers. Limits, discount on multiples, rebates, contest sand contests also are of concern because they may encourage gambling-like behavior in children. These promotions are regulated predominantly at are designed the local level. These promotions are harmful to children because they are designed to maintain and increase consumption of unhealthy food products, and result in prolonged exposure to food marketing.

Social Media is the dominant platform accounting for:	**Findings**
Total minutes spent online in 24 hours	**10.8%**
Total time spent on social networking sites	**83%**
Total spent on mobile apps	**23%**

Social logins for consumer brands	**50%+**
Total Teens who aged 12-17 use social media	**78%**
Total Teen social media users who use facebook	**94%**
Total Teen social media users say they use facebook most often	**81%**
Total Teen social media users who use social media sites several times per day	**42%**

Table 2: Digital Media & Teens At-a-Glance

Mary Madden, Teens, Social Media and Privacy, in her study found that teen social media has steadily increased and teens are sharing more personal information than ever before: and 91% of teens reported that they are not very concerned about third-partyaccess to their data. Teens growing use of social media actually has resulted in being less privacy savvy, not more so. Young people and their parents are not given meaningful tools to control how their personal information, including location, can be used by marketers. The personal information facebook harvests from its users are of tremendous monetary value.

4. Conclusion

Successful public health efforts to support healthy diets in childhood and adolescence will put children on a path for lifelong health. Addressing digital food and beverage marketing targeting youth that is designed to maximize consumption of unhealthy foods and beverages is a key step in the process towards ensuring a healthy future. The fact that digital food marketing is harder for young children to identify than traditional marketing makes it potentially even more unfair and deceptive than traditional marketing tactics.

Young customer's use of computer and mobile devices reveal vast amount of information that food marketers can track and use to target their marketing to boost consumption of their unhealthy products. Social media marketing is designed to get consumers to share commercial messages. It is most successful when young customers share commercial content without realizing that they have become marketing proxies for large corporations. The dramatic growth of highly localized digital marketing enables precise targeting of individual children and teens-in school, at the playground or near a store. Location-sensitive marketing incorporates information from user's profiles-their offline and online interests, social relations, shopping behavior, entertainment interests and more. Teens are not covered by COPPA-Children's Online Privacy Protection Act, and as their information and buying experiences are collected and analyzed for subsequent use, these young people become vulnerable to ongoing food marketing campaigns; hence they must try to beware. Location-based mobile campaigns can be fully integrated with social media to create new ways for marketers to promote their products beyond individuals to their social networks. The rise of location marketing requires robust safeguards that protect the privacy and well-being of teens. Facebook's social advertising approach is designed to convey to teens that unhealthy food and beverage products are endorsed by their peers and community despite the consequences to their personal well-being. The personal information the Facebook harvests from its users is of tremendous monitory value. Without intervention to protect teen privacy and to limit exposure to marketing for harmful food products there is little incentive for Facebook to police itself.

Reward- based, interactive marketing uses digital technology to deploy sweepstakes and contests to younger audiences. These promotions trigger exciting state consumer laws governing games of chance and games of skill and should be viewed from the prospective of the vulnerable audience of children they target. This promotion is harmful to children because that are designed to maintain and increase consumption of unhealthy food products, and result in prolonged exposure to food marketing

5. Suggestions

- Social media enables food marketers to enter deeply into the social relationships of adolescences, collecting and analyzing their data through a highly sophisticated data mining process
- Teens are targeted in a variety of ways, using viral marketing, peer endorsements, data-driven advertising, and mobile phone marketing.
- Digital marketing campaigns should be intended and carried out in ways that treat young adults fairly.
- Marketers should not use incentives to manipulate young adults into promoting unhealthy foods and beverages to their peer

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EFFECTS OF MERGERS AND ACQUISITIONS ON ACQUIRED AND ACQUIRING BUSINESS IN THE FOOD DELIVERY INDUSTRY: AN ANALYSIS

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Abstract:

In our country India, the practice of mergers and acquisition has been attaining considerable significance in the contemporary corporate scenario which is generally used for reorganizing the business entities. The online delivery platforms are expanding by their selection and convenience permitting customers to order from a wide array of restaurants with the single tap in their mobile phones, which is currently undergoing a rapid change as new online platforms race to capture the local markets. India's food delivery industry, brimming again with funds,will need to do just more to survive in the long-run than just amalgamated. After an initial hype and a slump that followed, the last 18 months has been a significant increase in mergers and acquisition (M&A) in the space. This paper aims to focus on to study and understand how mergers and acquisition help in the growth of acquiring business and studies the operational efficiency of the acquiring business before the merger and predict the future viability of the business. The data has been collected from secondary sources. Through this paper an attempt is has been made to understand the not only factors that govern both acquired as well as acquiring business but also determines the dominant factors which are unique in each company. The various tools and techniques have been used to analyse the efficiency of the acquiring business.

Keywords: Mergers, Food delivery industry, growth, acquired business, acquiring business

1. Introduction

Growth is the substance for which everyone runs behind either an entrepreneur or someone's life. In today's corporate merger and acquisition is spreading all over the industries which have totally restructured the whole market place. Corporate worldwide have aggressively trying to build new competencies and capabilities to remain competitive and to grow profitably. Strategic decisions such as mergers, acquisitions, overseas expansions, disinvestments, new product diversification, eccentric market or service offerings, though quite in vogue for long, have become more relevant in recent years, for exploiting profitable future opportunities for growth and success. In recent years, there has been increased merger and acquisition activity globally, aided by accelerated changes in technology, globalization of market places, the pursuit of global competitiveness, easing of regulatory systems through international bilateral and multilateral agreements and treaties, and adoption of international standards of accounting & valuation practices. Mergers and acquisitions activity among food delivery start-ups have seen a massive increase in recent years as venture capital funding has declined and all smaller players in the space seek to be gained or risk shutting down. Among all the food delivery start-ups only 28 mergers or acquisitions took place between 2012 and 2014. This roseto 41 mergers and acquisitions in 2015, 31 in 2016 and 15 so far in the year 2017.

2. Review of Literature

- **Amesh Bharat Kumar (2016)** conducted a study on ‘Mergers and Acquisitions in India and its impact on shareholder’s wealth' the author has done shareholders wealth analysis for short term investment. He studied about shareholder’s wealth analysis for short term investment. He studied the short term effect pre and post-merger that is compared to the market and to understand the short term effect of the deal.
- **Devarajappa S (2017)** analysedin his paper about the pre and post-merger financial performance of the merged banks (here it's HDFC Bank and Centurion Bank of Punjab ltd) and also the study indicated that the banks have been positivelyaffectedbytheeventofthe merger.
- **Jyoti H Lahoti (2016)** mentioned in their analysis on the topic ‘An experiment study of merger and acquisition in the Indian banking sector ’where the author studied the behaviour of various M&A in the Indian banking sector.The author analysed whether the bank has achieved financial performance efficiency during the post M&A period specifically in the areas of profitability, leverage, liquidity and capital market standards.The author also tested the impact of M&A of banks and provides insights about their role after mergers on banks profitability.
- **Prashanta Athma & ABhavani (2016)** researched on the topic ‘Mergers in the banking sector in India: An analysis of pre and post-merger performance of SBI and HDFC bank. In this paper, they analysed the performance of key parameters of both banks and they also analysed the employee productivity, branch productivity and also the profitability of both banks.
- **Harpeet Singh Bedi (2014)** conducted a study on the topic’ Mergers and acquisition in India: an analytical study’. This paper studies the various factors that played their parts in

facilitating the merger and acquisition in India in favorable and also in unfavourable conditions.

- **HeenaPaheyaSamidhi (2016)** conducted a study on the topic 'Impact of Mergers and acquisitions on India's economy' where the author studied about the impact of M&A on GDP, profitability, employment and the overall growth of the economy. This paper also shows the recent M&A cases and the reasons why companies choose this option. They discussed the problems facing the process of M&As by companies and how they can be overcome.
- **Krishna Prasad V and MridulaSahay (2018)** in their paper studied about the mergers and acquisitions of various companies in the period of 2005-2015,wheretheemphasiswas on what benefits the companies were getting through these process and what all steps they have to consider before going for M&A process. This paper consists of mergers and acquisitions that have happened in India during the2005-2015.
- **M Jayadev and RudraSensarma (2016)** studied about the mergers and acquisitions in the Indian banking sector where the author had analysed some critical issues of consolidation in Indian banking with a popular emphasis on the view of two important stakeholders viz shareholders andmanagers.
- **Ms. Mani Arora & Mr. Anil Kumar (2012)** conducted a study on the topic 'A study on Mergers and acquisitions- its impacts on management and employees'. In this paper, they studied the major issues associated with pre and post merging situation with special emphasis on the human aspect. This paper also analyses the present training methods to cope up with the environment and the upbringing situation and some alternatives are also suggested to make any merger or acquisitions a successful event for the company.
- **Rabi Narayan Kara and Amit Sani (2014)** researched on the topic 'Mergers and acquisitions in India: A strategic impact analysis for the corporate enterprises in the post liberalization period' in which they tried to identify the presence of any trend of M&As of the Indian industry in the post-liberalization period and they also examined the impact of M&As on the performance of corporate enterprises.

3. Objectives

- To study the performance of the acquiring business and acquired business before merger and acquisition
- To study the dominant factors that influence the Mergers and acquisition

4. Research Methodology

4.1 Type of study: This paper is conceptual in nature and hence descriptive in nature.

4.2 Type of data collection: The data collected for this paper is from secondary sources. The secondary data were available in journals, magazines, e-resources, newspapers, websites, reports etc.

4.3 Period of study: The period M&A is between 2016-2017 in the food delivery industry has been undertaken.

Acquiring company	**Acquired company**	**Target country**	**Year of M&A deal**
Swiggy	Scootsy	India	2017
Swiggy	48 east	India	2017
Zomato	Runnr	India	2017
Cure.fit	Kristsy's kitchen	India	2017
Ola cabs	Food panda	India	2017

Table 1. Companies selected for the present study

4.4 Tools used: To check the financial performance of the company before M&A the Return on Equity has been calculated.

Return on Equity:-Return on Equity is the amount of net income returned as a percentage of shareholder's equity. It measures how much profit a company generates with the company generates with the money shareholders have invested.

4.5 Scope of the Study

Thestudyislimitedtothefourcompaniesinthefooddeliveryindustry.Onlythedominantfactors and efficiency by M&A of the fast food industry of the companies for a period of 20162017 has been studied.

4.6 Limitations of Study

- It is only based on secondary data, therefore, may bebiased.
- To evaluate the financial performance only there turn on equity has been considered due to the unavailability of data after mergers.

5. Conceptual Framework

Mergers and acquisitions (M&A) is the general term that is referred to as the consolidation of companies or assets through various types of financial transactions. M&A can include a number of transactions, like mergers, acquisitions, consolidations, tender offers, purchase of assets and management acquisitions. A corporate merger or acquisition can have an intense effect on a company's growth prospects and a long-term outlook. An acquisition can transform the acquiring company literally fortnight, there is a significant degree of risk involved, as mergers and acquisition (M&A) transaction is overall estimated to only have a 50% chance of success.

6. Reasons for Companies to engage in M&A

The reasons for companies to engage in mergers and acquisitions includes are as follows:

- **To become bigger**: The companies use M&A to grow in size and have advancement among their rivals. In contrast, it can take years to double the size of a company through organic growth.
- **To pre-empt the competition**: The powerful motivation is the primary reason why M&A activity happens in distinct cycles. The urge to capture a company with an attractive portfolio of assets before a rivaldoes,which generally results in a feeding frenzy in hot markets.
- **To create synergies and economies of scale**: Companies does mergers to take advantage of synergies and economies of scale. Synergy happens when two companies with the similar business combinations, as they will then consolidate (or to eliminate) duplicate resources like the branch and regional offices, manufacturing facilities and research projects. Every million or fraction thereof saved goes straight to the bottom line while boosting earnings per share and making the M&A transaction an accretive one.
- **To achieve domination**: Companies engage in M&A to dominate their sector. However, a combination of two giants would result in a potential monopoly, and such transactions would

have to run the ordeal of intense scrutiny from anti-competition watchdogs and regulatory authorities.

- **For tax purposes**: Companies also use Mergers & Acquisitions for tax purposes, although this may be an implicit rather than an explicit motive
- **To expand its business**: The companies go for mergers and acquisitions are to expand its supply chain and entering into new business line.
- **Monopolistic ambition**: the companies aim to achieve a monopolistic market where they are only one company providing services.
- **Natural urge**: certain companies have the natural urge to go for mergers and acquisitions for a better standing in the market.

7. Analysis

7.1 Performance of acquiring companies and acquired companies by the way of ROE

Return on Equity: The return on equity is a measure of the profitability of a business in relation to its equity. ROE is a measure of how well the company uses investments to generate earnings growth.

ROE issued for the comparison of the performance of the companies in the same industry. Generally, the ROEs of 15-20% is considered good. The benefit of low ROEs come from reinvesting earnings to help in the growth of the company. Thus a higher proportion of the debt in the firm's capital structure leads to higher ROE.

Sl No	Acquiring company	ROE	Acquired company	ROE
1.	Zomato	2.6%	Runnr	(5.53 %)
2.	Ola cabs	7.89%	Food panda	(66.44%)
3	Cure.fit	3.33%	Kristys kitchen	(10.28%)
4.	Swiggy	11.41%	Scootsy	(44.21%)
5.	Swiggy	11.41%	48 East	1.33%

Table 3. ROE issued for the comparison of the performance of the companies

8. Inference

- Since the ROE of Runnr s (5.53) %, which indicates that the earnings of the firm dropped negatively and it is making an effort to perform well without needing much capital that is why zomato with ROE of 2.6% is acquiring Runnr.
- The ROE of food panda is(66.44%) which indicates a loss-making firm,which is acquired by the ola cabs to increase its food delivery pace.
- The level of ROE by the kristys kitchen indicates that the firm is generating less income. In an attempt to generate more revenue, this acquisition took place. This increases the customer base of Cure. Fit as well as increase the efficiency of kirstys kitchen.
- The ROE of the scootsy is (44.21) % which very lower that is why swiggy has acquired scoosty to increase scootsy revenue as well as swiggy entry into the Mumbai market.
- The ROE of 48 East is 1.33% which very low because it is a new firm that is why swiggy acquiring this firm.

9. Dominant factors affected the M&A of below companies

Though there are many general factors affecting the mergers and acquisitions, the dominant factors that affect the M&A of the companies are given in Table 4.

Sl No	Acquiring business	Acquired business	Dominant factors influencing the acquisition
1.	Swiggy	Scootsy	**Increasing competition in domestic food-** delivery in Mumbai. Here the swiggy acquired scootsy because scootsyis into thehyperlocal market in Mumbai and for swiggy acquired scootsywill help them to enter the hyperlocal market of Mumbai where scootsy and zomato are huge indemand. **Market operations**: swiggy have a large labor force but wouldn't know how to operate in major local areas. Since time Is a constraint In the food delivery business, local market navigation is very necessary to sustain in this industry.
2.	Swiggy	48 East	**To expand swiggy's supply business line**. Here due to the acquisition, the two of the companies work on swiggy's supply business, including swiggy access which lets the restaurant partners expand into newer areas of the Bengaluru city for delivery by using swiggy's in-house kitchen space.
3.	Zomato	Runnr	**To add delivery capabilities of zomato**. The zomato'smain aim was to acquire runnristoboosttheir delivery business. Since Runnris a delivery service company having a huge reach. Due to thisacquisition zomato boosts its

			delivery business as well the runnr will be running the delivery business as a separate entity headed by one of the senior executives of zomato. They not only handle delivery but service their customer as well.
4.	Cure.fit	Krisys kitchen	**To attract morecustomers:** The cure.fitis a chain of group workout fitness centers and to expand their reach they acquired kristys kitchen to healthy food to its customers. Kristys kitchen with join cure.fit as a part of acquisition where they are developing the product as per the healthy product that will now be taken to scale with the help ofcure.fit. **Growth:** By acquiring the kristys kitchen, cure.fit will increase its revenue thereby witnessing growth
5.	Olacabs	Food Panda	**To enter the food industry:** Ola's entry into food delivery industry and also competing with Uber. Ola acquired the food delivery company named food panda to enter into the online food industry and also to compete with its American counterpart Uber and Uber eats. This acquisition helps both companies in a long way in leveraging our collective strengths to better and grow our footprint in India's digital economy. **Diversification:** The ola cabs will always aim to expand its service lines to increase its revenue lines.

Table 4.The dominant factors that affect the M&A of the companies

10. Findings

- Operational efficiency is one of the major factor influencing a firm's performance and growth. The employee's efficiency directly correlates with the reward and recognition given by the firm. To provide with employee benefits and compensations, funds are required. The absence of which demotivates its employee. Therefore, companies that cannot fund various means to reward and recognize their employees always look out for firms that could absorb them.
- In relation to the above, the capital requirement is one of the major reasons for Mergers and Amalgamations. This M&A prevent the small firms from ceasing to exist due to insufficient funds to carry on their operations.
- Firms performing well in the market face with excessive competition. To survive this competition, the company must either have a diversified line of business or enter into the local market. Diversification helps the business to balance its revenue from the market and expand its market share. Diversifying helps big businesses to increase their brand image and brand

loyalty, thereby building a loyal customer base.

- Hyper-Local market operations are the focus of any business. Performing in the local market equals to knowing the demographics accurately.
- Merging with the sick industry provides certain tax exemptions to the acquiring firm. Decreasing tax liability is a way of decreasing expense.
- Ola cabs acquired the food panda which not only paved the ola cabs way into the food delivery industry but also to compete with its counterpart uber and uber eats.

11. Conclusion

The nature and the pattern of M&As strategies adopted by the Indian companies mostly reveal horizontal and vertical types. This paves the companies to focus on their core areas and expanding mostly in related areas of strength which is helpful in the realization of synergistic benefits. This paper aims to understand why these above-mentioned companies are going for mergers and acquisitions and what all limitations the company can cover from these M&As. This study is carried out to find the general, specific and also the financial performance of the company. From this paper, I came to understand that there are various basic factors that affect the mergers and acquisitions and certain such factors have been mentioned in this paper and also the specific factors related to every company are mentioned here. This paper analyzed the efficiency of the company before the merger and how the merger affects the ROE of the companies. The financial performance of the companies by the investors and stakeholders are analyzed and the mergers and acquisition decisions have been taken. Such mergers and amalgamations prevent the small- scale industries to die due to lack of assistance, lack of capital, lack of skilled labor, etc. M&A provide employment and investment opportunities.

12. Suggestions

➢ Due to much foreign collaboration, it affects the merger and acquisitions in the economy of countries as well as to our companies and to avoid that certain measures to be taken like simple procedures for M&A should be made.

➢ To have the better working of these online platforms the business need AI-based system for the smooth functioning of the platform, for which these companies need to go further mergers & acquisitions in the AI sector.

➢ The researchers can make a further study on the cross border mergers and acquisitions to find out the effects on the companies in India.

➢ The researcher should see an opportunity to study the after merger growth of the acquiring business in terms of their equity and market share.

13. Scope of the Further Study

➢ The study about the further mergers and acquisition in the food delivery industry and as well as to study the mergers and acquisition in companies mentio1ned in this research.

➢ The study with a similar objective can be taken for other sectors.

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A STUDY ON PROSPECTS AND PROBLEMS OF TOURISM IN INDIA

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Abstract

The world is evolving. Beforehand inconsequential and ignored markets are blasting, supplanting previous superpowers presently drained and exhausted. The level of influence has moved. Furthermore, maybe no place is this as obvious as in India. The travel industry in and from India isn't just at a record-breaking high however is becoming quicker than in some other district. Home to practically 50% of the globe's populace, the capability of Indian as a visitor feeder market is past correlation. As the area develops progressively financial muscles and its kin become increasingly princely. The Indian the travel industry has out played out the worldwide the travel industry as far as development in the volume of universal visitors just as far as income. So as to continue this development and meet the desires, it is basic for the Government of India to put resources into foundation, for example, transport and facilities. The normal development of the business in future will increment.

Straight forwardly and in a roundabout way the travel industry produces business, expands inns, cafés and it additionally builds the economy by expanding transportation and so on. In India there are such huge numbers of regular enterprises which legitimately rely on the travel industry. So this is the need of time to comprehend the varieties in the travel industry during various months. The regular the travel industry assumes a significant job in Indian economy.

Keywords: Tourism, Employment, Foreign Tourist arrival, Foreign Exchange Earning.

1. Introduction

The travel industry is the foundation of an administration part and it assumes a significant job in the advancement of associated segments as inns, eatery, accommodation, travel and transportation, state and focal government outline different approaches for the travel industry. For the advancement of the travel industry enormous measure of cash is contributed and spent. The travel industry likewise creates business and adding to Gross Domestic Product. The job of Government in the travel industry advancement has been re-imagined from that of a controller to that of an impetus . Aside from showcasing and advancing, the emphasis on the travel industry improvement plans is presently on incorporated advancement of empowering foundation through compelling organization with different partners.

The travel industry isn't just an action for side interest and diversion. It is an enhancing and empowering movement. For a creating nation like India which is on the way of current monetary development through basic change of the economy. The worth included impact of the travel industry is expanding. Supportable the travel industry has immense degree in India by intermingling of scenes with fund scapes, techno scapes, mediasscapes and icescapes. India's travel industry has seen upsurge as of late, paying rich profits to the two purchasers and makers. In the energetic the travel industry, there is currently a nearly guaranteed channel of money related stream to the nation. With its forward and in reverse linkages with a large group of segments like vehicle, cordiality, instruction, wellbeing, banking and so forth. India is good to go to procure maximum capacity of this lively segment. Accordingly, preparing endeavors are made by the legislature under the five year plans. The nation needs to take care of the issues and address the difficulties doubtlessly and soundly not exclusively to fortify the travel industry segment and furthermore support the tertiary division.

The objectives of the present study are:

- To study the role of seasons in Indian tourism.
- To study the role of strength of tourists in each month of the year.
- To find out the challenges in different seasons and strategies for the growth of tourism in different months.
- To provide the suggestions for policy makers to make different policies for the different month of the year.
- To find out the strategic steps for development in infrastructure and roads for monsoon as well as winter season.

2. Research Methodology

This study is mainly based on the Primary & Secondary data. These data are collected from various websites, journals, Newspaper articles &Collected data based on questionnaire method in a group of members. The study is descriptive & conceptual in nature.

3. Threats Faced in Tourism Sector

Climatic Changes:- As in today's scenario the main drawback for the tourist is that as the monsoon are going on travellers cannot travel from one place to another due to floods and damaged roads caused by rain. So Government has to take measures to solve the problems of the flood affected areas so that the tourist can visit & generate revenue for the peoples who stay there so this also helps them to generate income & as well as encourage tourism.

Fluctuating of foreign currency:-Now if the rate of one currency if it is less compared to yesterday value of the rupee, After some time there will be still more increased / decrease in the value of the Indian rupee value so by this also there is a problem for the tourist in exchanging of their currency or take the foreign exchange activities needed.

Less road connectivity:- Due to the climatic changes in the environment there is rain and sunny is expected whenever so by this climatic changes there is a problem in maintenance of roads in the highways, municipals etc.

No proper maintenance of historical places:-In India there is no proper security for taking correct measures in the historical places where more of the people are destroying the culture and diversity and the iconic places in India. So the government has to take correct measures such as CCTV surveillances in the historical places & Maintain Cleanliness in the area.

No guidelines for the tourist:-As foreigners are not aware of the places to visit in India. There is no proper guidelines for the guidelines such as route maps, locations which are interior. So government should take the measures to guide for the new explored places in the local areas.

No Proper Allocation of Resources:- The resources available for the tourists are not available so that in the month of April & May there will be more local tourists that visit the places so there is the main problem in which they don't get correct lodges & Restaurants in the places.

Change in Immigration Rules:-As due to terrorism and other problems that are faced by India. So by this is change of Immigration Rules are affecting the tourists who are facing the problems for visiting our country

4. Profit Earning Sectors in Tourism Service

Hotels/Lodges:-As the tourist stays a night in a hotel/rooms/resorts by this way the following are earning revenue in the tourism industry.

Restaurants :- Many of the tourists who visit the places go on for the search for the delicious foods in the locality By this way the foods are cooked and served fresh for there customers. By this way the revenue for the restaurants/ hotels are earned by this way the tourism sector is helping the restaurants for earning the profit.

Transport Agencies:-As the tourists go on a sight visit locally by this ways or for travelling from one place to another by this ways transport agencies earns revenue.

Banking Sector :-Many of the tourists exchange there foreign currency when ever required so by this banking sector earns money by charging for the forex exchange.

Charitable Institutions such as Temples, Church , Mosque:- As the tourists visit many religious places in India .But the tourists give donations for the religious places in india by this way the foreign money is coming into India.

5. Research Explanation

From the pie diagram (Fig. 1) plotted for the responses for the extend of the involvement of the government towards the development of tourism sector graph we can get to know that there is government involved in developing the tourism sector in India

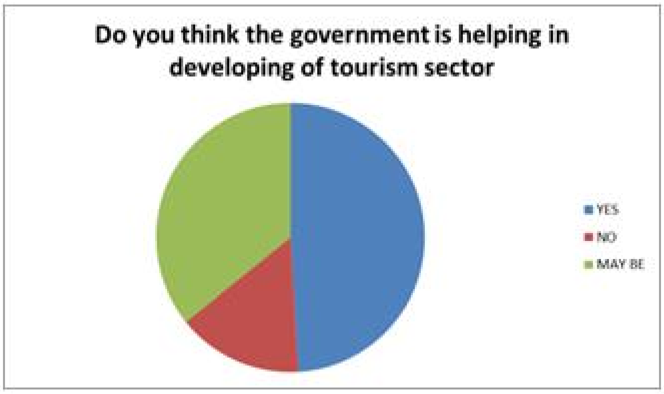

Figure 1. Opinion on the extend of the involvement of the government towards the development of tourism sector

Here we can able to gauge that as the development of Highways is extending to 8lanes (Fig.

2). It is most helpful for the convenience of the travelers so that many people can visit India.

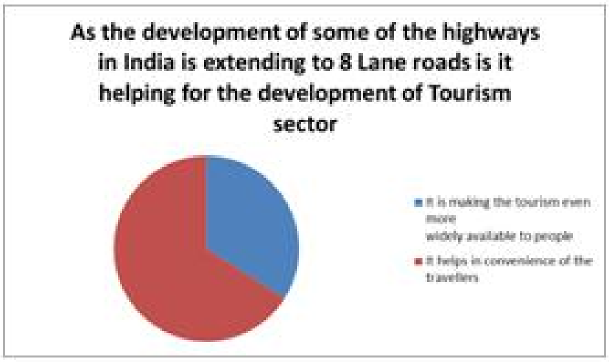

Figure 2. Opinion on impact of 8 lane roads development of tourism sector

From Fig. 3, we can get to know that as the our current prime minister is visiting more no of foreign countries .It is when the more no of people from other countries are Agreeing to visit our country so that more no of people are feeling secured to visit the country.

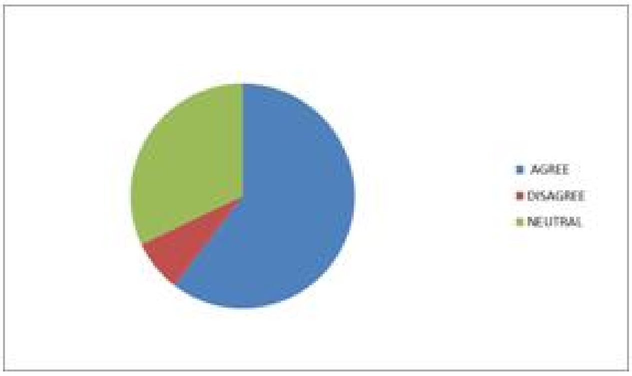

Figure 3. Opinion on prime minister's visit to foreign visits and growth of tourism sector

The graph depicted in Fig. 4 shows that the budget proposed for the development of Tourism sector in India .Is not properly used by the Government for the development of the Tourism Sector. From the data obtained and as depicted in Fig. 5 we can get the result that the more competitors in the tourism sector is the main problem in the development of the tourism sector has that the competitors are mainly focused in attracting the customers whereas Fig. 6 shows the opinion that the tourists are not getting confused to visit the places due to the climatic changes in the environment.

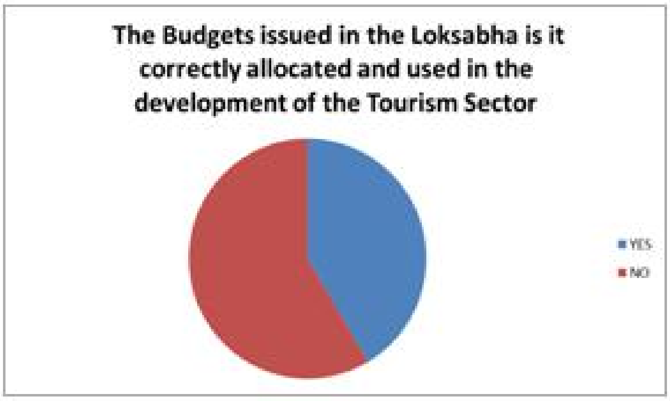

Figure 4. Opinion on budget allocation for the development of tourism sector

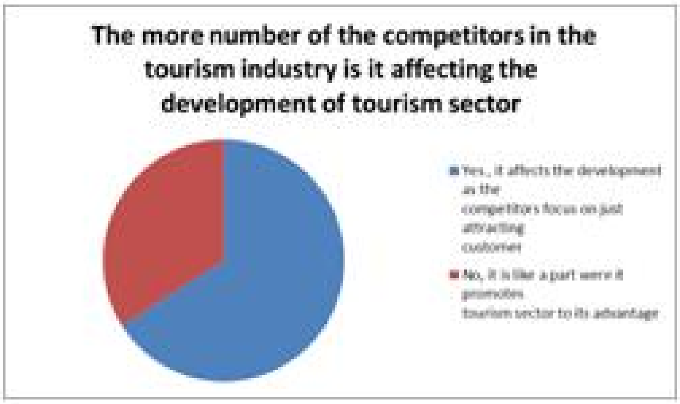

Figure 5. Opinion on impact of competitors in tourism sector on its development

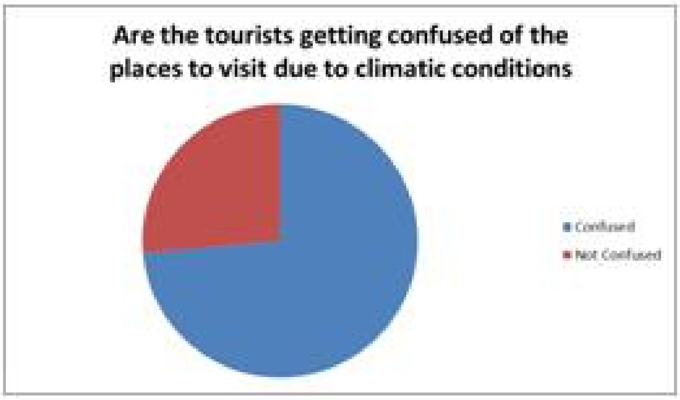

Figure 6. Opinion on Climatic conditions on tourism sector

As per the graph which depicts the opinion on the immigration rules in India affecting the development of tourism industry (Fig. 7), majority opines that there may be the reason behind the changes in the immigration rules in India is the main cause for the development of the Tourism Industry.

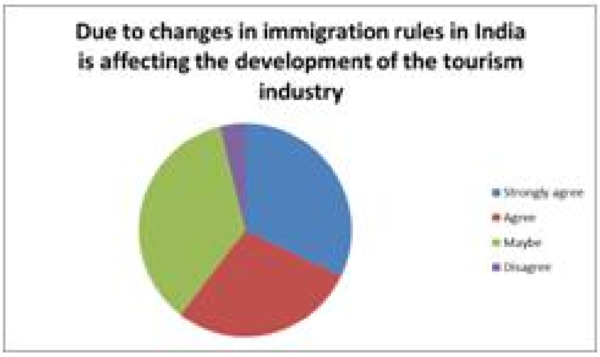

Figure 7. Opinion on the immigration rules in India affecting growth of tourism industry

Here by this we can get to the result that the tourists are not getting confused by the different tastes & cultures that are there in India (Fig. 8) . But the tourists are enjoying in living in different cultures & tastes.

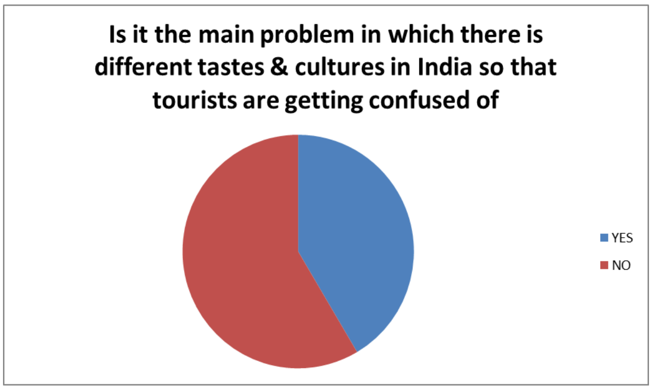

Figure 8. Opinion on Impact of diversity in tastes and culture on tourism

By the graph given in Fig.9, there is no proper guidelines for tourists to see the place .

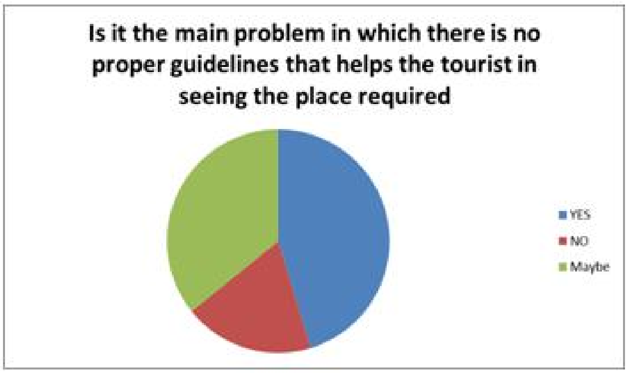

Figure 9. Opinion on guidelines for tourists

So the government should take the initiative in providing proper directions and signboards which helps in getting navigation for the Tourists in visiting the places. Fig. 10 is the graph that explains that there is the requirement of both public as well as the government responsible in the protection of the Historical places & Monuments which are located in India for the future generation people .So that they can know about our history of India.

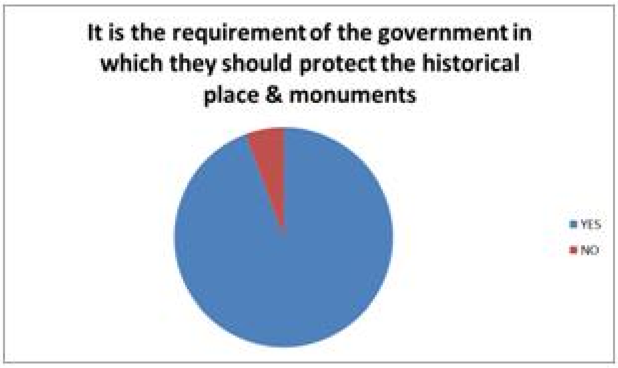

Figure 10. Opinion on protection of historical place and monuments

6. **Key Discoveries in Tourism**

The key clients distinguished are the private area, the administration, and the NGO people group. The NGOs are for the most part cooperating with the administration offices, aiding the execution of distinguished arrangements of visit administrators, lodgings, cafés, aircraft organizations, sports and entertainment activities, and transport and ship administrators were investigated.

- Estimation of future interest is the key worry for generally administrators. This is basic for them to design their tasks, and build up the limit with respect to any conceivable developments given that this division still has a sensible development potential.
- There is additionally the requirement for a superior comprehension of the profile and qualities of the vacationer. With developing weights of advancement in northern district of the nation, there is the need to extend the current limits of the items and administrations toward the southern and the waterfront zones.
- The request side investigation would not recount to the whole story thus the inventory side examination requires the comparable sort of examination for the private division. Learning of the current limit of organizations, their quality, and normal for items and administrations offered will diminish the "secret" of speculation and would likewise bring business sector

proficiency in the segment.

- The private segment concerns are the doubt that has created among them and the organization for different reasons: key among them being the conflicting arrangements of assessing charge filings both for the corporate duty just as the GST.
- Timeliness of information will be pivotal for the private segment during the time spent their basic leadership.
- Understanding the structure of the business, its monetary, social, and natural effect and formation of practical systems to augment the advantages of the segment in perspective on these effects is an essential methodology proclamation.
- Furthermore, the administration comprehends the prerequisite to make better foundation and how this would support the segment action. Nonetheless, evaluation of framework needs would require greater objectivity.

7. Conclusion

In the globalized time, a nation which needs to be a pioneer can't overlook its administration area. By oil, the travel industry is the biggest outside trade winning division on the planet. Nations with beautiful normal magnificence and rich social customs can succeed a great deal through the practical utilization of these characteristic blessings. Shorelines and slope goal are the noticeable blessings which draw in globetrotters. Among these, slope goals with appealing common highlights, Hill Tourism in India charming climate and eye getting locales charm countless individuals from around the globe. In India Its characteristic helps like the sandy shorelines, beautiful slopes, old landmarks, well known customary celebrations or more all, the charming atmosphere pulls in various explorers around the globe. Among these regular blessings, slopes in India comprise a critical supporter in the outside trade profit of the State. The present examination has been led to look at the different variables which need consideration for the supportable advancement of slope goals, a noteworthy the travel industry result of the Kerala. Openness to the goal and accessibility of different offices are the pre-essentials for the advancement of any goal.

While spotting out the accessibility of value offices at the goals, it is seen that there exist great arrangement of vehicle, great convenience offices, supply of value sustenance and refreshments, quality drinking water and great sanitation, banking and shopping offices. Slope the travel industry has had beneficial outcome on the monetary measurement in the life of neighborhood networks. Be that as it may, social shades of malice, social debasement and ecological corruption coming about because of the expanded collaboration with voyagers, purposive development and so on destruct the woods and commercialise the way of life, rose as a risk in the advancement of slope the travel industry in Kerala. By considering the above actualities the specialists ought to guarantee appropriate use of these valuable normal assets.

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A STUDY ON CONSUMERS PROBLEM IN E-BANKING

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Abstract

The e-banking revolution has fundamentally changed the business of banking by scaling borders and bringing about new opportunities. In India also, it has strongly impacted the strategic business considerations for banks(including the PSBs) by significantly cutting down costs of delivery and transactions. It must be noted, however, that while e-banking provides many benefits to customers and banks, it also aggravates traditional banking risks. This paper is an attempt to study the challenges of E- Commerce. E-banking provides users, working with a home computer attached to the network to their bank , with the ability to authorize payments, reconcile accounts, and access a variety of other banking services with the help of ATM, Visa Card, Master Card ,Q-cash, E-cash, Ready Cash ,Mobile ,Internet etc. E- banking has a lot of benefits which add value to customer's satisfaction. For collecting the data a highly structured questionnaire was made. The questionnaire was designed into two parts.

Keywords: E-banking, Internet, Data , Banking, Risks

1. Introduction

E –banking refers to the electronic banking. It is like e- business in banking industry. E – banking is also called as "Virtual banking" or "Online banking". E –banking involves information technology based banking. Under this I.T. system, the banking services are delivered by way of a computer controlled system. This system does involve direct interface with the customers. The customers do not have to visit the bank premises. The popular services covered under E-banking includes Automated teller machines, credit card, debit cards, smart cards, electronic funds transfer(EFT) system, cheques truncation payment system, mobile banking, telephone banking, etc

E –banking , it is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website. The online banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services.

1.1 Review of Literature

- **Vijay M. Kumbar (2011)** Factors affecting the customer satisfaction in E-banking . According to the researcher his paper states that there is limit on the money transfer or money withdrawals. But there is no limit on deposits.
- **Prof. Sultan Singh, and Deepak Kumar Sharma(2014)** Analysis of problem faced by customers during use of Internet banking.There are many fraudulent companies which are misusing thee-banking facility due to which many people have lost their hard earned money.
- **Mr. ParmanadBarodiya, Miss. NeemaKumariJadoun(2015)** E-banking , benefits and challenges. As the e-banking purely depends on the Internet , it is necessary to have a good connectivity to the bank server without which it is impossible to make any transaction.

1.2 Objectives of the Study

- To study problems faced by customers in E-banking
- To study various factors affecting E-banking services

2. Research Methodology

Type of Study

The type of study used in this research is Descriptive study.

Sources of Data

Primary Data –Survey Method –Data is collected using questionnaires

Sampling Method

Convenience sampling

A convenience sample is a type of non-probability sampling method where the samples is taken from a group of people easy to contact or to reach. For example, standing at a mall or a grocery store and asking people to answer questions would be an example of a convenience sample.

This type of sampling is also known as a grab sampling or availability sampling. There are no other criteria to the sampling method except that people be available and willing to participate. In addition, this type of sampling method does not require that a simple random sample is generated, since the only criteria is whether the participate agree to participate.

3. Data Analysis

From Table 1, it is clear that majority of customers are facing problem because of E-banking. In out of 1000 questions as total , 644 customers are having problems faced by them , but only 356 customers are not having any problem with e-banking application and are disagreeing with the questions which were asked by us.

Sl.No	Questions	Agree	Don't Agree	Total
1	Updating of passbook gets delayed	65	35	100
2	Transactional charges are more	51	49	100
3	No proper guidance for E-banking	42	58	100
4	Security for account is less	75	25	100
5	Changes for issue of cheques, DD etc	62	38	100
6	Lots of procedure	69	31	100
7	Personal details are safe	50	50	100
8	Daily limit in fund transfer	80	20	100
9	Hackers can hack the account	70	30	100
10	Needs internet connection	80	20	100

Table 1. Problems faced by the costumers in e- banking

4. Suggestions

- The private commercial banks may provide fewincentives like as minimum service charge for these who are using e-banking products and services.
- In order to detect and minimize the security risk and banks can take some security measures.
- The bank authority should build up strong and effective ICT department and provide training to the employees about the basic ICT related matters.
- The software relating to e-banking products and services should be regularly updated and

reviewed.

- The bank authority should ensure available power backup as well as uninterrupted and high speedy internet connection.

5. Conclusion

The e-banking revolution has fundamentally changed the business of banking by scaling borders and bringing about new opportunities. In India also, it has strongly impacted the strategic business considerations for banks(includingthe PSBs) by significantly cutting down costs of delivery and transactions.

While electronic banking can provide a number of benefits for customers and new business opportunities for banks, it exacerbates traditional banking risks. Even though considerable work has been done in some countries in adapting banking and supervision regulations, continuous vigilance and revisions will be essential as the scope of e- banking increase. In particular, there is still a need to establish greater harmonization and coordination at the international level. Compared to developed countries, developing countries face many impediments that affect the successful implementation of e-banking initiatives. In this paper, we have identified some such impediments in the Indian context.

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E-BANKING IN INDIA : STUDY ON E-BANKING WITH RESPECT TO CHALLENGES, PROS AND CONS

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Abstract

As of the recent day's the demand for financial services is increasing rapidly and the customer usage regarding these kind of services is widely going to increase. Consequently, it is compulsory for the banking sector additionally that in lieu of the traditional banking it should adopt electronic banking and some incipient strategies in order to magnetize and retain subsisting as well incipient customers. E-banking is the most pioneering trend among the customers in the present era and secured financial services. The transfer from the traditional banking to e-banking has been an elevating amendment in banking sectors / transactions. Enlarged competition, the advancement of information, communication technology, and increasing business environment etc. are the consequential concerns that have forced banking services to update. This particular paper endeavours to explore the sundry online customer services provided by the banking industry in India. To quantify the progress of sundry online services provided by the banks, data has been amassed from 2003 onwards from the website of the Reserve Bank of India. After visually perceiving the growth rate of e-banking services it can be verbalized that e- banking is accepted in the banking sector and an abundance of work can be done in this sector to make it more advance, safe and more expeditious features provided in finance sector.

Keywords: ATMs, National Electronic Funds Transfer (NEFT), RTGS.

1. Introduction

Financial sector plays a key role in the economic growth of a country. Banks are widely considered as the most important part of the financial sector. Economic growth & development of any country is mainly influenced by the advancement of the banking sector. In the present era of technology demand of financial services is transmuting at a very high rate. To meet these kind of the ordinate dictations adoption of incipient advanced technology in banking sector is obligatory to accommodate the existing customer and to magnetize more customers widely. The banking sector is increasingly growing which facilitates the opportunity of utilization of financial resources, immensely continuous flow of investment or the intermediation activities as well as operating in a rapidly innovating industry to facilitate its customers. The globalization is exclusively transformed to face of Indian banking industry from the past few years. Banks have primarily been in the front position of the exploiting technology to promote/provide their products/services and working competency. Over a long period of time banks have been utilizing electronic and telecommunication modes for distributing a wide range of their product/services. The transaction channels include private networks, public networks. and the devices include phone, computers, Automated Teller Machines (ATMs), etc. The extensive utilization of computers, laptops, tablet, mobile phones etc. make easy access to internet and World Wide Web. This form of banking is generally referred to as Electronic Banking, and the range of products and services offered by different banks which vary considerably both in their content and sophistication. From the perspective of banking products and services being offered through internet, debit and credit cards, ATMs, mobiles, e-banking is nothing more than traditional banking services distributed through an electronic communication being as a backbone. There are not many inventions that have evolved the business of banking as expeditiously as the e-banking revolution. World over banks re oriented their business strategies towards new opportunities offered by e-banking services. E- Banking has enabled banks to scale borders and also helps to bring about new opportunities.

2. Literature Review

Tarandeep Kaur discussed that India has third largest reservoir of technical human resource, but it is not for medium of commerce for mass people, new models need to be developed and worked out with appropriate strategies to make electronic commerce and M-commerce as key policy for the development and progress in India. This current state will be further helpful to develop the new generation Ecommerce i.e. mobile commerce for mass in India. With the explosion of internet connectivity through mobile devices like Smartphone and tablets, millions of consumers are making decisions online and in this way enterprises can build the brand digitally and enhance productivity but government policies must ensure the cost effective methods/solutions. The advancements in technologies andinnovative services shows that India is moving from E-commerce to M-commerce, and in future E-commerce and M-commerce will became asset for commerce by the people to the people in India. **Unyathanakorn*et al.*** uncovered that e-banks must fixate on service quality to increment customer contentment and trustand to obtain customer staunchness. Implicative insinuations are discussed in cognation to e-bank management. The Cyber World has become a vital part of people’s daily lives. It has transmuted consumer deportment in many ways,including financial transactions formerly requiring a visit to a bank branch toachieve.Commercial banks have been in the forefront in utilizing this to meet customer desiderata for on-demand financial services. **N. Jamaluddin**concluded that Information technology has played a vital role in the advancementof banking system. The reach of Indian banking to every individual is possible because of the computerization process adopted by banking sector. Information technology has not only simplified the operation but it has also given a great comfort an individual who does not have a good knowledge of IT but need to access banking in an optimum manner. **RoshanLal**analyzed that development of e- bankingin banking sector is due to advent of IT. Banks today operate in a highly globalized, liberalized, privatized and a competitive environment. In order to survive in this environment banks have to use IT. Indian banking industry has witnessed a tremendous developments due to sweeping changes that are taking place in theinformation technology. In the study conducted by **Mohammed and Shariq**examined the adoption of e-banking channels, particularly ATM, in the city of Lucknow, U.P. He found that ATM was the most adopted technology by banks.Today, many banks are internet only banks. Unlike their predecessors, these internet only banks do not maintain brick and mortar bank branches. Instead, they typically differentiate themselves by offering better interest rates and online banking features. The adoption regarding the rates ofinternet banking usage decreases from north to south and from rich to poor. According to a research report, the GDP and per capita and latitude explain statistically around 80 per cent of the variation. Internet banking grows – usually, but not always at the expense of branch visits. Bank customersincreased their use of internet banking while many individuals do not discriminate between internet banking and e-commerce. By saying this, there is a tendency that those who shop online are alsomore willing to bank online with response to internet banking than their share of online shoppers would suggest a more reserved and constant attitude towards online banking. Moreover, as per other research reports it states that the share of internet bankers does not decrease with age.

3. Objectives of the Study

- To identify/know about the various e-banking services/products provided by Indian banks.
- To study and analyze the progress made by Indian banking industry in adoption of technology to provide technology based services.
- To analyse/review the future prospects of the e-banking services of the Indian Banking Industry.
- To identify the challenges faced by Indian banks in the adoption of technology and providing

recommendations to tackle/face these challenges.

4. Research Methodology & Database

The study is predicated on primary data. It is analytical and exploratory in nature. Statistical and mathematical tools such as simple growth rate, percentage, average, trend lines and compound annual growth rate (CAGR) are sourced to analyze thedata. Data has been amassed from) from Reports on Trends and Progress of Banking in India and monthly data releases about e-banking transactions published by Reserve Bank of India. The parameters of the study are Automated Teller Machines and Transactions through Retail Electronic Payment Methods such as Electronic Clearing service (ECS) - debit and credit, National Electronic Fund Transfer and Real Time Gross Settlement System. To study about the future prospects of the various e-banking services trend analysis is done.

5. Analysis and Interpretation

Transactions done through ECS: By the utilization of electronic payment systems such as Electronic Clearing Services (ECS) credit and debit the haste of financial transactions across the country has increased. Electronic Clearing Services (ECS) is one of the incipient and latest electronic banking services. ECS is a non-paper predicated kinematic of funds which is emboldened by the RBI on a wide scale.ECS consists of- Electronic Credit Clearing Service & Electronic Debit Clearing Service. ECS brings down administration cost and ensures profitability and productivity to the banks. In average terms volume of ECS Debit (128.44) is preponderant than ECS Credit (84.35). Growth rate in case of ECS Credit has incremented tremendously decreasing in the past few years.In case of ECS Debit maximum growth has been taken as ending value because the volume of pat few years do not include the value of last quarterof the financial year as it has not been updated on RBI website (at the time of data compilation). ECS Credit (volume) and ECS Debit (Volume) registered a not able upturn from past few recent years with a Compound Annual Growth Rate (CAGR) of 15.56% and 32.29% respectively.

Automated Teller Machines (ATMs):

ATM (Automated Teller Machine) is a modern contrivance introduced by the banks to enable the customers to have access to money day-in and day-out without visiting the bank branches physically. The system is kenned as “Any Time Money” or “Any Where Money” because it enables the customers to withdraw money from the bank from any of its ATMs round the clock.

ATM has become the most popular and convenient dispensing channel throughout entire country. This indicates the progress made by ATMs of Scheduled Commercial Banks of the past few years. In average terms Onsite ATMs are more as compared to Offsite ATMs though the number of both has incremented in the period of last 10 years. In recent study only 8233 onsite ATMs were there but in 2017-18 it has incremented to 91,967 and recorded approximately 27.29 percent compounded annual growth rate. In the same way the total no. of off-site ATMs are also increasing year by year but maximum growth in total no. of off-site ATMs were recorded in the recent years i.e. 56.10%. All over CAGR in case of off-site ATMs is 23.82%.

6. Research Implications

This research fixated on all over growth done by the Indian Banking Industry subsequent to the assumption of internet/ e-banking facility. So the very first benefit of this research is for the banking industry itself to ken its pros and cons and it enables the major areas of trepidation where the Reserve Bank of India must focus. *E-Banking in India: Current and Future Prospects*11. Recently the Government of India has been accentuating on mounting financial inclusiveness. By opting e-banking and some other advance options banks can magnetize more customers and can help the Government to achieve the motive of financial inclusion. The study provides vital inputs that by increasing the no. of ATMs and by opening up new branches which is well furnished with new technologies can help more people to have bank accounts and to access all e-banking services.

7. Limitations of the Study and Scope for Further Research

The study is based on secondary data. So the problem as associated with normal secondary data may partially retain in the analysis. In the present paper data has been amassed from 2003-04 to 2015-16 (for 2015-16 data of last quarter was not available as the financial year yet to culminate at the time of data compilation) from the website of Reserve Bank of India so researchers have a further scope to study the later part of the year 2015-16 besides exploring the impact of financial inclusion which is implemented and pacified in post Modi period. This study grossly depends on data published by RBI and prior researches done by other researchers and other such resources and documents for the period mentioned above as the data prior and later than that were not available. This paper is based on services like ECS, RTGS, NEFT and no. of ATMs there is a wider scope for the researchers to analyse other digitalized services also like plastic money, online transactions and mobile commerce facility provided by the banks.

8. Challenges in Adoption of E-Banking

The under-mentioned challenges are in obverse of the Indian banking industry while adopting new technology:

- The most solemn threat faced by the banking sector is that the customers do not consider e-banking services safe and secure all the time. They cerebrate that there may be loss of data/money due to technical defaults.
- Banks are facing business challenges also. For the transactions made through internet, the service charges are very low. Unless an astronomically immense number of transactions are routed over the Web, the e-banks cannot cerebrate of profit.
- There is lack of preparedness on the part of both i. e. Banks and customers in the adoption of incipient technological changes.
- There is lack of congruous infrastructure for the installation of e-delivery channels.

9. The Advantages of Internet Banking

Many banks have begun to offer customers the option of online-internet banking, a practice that has advantages for both all parties involved. The convenience of being able to access accounts at anytime as well as the ability to perform transactions without visiting a local branch, draw many people to be involved. Some of these advantages of internet banking but are not limited to, include customer's convenience. Direct banks are open for business anywhere there is an internet connection. They are also 24 hours a day, 365 days a year open while if internet service is not available, customer services is normally provided around the clock via telephone. Real-time account balances and information are available at the touch of a few buttons thus, making banking faster, easier and more efficient. In addition, updating and maintaining a direct account is easy since it takes only a few minutes to change the mailing address, order additional checks and be informed for market interest rates. More efficient ratesThe lack of significant infrastructure and overhead costs allow direct banks to pay higher interest rates on savings and charge lower mortgage and loan rates. Some offer high-yield checking accounts, high yield certificate of deposits (CDs), and even no-penalty CDs for early withdrawal. In addition, some accounts can be opened with no minimum deposits and carry no minimum balance or service fees.

Direct banks typically have more robust websites that offer a comprehensive set of features that may not be found on the websites of traditional banks. These include functional budgeting and forecasting tools, financial planning capabilities, investment analysis tools, loan calculators and equity trading platforms. In addition, they offer free online bill payments, online tax forms and tax preparation and Mobility. Internet banking also includes mobile capabilities. New applications are continually being created to expand and improve this capability or smart-phones and other mobile devices. Transfers Accounts can be automatically funded from a traditional bank account via electronic transfer. Most direct banks offer unlimited transfers at no cost, including those destined for outside financial institutions. They will also accept direct deposits and withdrawals that the customer authorizes such as payroll deposits and automatic bill payment. Ease of use. Online accounts are easy to set up and require no more information than a traditional bankaccount. Many offer the option of inputting the customer's data online or downloading the forms and mailing them in. If the customer runs into a problem, he has the option of calling or e-mailingthe bank directly. Internet banking is also environmentally friendly. Electronic transmissions require no paper, reduce vehicle traffic and are virtually pollution-free. They also eliminate the need for buildings and office equipments.

10. The Disadvantages of Internet Banking

Internet banking seems like an obvious choice to leave the hassles of traditional money management behind in exchange for it. However, there are potential problems associated with banking over the internet of which customers may not be aware. Consumers need to weigh the advantages as well as the disadvantages of internet banking before signing up.

A traditional bank provides the opportunity to develop a personal relationship with that bank.Getting to know the people at your local branch can be an advantage when a customer needs a loan or a special service that is not normally offered to the public. A bank manager usually has somediscretion in changing the terms of customer's account if the customer's personal circumstances change. They can help customers solve problems such as reversing an undeserved fee. The bankeralso will get to know the customer and his unique needs. If the customer has a business account, this personal relationship may help if the customer needs capital to expand. It's easier to get the bank's support if there is someone who understands customer's business and vouch for his operating plan. Transaction issues

Sometimes a face-to-face meeting is required to complete complex transactions and address complicated problems. A traditional bank can host meetings and call in experts to solve a specific issue. Moreover, international transactions may be more difficult (or impossible) with some directbanks. If a customer deposits cash on a regular basis, a traditional bank with a drive-through window may be more practical and efficient.

Some direct banks may not offer all the comprehensive financial services such as insurance and brokerage accounts that traditional banks offer. Traditional banks sometimes offer special services to loyal customers such as preferred rates ad investment advice at no extra charge. In addition, routine services such as notarization and bank signature quarantee are not available online. These services are required for many financial and legal transactions.

Direct banks are subject to the same laws and regulations as traditional banks and accounts are protected by the FDIC. Sophisticated encryption software is designed to protect your accountinformation but no system is perfect. Accounts may be subject to phishing, hacker attacks, malware and other unauthorised activity. Most banks now make scanned copies of cleared checks available online which helps to avoid and identify check fraud. It enables verification that all checks are signed by the customer and that dollar or euro amounts have not been changed. The timely discovery of discrepancies can be reported and investigated immediately.

11. Recommendations and Conclusion

Banks are making earnest efforts to popularize the e-banking services and products. Younger generation is commencing to optically discern the convenience and benefits of e-banking. In years to come, e-banking will not only be customary mode of banking but will be chosen mode of banking. No doubt Indian banks are makingsincere efforts for the adoption of advanced technology and for installation of e-delivery channels but still masses are wary of the concept and still there are manychallenges cognate to the safety and security of the money and information so some special arrangements should be made by banks to ensure full security of customers' funds. Technical defaults should be evaded by employing well trained and expert technicians in field of computers, so that loss of data can be avoided. Seminars and workshops should be organised by the banking professionals on the salubrious utilization of e-banking services especially for those who are ATMs or computer illiterate. E-banking services should be customised on basis of age, gender, vocation etc. so that needs and requisites of people can be rewardedaccordingly. Government should magnify investments for the construction of well furnished building and the infrastructure.The rise of internet banks has increased the competition of the banking business. Since both,internet and “brick-and-mortar” banks offer unique benefits and drawbacks, it may not be wise for a potential future banking customer to do banking exclusively with either option. While its notpossible for everyone, the best thing may be to separate banking between both in-store and online services and enjoy the conveniences and savings of internet banks while maintaining the customer service and personal relationships that a physical branch can provide. Although the benefits of internet banking are undeniable, there are some inconveniences and concerns of which customers should be aware of. Many people have difficulty relying on the security of online transactions, fearing the very real possibility of identity theft. Identify theft is a significant concern, but some online banks take this risk more seriously than others. Before opening an online account, its better for the customer to investigate the bank's security policies and protections to ensure they meet his expectations. Clearly, choice of whether or not to bank over the internet depends on manyvariables. Even if a customer can see benefits, he may be unwilling if he does not trust or have much experience with the internet. At the other end of the spectrum, people may sign up for limited services like account viewing. This will save them from safety concerns but will give them dailyaccess to account activity. If the customer decides that internet banking is right for him, he must be sure to review other offers from several banks. Each bank has different fees and advantages that can make a big difference in how much internet banking costs. By comparing deals and being educated, a customer can find an internet banking service that suits his needs.

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DIGITAL MARKETING AND ITS IMPACT ON BUYING BEHAVIOUR OF YOUTH- SPECIAL REFERENCE TO BANGALORE CITY

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Abstract

The buying pattern of purchaser is changing at a quicker rate in the customer oriented market environment. Consumer behaviour differs when it comes to the product, price, features, quality, packaging, shopping for behaviour, status, generation, age of the customer. However, you this the most intricate crew to correspond with. The altering preferences of the present day youths, impacts the buying sample due to the fact that they in general observe the rhythm of fashion and taste in accordance to the altering time. Therefore, Marketers spend crores of amount and invests much time on market research each year to pick out and predict the altering adolescence behaviour. The present technology is extra involved with the online shopping than the traditional buying. The entrepreneurs are pressured to introduce the revolutionary way of promoting due to the pressure of the younger generation's buying behaviour. The buying conduct and behavioural pattern of youth has as greater effect on the purchasing behaviour. Subsequently in this study, Digital advertising and its effect on shopping behaviour of youth is targeted as the coreissue. The study exhibits that most of the youngsters of the present generation have access to the digital media but they lack the awareness about its optimum utilization.

Keywords: Digital marketing, Youth, Buying Behaviour of Youth.

1. Introduction

Digital Marketing is described as buying and promoting of information, products, and offerings via computer networks or internet. Internet and digital commerce technologies are re-modelling the entire economic system and altering business models, income streams, customer bases, and grant chains. New business fashions are emerging in every enterprise of the New Economy. Customers of online shopping are delighted with on the spot transport and flawless payment mechanisms. Even online classifieds have made a profitable transition with jobs and matrimonial aspects taking the lead. Online shops are now pushing a large quantity of categories such as electronics and white goods. In these emerging models, intangible assets such as relationships, knowledge, people, brands, and systems are taking centre stage. The web is a disruptive technological innovation however consumers in all places are waking up to the concept of purchasing online. The impact on retailing has been profound and as the end result, many agencies are altering the channels they use to sell their goods and services. In some parts of the world, retailers have been speedy off the mark in growing their own individually branded e-commerce stores, whereas in other components the e-market place dominates.

1.1 Digital marketing scenario in India

India is the world's third largest internet population. After the proliferation of Internet, Marketing strategy has taken an off root to reach out to the public. The fantastic increase that digital marketing has proven can't be in shape up with any other strategy. Looking up to the contemporary situation in India, human beings right here are not only aware of Internet but are using it for a variety of purposes. Thus, there's a booming internet marketing industry in India. In India social media is the driving adoption of digital marketing. The retail sector in India is booming both online and offline. India is a relative latecomer to the online buying revolution. Social media is assisting to drive the development of digital marketing. Increasingly wealthy populations of young internet savvy customers are spending greater time and money online and in doing so, they are influencing shopping trends. Among the popular products online are books, consumer electronics, travel, financial services, clothing and beauty care. Online buying is concentrated in foremost urban areas with Mumbai being the main centre accompanied by Delhi and Kolkata. Also in travel sector ticketing has seen a change in the ultimate decade. One estimate suggests that online journey enterprise contributes about 76% of the total net commerce in India. Ticketing is now accomplished both in third party websites or airline sites.

Currently, the internet accounts for about 70% of India's GDP. This study evaluates the extent to which youth plays a role in directing the marketer. The study is performed to find out about how useful it is for the marketer to devise the marketing techniques to capture the current and workable youth segment.

1.2 Buying behaviour of youth

Buying behaviour of an individual plays a predominant role in consumer behaviour in general and among the youth in particular. The prosperity of online buying in India is massive due to the fact of its massive measurement of youth population. The government is investing a lot in internet infrastructure. The organized retailing can't reach to the rural part of India easily whereas online outlets are trying to find consumers in cities, including villages across India.

2. Review of Literature

➢ **Vishal Khasgiwala& Monica Sainy:** In their study titled “Gender disparity smart learn about of Impulsive shopping for conduct and exploratory tendencies of youth in central India”, impulsive buying behaviour is experimented. Impulsive shopping for is a common conduct these days and can occur in any setting. Much of the human undertaking is pushed by using impulses that are biochemically & psychologically stimulated. Impulse buying refers to instantaneous purchases which are without any pre-shopping objective either to purchase the specific product category or to fulfill a unique need. India Being a transitional economic system technological growth such as television purchasing channels and the Internet increase consumers’ impulse purchasing opportunities, growing each the accessibility to merchandise and offerings and the ease with which impulse purchases can be made. Impulse buying is an unplanned buy that is characterized through distinctly fast decision-making, and a subjective bias in prefer of instant possession.

➢ **Priyanka Mehra (2009)** mentions that youth have constantly been a prime goal for marketers. More so in India now, as two-thirds of the populace is under 35 years of age. According to MindShare Insights, the research divisions of a media buying enterprise MindShare, 65%, or over seven hundred million Indians, are younger than 35 years. This phase has an impact on consumer spending a long way in extra of its numerical strength. Nine million human beings in the age group of 12-25 years from the top 35 cities (one million plus population) in India are the ones setting the tendencies and raising the aspiration value for one-billion-plus Indians, reviews Mind Share Insights.

➢ **Rashmi Bansal (2007)** described urban youth as youth marketers of today in India and not as per the version of sociologists and media men who relate it to the data of men underneath the age of 25. Youth may want to be described as a powerful and cultural force, the consumers of today and the growth engines of tomorrow. This learn about concentrates on the aspirations, inspiration and perspiration of urban Indian childhood and now not on the response of the youth’s preference of either Western or Indian styles or the cultural values. There is little doubt that increasing affluence would lead to radical selections for the future generations.

3. Objectives:

- To identify the factors influencing the changing buying behaviour ofyouth
- To examine the changing buying behaviour of youth and their impact on Digital Marketing.
- To suggest the Indian marketers, the changing buying behaviour of youth and its influence.

4. Research Methodology:

Sources of data

Both Primary as well as Secondary data is used to perform the research. Primary Data is collected through the Questionnaire. While, the Secondary Data are drawn from the published articles, research papers, census survey, published general report, sources through related websites.

Sample design

Simple Random Sampling technique is adopted to select the sample from Bangalore City.

Sample size

For fulfilling the objectives of the study, Random select of 100 youngsters have been considered from Bangalore city.

Data Analysis

One of the important steps is to analyze the data and discuss the findings. In this part of the researcher, discussion is based on the empirical findings from this study. The data analysis mainly concerns primary data collected in the form of questionnaires distributed among youth of Bangalore city through google forms and thus frequency method is adopted for segregation of survey answers.

5. Findings of the Study

The following are the important findings of the study:

- India is the 5th largest nation in terms of YouTube users. On an average ,Indian's spend around 24 hours a week online, which completely over shadowed Television.
- The Indian Online advertising market is growing fast at the rate of 50% per year. The factors

which generally influence the buying behaviour of the youth includes: lifestyle, impression, purchasing power, family background, employment status of the youth, intervention of Western culture and other aspects.

- India has nearly 1000+ mobile subscribers and atleast 50 million subscribers have internet enabled mobile phones.
- The number of websites in India is 1.8 Billion while that of Facebook profiles is more than 250million+.
- Every day roughly around, 8 million inbound and 12 billion outbound messages are sent via Whatsapp.
- Besides, online retail in India is on rise as 60% percent of web users in the country visit online retail sites.
- The study reveals that most of the youngsters of the present generation have access to the digital media but they lack the awareness about its optimum utilization.
- When all other industries in India are struggling with 10 to 12 %, digital marketing industry is booming high with 30% growth rate.
- Even after having such blowing opportunity, India still lack people who are skilled and mastered in Digital marketing. India needs talented Digital marketers who can use this opportunity which can create a revolution. Things will get better in the current scenario and in future too as India has the resources. All that to be done is to polish the talent.
- The markets of the present day also do lot of research to understand they out hand their buying behaviour pattern, so that they can match to the requirement of the youth segment.
- Buying behaviour is a changing factor and that too it is changing at a faster rate, so most of the products which is of recent innovation becomes obsolete too quickly. Innovation kills innovation.
- Due to changing technology what is an innovation today becomes obsolete tomorrow.
- This poses many challenges to the marketers. Majority of the respondents feels that any time purchase is possible through online. Respondents feels that customers take very less time to purchase.

6. Conclusion

To conclude, the youth: their buying behaviour, purchasing power, awareness about the products etc have greater influence on the individual and family buying behaviour. They form a major portion of market segment in India. Every marketer must understand the psychology of these youth segment, so that they can be a successful marketer in the days to come in the competitive economy. The Digital marketing which has revolutionized the economy in general and marketing in particulars poses many threat and challenges to the marketer in the competitive market. Changing buying behaviour warns the marketers to understand the youth in a better way to devise suitable marketing strategies to retain the present and to capture the potential market.

7. Suggestions

➢ Marketers need to understand the accessibility of the digital facilities to the youth segment, before launching any product in online.

➢ Marketers need to conduct a pre-market survey to identity the need of the consumers especially by conducting a survey on social media.

➢ As most of the studies revealed that the customers are risk averse and hence they need to be taught how to handle risk associated with digital marketing.

➢ The study ultimately suggests the readers and users to be aware of all the Digital marketing portals and make use of their utility to the maximum extent with utmost care and caution.

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THE ROLE OF NGO IN CONSUMER PROTECTION IN REFERENCE TO VOICE IN NEW DELHI

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Abstract

Gone are the days of "Caveat Emptor" when buyers had to beware and we know that earlier markets used to be nature based whereas nowadays it is demand based. In today's world, a consumer is the one who is assumed to be treated like a King as they are the ones who brings business to the seller. Thus, these days fingers are pointed towards the sellers- "Lets sellers beware" due to policies introduce, government laws, consumer privileges and existence of increased number of NGOs for consumer protection. Consumer protection is a term given toa practice where we need to protect the consumers from unfair selling practices, educatingthem about their rights and responsibilities and redressing to the customer grievances. This helps in makingbestchoicesbasedoninterestandnottobemisledbybusinesses.Againstthisbackdrop the present paper is an attempt to examine the role of VOICE Society promoted by Voluntary Organisation in Interest of Consumer Education (VOICE) with the avowed objective of promoting and strengthening consumer education in India to raise awareness amongst Indian consumers on their own Consumer Rights and governing Consumer Laws. Secondary data is collected for the purpose of study.

Keywords: Consumer protection, Consumer Education, NGO, VOICE, Consumer Rights.

1. Introduction

A Non-Government Organization (NGO) is any non-profit, voluntary citizen group which is organized and operated on a local, national or international level. They are task-oriented and driven by people with common interest. NGOs play a critical part in developing society and improving communities. Some of the specific issues on which NGOs are formed are Human rights, Consumer protection, rural welfare, environment protection and so on.

In India, consumer protection is of supreme importance because due to the increased population, there is more pressure on production because it is consumers who demand goods and services and it is important to serve customers with what they want. To assist the consumers in getting a fair deal for their purchases, to educate them of their rights and responsibilities and helping them in settling their grievances it is important to make consumer movement a reality through coordinated efforts. There are more than 300 voluntary organizations in the area of safety of consumers all over the country.

The producer's tend to listen to the consumers' complaint when voiced through organization of consumer. A consumer with grievance confronting a manufacturer will generally be able to get his grievance redressed when the manufacturer gets a note that a consumer organization is also behind them. Thus, consumer organization plays an important role as an arbitrator between manufacturer and consumer to resolve grievances that are not settled for a long time.

Also on the other hand, for many consumers' handling a complaint would be a first experience but for a consumer organization the case is different as they would come across many complaints that are handled by them on a regular basis and thus, they would be well acquainted with the procedures for settlement. Therefore, seeking help of such consumer protection organizations can safeguard consumers from all such unfair trade practices.

2. Literature review

Dhyani.A.K (1990) in his study entitled "Role of Government Agencies in Consumer Protection", found that Monopoly and Restrictive Trade Practices Commission of India is unable to keep pace with the complaints filed before it.

Singh and Balanchandram (1994) in his research paper conducted a survey entitled "Evaluation of the Effectiveness of the Implementation of the Consumer Protection Act, 1986", found that there is inordinate delay in disposing the cases of the aggrieved consumers and suggested that there is need of effective coordination and concerted effort by all concerned to educate the consumers about their rights and Redressal machinery available to them.

Tangade and Basavaraj (2004) in their study entitled "Awareness and Perception of Educated Consumer about Consumer Protection Laws", analysed the level of awareness and satisfaction of educated consumers about the various laws and found that there was a direct relation between education and awareness. It also highlighted the significant role of electronic and press media in creating awareness amongst the consumers. It also found that most of the consumers want that Government should make serious efforts for increasing the awareness among rural and illiterate masses.

Dr. Babita Saiyed & Akil saiyed (2013) in his research paper entitled "Market and Consumer Protection",the objective of this paper is keep informed the consumer about their exploitation. In the rural area consumers constantly gets exploited as they are lacking education and awareness about their rights. Prevention of malpractices and exploitation leads to consumer protection and hence the main objective of the paper is to make aware the consumers about their rights.

3. Objective of Study

- To study the level and extend of consumer education that the society needs
- To know the level of unfair trade practices prevailing in the market
- To study the role of NGO in protecting consumers rights with regard to VOICE
- To offer suggestions and recommendations in order to avoid and reduce unfair trade practices.

4. Scope of the Study

The scope of our study is to learn about the working of VOICE with regard to Consumer protection, the challenges that they face in their day to day working and to provide with suggestions in order to overcome and to encourage such voluntary organizations throughout different regions that can benefit the society at a long-run.

5. Data Collection Method

The present study is based on secondary data. It is collected through various sources like Internet, journals, Articles, Newspapers and previous research papers.

6. Who is Consumer?

According to [Sec 2(1) (d)] "Consumer" means any person who buys any goods for a consideration (a) which has been paid or promised or partly paid or partly promised or (b) under any system of deferred payment. "Consumer" does not include a person who obtains goods for resale or for any commercial purpose.

Responsibilities of Consumers

Consumer duties and responsibilities includes the following:

- **Be Quality Conscious**: It is the responsibility of the consumers to look for the quality of the product they buy by looking for the certification marks like ISI, Hallmark, Agmark etc. while making the purchases. It is important to become skilled and informed consumer to function effectively in the marketplace.

- **Beware of misleading advertisements**: Advertisements often exaggerate the quality of products but it is the consumers' responsibility not to blindly rely on advertisements and instead carefully check about the product before making purchase. In case of dissatisfaction with a product or service, it is important to bring it to the notice of the authority and other consumers in a fair and honest manner.

- **Responsible to inspect on variety goods before making a purchase decision:** It is the responsibility of the consumers to check on various products at fair and competitive prices and compare their price, durability, quality, after sale service etc. in order to make the best choice within the limit of their own resources.

- **Proper use of Products:** It is expected that consumers use the products carefully especially during the guaranteed period of the products. People tend to use the products recklessly during the guaranteed period and it is important to avoid such practices.

- **Consumers must be aware of their Rights:** It is the responsibility of consumers to check on every minute details regarding the product and to ensure it is free from any kind of defects before making any purchase decision. Also consumers should be conscious and it is important they make responsible choices and to ensure not to engage in any dishonest practices. In other words, the purchases and consumption made by consumers should not lead to waste of natural resources, energy and environmental pollution.

7. Unfair Trade Practices Prevailing in the Country

An "unfair trade practice" means a trade practice which for the purpose of promoting any sale, use or supply of any goods or services adopt unfair method or deceptive practice. Some of the practices include

- False Representation such as:
- When goods and services are not of stated standard, quality or grade
- When second hand or renovated goods are sold as new ones
- When seller does not have required approval
- When goods/services do not have claimed benefits
- When goods/services do not have claimed guarantee/ warranty
- When price of products is misleading
- False and misleading advertisements
- Offering gifts and prizes to customers without actual intention of providing the same

- Selling products which do not fall under the safety standards set up by the competent authority.

8. Role of non-Government Organization

In addition to government, many about 300 Non- Government Organizations (NGOs) are making efforts to safeguard the interest of consumers. These organizations generally perform the following functions:

The first priority of these consumer organizations is to accelerate consumers' awareness towards their rights and to accomplish these tasks they publish brochures, journals, arrange seminar, conference, workshops etc., to educate consumers and to encourage them to follow desirable consumption standards.

9. VOICE and Consumer Protection

VOICE is the acronym for Voluntary Organization in Interest of Consumer Education which has pioneered the protection of consumers in India. It is a voluntary action group which was established in 1983 in New Delhi with Academicians, Professionals, and Volunteers who work relentlessly to raise awareness amongst Indian consumers about their own Consumer Rights and governing Consumer Laws. Over the years, VOICE has been representing consumers and protecting their interest with policy makers, judiciary and statutory regulatory bodies. From 1991, they have been spearheading an independent and non-partisan programme on "comparative testing of products" which has been supported by the Government of India's Ministry of Consumer Affairs besides other ministries and department. VOICE provide independent and unbiased reviews of food items, consumer durables, financial and banking service and much more. It also runs a legal help-desk for consumers. They empower consumer to choose products that are safe and are in value of their money. They have been working tirelessly for more than 30 years now to educate and empower consumers. VOICE has among its stakeholders many Indian and International organizations supporting the social causes.

9.1 Nature of work of VOICE

- Build consumer awareness based on scientific facts and complete information to strengthen right of consumers, especially the right to make informed choices.
- Empower consumers through testing and evaluation of products and services
- Propagate the concept of "best buys" of products or services in India as prevalent in developed countries.
- Educate consumers on good and fair business practices including their right to grievance resolution.

9.2 Journey of VOICE

It is said "Great ideas do not need great physical space but great minds"! This is how VOICE began its journey from a single room in Golf Links Road in 1983. At a time when India was fast becoming a consumer oriented country, a group of bright young men felt the need to protect the rights, address the issues and empower the consumers. In 1986 VOICE registered as a Charitable Trust with Justice V M Tarkunde and Prof P.K Ghosh as donors.

In 1993, they started publishing one page on Consumer Affairs in University Times on a fortnightly basis and eventually VOICE Society was registered to publish English bi-monthly Consumer VOICE Magazine with Roopa Vajpeyi as its honorary editor.

The mandatory ISI Marking on bottled natural mineral water by Ministry of Health and Ministry of Consumer Affairs was triggered by the findings and recommendations of Consumer VOICE Study and testing of 13 brands of bottle natural mineral water.

In 2001, they initiated the Green-dot (vegetarian) and brown dot (non-vegetarian) marking on packaged food products. Consumer VOICE website was launched.

Later the English magazine was launched monthly and Hindi Magazine was published bi-monthly.

Consumer VOICE filed a petition on adulteration of milk. Supreme Court directed the Government to amend the law of adulteration and introduce life imprisonment for milk adulteration.

They educate consumers about their rights and advise on grievance redress. They openly offer suggestion for range of products that are tested and verified. It allows customers to register their complaints online and also provide a compliant status.

9.3 Challenges faced by VOICE

- **Lack of fund**

They are expressing difficulty in finding sufficient, appropriate and continuous funding for their work. They find accessing donors as challenging as dealing with their funding condition. There is heavy dependency on donors. Thus, there is a lack of financial and organizational stability.

- **Misuse of VOICE**

Sometimes the organization gets misused by filing fraudulent complaints that are not genuine and sometimes it becomes difficult for them to operate not being known what is the actual truth and thus, leading to the misuse of such organizations set up for the well-being of consumers.

- **Poor networking**

As there is lack of transparency, there is a great deal of suspicion among the donors not knowing where there money is actually being spent. This can result in duplication of efforts and conflicting strategies at community level.

- **Poor co-operation with mass media**

We know that customers are provided with an opportunity to register their complaints online and as a result of which they get number of complaints on a daily basis from various places. It is difficult to manage all together and to figure out which are true, fair, genuine and are to be dealt with on a priority basis.

10. Suggestions

- **Mass education:** Educating consumers through easily accessible technologies such as SMS to mobile phones can be cost effective and can make people aware about their rights and responsibilities. Such precautions through consumer education is better than customer grievances.

- **Income generation:** It would be great if they could find some income generation sources rather than completely depending on donors. They can buy certain amount of fees for the customer complaints so that it can also stop from fraudulent and unfair complaints that may lead to the wastage of time

- **Regional Networks:** It is important for VOICE to set up branches at different regions rather than being based only in Delhi so that it becomes easy to manage and look after things and to redress complaints in a faster and efficient manner. This can lead to better opportunities, better initiatives, more resources, better coordination, cooperation and harmony.

- **Transparency:** It is the right of the donors to know where their money has been spend. Thus it is important to be more transparent in their working. They should provide an annual report on the working of the organization for the knowledge of the stakeholders. So that this can ensure that the organization is working properly, no money is being wasted and can built better trust and can earn more donors rather than maintaining complete secrecy on where the money has gone.

11. Conclusion

In this paper, we have come through the rights and responsibilities of consumers, the commonly found unfair trade practices and we have appreciated VOICE for the kind of work being done by them to educate the people towards their right and to spread awareness to create a healthy society for the sake of every consumers' and to make sellers sensitive towards consumer rights. We saw the challenges faced by them and have come across suggestion for better working. Similar kind of NGOs can be formed in other places and their work can be replicated for the success of the country in particular and betterment and welfare of the society in general.

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ARTIFICIAL INTELLIGENCE AND ITS IMPORTANCE IN INDIAN BUSINESS

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Abstract

This paper offers views on Current and future trends in Artificial Intelligence (AI), The consumers are looking and searching more on internet to find the best deal from the sellers around India as compared to traditional or conventional method, the Artificial Intelligence works best.

This study we acknowledged that business can really benefit from AI Such as automation, Data Analytics and many more, helps businesses increase sales, detect illegal activities and improve customer experience. The retail business can map consumer behaviour using AI. Other common uses of AI in business includes transferring and cross transferring data, updating files, consumer behaviour forecasting and product recommendations, personalised advertising and marketing messaging , customer service via telephone or chat bots.

The study demonstrates that the business professionals are more connected online by using various social networks in creating new opportunities to attract customers through digital platforms.

Keywords: Artificial Intelligence, importance and uses.

1. Introduction

Artificial Intelligence (AI) has become the latest tech buzzword everywhere from silicon valley to china. But the first piece of AI, the artificial neuron, was developed in 1943 by scientist William McCulloch and logician Walter Pitts. Since then, we've come a long way in our understanding and development of models capable of comprehension, prediction, and analysis. AI is a study of how human brain functions, learn, decide and work, when it tries to solve problems and it also outputs intelligent software systems. The aim of AI is to improve computer functions which are related to human knowledge, for example, reasoning, learning, and problem solving. Approaches include statistical methods, computational intelligence, and traditional coding AI. During the AI research related to search and mathematical optimisation, artificial neural networks and methods based on statistics, probability, and economics, we use many tools. Computer science attracts AI in the field of science, mathematics, psychology, linguistics, philosophy and so on. The intelligence is intangible. It is composed of Reasoning, Learning, Problem Solving, Perception, Linguistics Intelligence. The objectives of AI research are reasoning, knowledge representation, planning, learning, natural language processing, realisation, and ability to move and manipulate objects. There are long-term goals in the general intelligence sector.

Many businesses take up Artificial Intelligence (AI) technology to try to reduce operational costs, increase efficiency, grow revenue and improve customer experience. For greatest benefits, businesses should look at putting the full range of smart technologies - including machine learning, natural language processing and more - into their processes and products. However, even businesses that are new to AI can reap major rewards. Artificial intelligence and machine learning technologies can automate important, but manual and time-consuming tasks, allowing employees to focus on higher-value work. Early adoption of artificial intelligence for specific, clearly defined applications enables forward-looking organizations to create significant business value and, ultimately, to set the stage for transforming business models and processes.

2. Statistical Data

There have been a 6X increase in the annual investment levels by venture capital (VC) investors into U.S.-based Ai startups since 2000. Crunchbase, VentureSource, and Sand HillEconometrics were used to determine the amount of funding invested each year by venture capitalists into startups where AI plays an important role in some key functions of thebusiness. The following graph (Fig. 1a & b) illustrates the amount of annual funding by VC's into US AI startups across all funding stages. There has been a 14X increase in the number of active AI startups since 2000.

Crunch base, Venture Source, and Sand Hill Econometrics were also used for completing this analysis with AI startups in Crunch base cross-referenced to venture-backed companies in the Venture Source database. Any venture-backed companies from the Crunch base list that were identified in the Venture Source database were included.

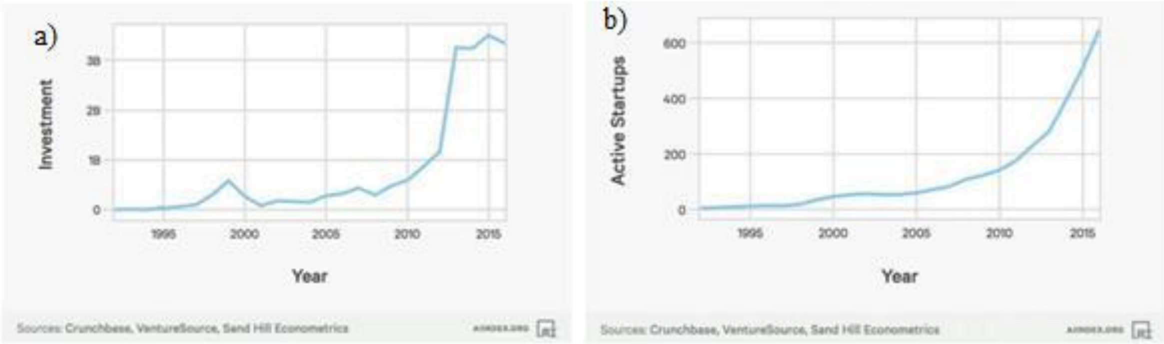

Figure 1 :a) Annual VC Investments in AI Startups b) Startups developing AI Systems

Global revenues from AI for enterprise applications is projected to grow from $1.62B in 2018 to $31.2B in 2025 attaining a 52.59% CAGR(Compound annual growth rate) in the forecast period. Image recognition and tagging, patient data processing, localization and mapping, predictive maintenance, use of algorithms and machine learning to predict and thwart security threats, intelligent recruitment, and HR systems are a few of the many enterprise application use cases predicted to fuel the projected rapid growth of AI in the enterprise.

84% of enterprises believe investing in AI will lead to greater competitive advantages. 75% believe that AI will open up new businesses while also providing competitors new ways to gain access to their markets. 63% believe the pressure to reduce costs will require the use of AI.

3. Applications of AI

- Powering infrastructure, solutions and services

  We recently acquired an AI platform to build conversational interfaces to power the next generation of chat and voice assistants. Also adding AI to new IT services and security to balance the workloads of computing systems.

- Cyber security defense

  In addition to traditional security measures, we have adopted AI to assist with cybersecurity defense. The AI system constantly analyses our network packets and maps out what is normal traffic. It is aware of over 102,000 patterns on our network. The AI wins over traditional firewall rules or AV data in that it works automatically without prior signature knowledge to find anomalies.

- Health care benefits

  It can help doctors with diagnoses and tell when patients are deteriorating so medical intervention can occur sooner before the patient needs hospitalisation. It's a win-win for the healthcare industry, saving costs for both hospitals and patients.

- Recruiting automation

  With unemployment at historical lows, recruitment of qualified workers remains one of the most difficult challenges. By harnessing the power of recruiting automation, savvy employers are using AI-powered sourcing tools to find candidates who may not have been considered for roles in the past, not because they weren't qualified, but because they weren't surfaced in the first place.

- Predicting vulnerability exploitation

  We've recently started using machine learning to predict if a vulnerability in a piece of software will end up being used by attackers. This allows us to stay days or weeks ahead of new attacks. It's a large scope problem, but by focusing on the simple classification of "will be attacked" or "won't be attacked," we're able to train precise models with high recall.

- Becoming more customer centric

  We're using AI to better analyse customer responses to surveys and activities over time. This enables us to understand not only the feedback they provide but whether or not there are specific qualities and attributes that correlate to their response rate and likelihood to engage. This information will allow our customers to alter their own client survey strategies.

4. Risks and Limitations of AI

One of the main barriers to implementing AI is the availability of data. Data is often siloed or inconsistent and of poor quality, all of which presents challenges for businesses looking to create value from AI at scale. To overcome this, you should have a clear strategy from the outset for sourcing the data that your AI will require.

Another key roadblock to AI adoption is the skills shortage and the availability of technical staff with the experience and training necessary to effectively deploy and operate AI solutions. Research suggests experienced data scientists are in short supply as are other specialised data professionals skilled in machine learning, training good models, etc.

Cost is another key consideration with procuring AI technologies. Businesses that lack in-house skills or are unfamiliar with AI often have to outsource, which is where challenges of cost and maintenance come in. Due to their complex nature, smart technologies can be expensive and you can incur further costs for repair and ongoing maintenance. The computational cost for training data models etc can also be an additional expense.

Software programs need regular upgrading to adapt to the changing business environment and, in case of breakdown, present a risk of losing code or important data. Restoring this is often time-consuming and costly. However, this risk is no greater with AI than with other software development. Provided that the system is designed well and that those procuring AI understand their requirements and options, these risks can be mitigated.

Implementation times, which may be lengthy depending on what you are trying to implement integration challenges and lack of understanding of the state-of-the-art systems
usability and interoperability with other systems and platforms.

5. Conclusion

The effects of AI will be magnified in the coming decade, as virtually every industry will transform their core processes and business models to take advantage of artificial intelligence and machine learning. The bottleneck now is in business imagination, implementation, and management. For business leaders, it is imperative to get a plan for making AI work in the organization. Initial AI projects may get delayed or under deliver, but the risk of businesses becoming non-competitive by ignoring AI is high.

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IMPACT OF ONLINE ADVERTISING THROUGH SOCIAL MEDIA ON STUDENTS AND WORKING PEOPLE IN BANGALORE

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Abstract

For many years advertisements are being used to create awareness among people regarding new goods and services. Advertisement is one of the main factors that influence the buying behaviour of the consumers. Lately, advertising through social media is considered to be the fastest means to make people aware of the latest goods or services.

This research is conducted to check the impact of online advertisement of apparel through social media on students and working class people. The research show us that advertisements are better means to create awareness among public but at the same time fail to build a strong perception in the minds of the people, since they wish to change their brands from time to time. The research states that people these days get influenced by online advertisements. This research is done on students and working people from Bangalore. A questionnaire is being conducted with regards to this research with the sample size of 80-100 people.

Keywords: Online advertising, online social media (Facebook, Instagram, YouTube and snapchat), advertisement of apparel, students and working-people.

1. Introduction

Online Social Media is an online publishing platform with a social network element mostly operated by the young generation these days. These online media are exceptionally popular and seem to wipe out other existing tradition media. Hence, advertising through online media is more popular at the present time.

Apparels are a basic need. With change in times and development of sense of fashion, apparels are a highly demanded commodity among students and working people. Therefore, the advertisement of these products has increased lately. People now days prefer shopping online over traditional shopping. Advertising is the main source of communication between the manufacturer and the consumer and online social media advertising acts as an impeccable source due to it excessive use.

The producer tends to advertise through online media to reach large number of people in a very short span. It is the promotion strategy that serves as a tool to create product awareness among the public and help them to make a purchasing decision. Advertising through online media influences student and working audience. It can also influence individual's buying behaviour.

Advertisements have a greater impact but at the same time, they do not create a stronger perception in the minds of the public. This can push them to change their brands and products on watching more attractive advertisements. The primary aim of an advertiser is to reach consumers and influence their awareness regarding the latest products and services.

1.1 Problem Statement

Companies spend a lot on advertising in order to create a stronger perception in the minds of the consumers. They wish to retain their consumers for a longer period of time but sometimes consumers wish to shift their brands and try different variety. In order to retain consumers and also attract prospective consumers companies should advertise their products more frequently and creatively.

1.2 Objectives

To study the influence of online social media advertising on students and working people.

To understand the awareness created among public through online advertising.

2. Review of Literature

(Priyanka, 2012) This study refers to the impact of advertising on consumers with special reference to e-mails. The main aim here is to have an interactive advertising by involving their customers to initiate most of the action. The research objective is- to analyse consumer's attitude towards internet advertising and on their purchase pattern, to analyse consumer's perception of online advertisement and the degree to which it contributes to internet advertising and to analyse consumer's response to onlineadvertisementandtheirperceptionofcompanieswhichadvertisesonline.Thisstudy focuses on the age group of 18 years of age. The sample size of this research is 100 respondents. A questionnaire was conducted to collect primary data and through e-journals, internet and books were used to collect secondary data.

(Khandare, 2016) The research focuses on quantifying impact of internet advertising on consumer buying behaviour. The purchasing decision is mainly effected by the image built by the advertiser. The primary data was collected by conducting a questionnaires and secondary data was collected by internet, journals and business magazines. The sample size of this study was 100 respondents, out of which 30 were in government or semi-government services, while 20 were taken from business class and the rest 50 were private sector employees. The objectives of this study were- to determine effectiveness of internet advertising on consumer buying behaviour and to examine the relationship between celebrity endorsement and the purchase decision.

(Mishra, 2016) The study is conducted to know the benefits gained by the advertiser through online advertising. The study will help the advertiser to know consumers parameters for purchasing goods from online. A survey was conducted for collecting primary data through questionnaire. To prepare the questionnaire Google forms was used by the researchers. The sample size of this study was 500 respondents. The study will be beneficial for the marketers and help them to understand consumer'sperspective.

(Kartini, 2015) This research was conducted on the students of Makassar to understand the impact of online advertising on this sample (students). The study states that there was an increase in the internet users but there was no proportionate increase in online purchasing. A survey was conducted using sampling method with the sample size of 340 students. The hypothesis was tested using structural equation modelling. The results of this research showed that online advertising has an influence on the consumer's buying behaviour.

(Bakshi& Gupta, 2013) The study was held to explore the factors which contribute to the effectiveness of online advertising and affect the consumer purchasing intention. The researcher states that the need is to understand the target consumer and then strategize wisely in order to gain maximum.

(Jain, 2017) The research is conducted to understand the impact of advertising on consumer buying behaviour. The research objectives were- to determinethe effectiveness of

internet advertisement and creation of awareness and to determine the relationship between the internet advertising and consumer buying behaviour. The researcher concluded saying that internet advertising provides increased awareness and it is one of the easiest means to get into direct contact with their consumers.

(Chouhan, 2012) Customer feeling of enjoyment are associated with the advertisements are mostly visual and feature orientated. So internet is vastly use these days and plays an important role in transferring message through internet.

(Brown, 2013) Internet is an emerging source and expanding more and more. The growth of internet forces the advertisers to use this to attract the customer. Online advisement is more attractive to the customers as it uses various ways to advertise ideas like through different websites, social media, pop up advertisement, etc. it comprises all sort banner, email, in game and keyword advertising. In today’s market scenario ubiquitous advertising is a matter of importance because world has become Global village and internet is a ubiquitous medium for advertising.

3. Scope of Study

This study was conducted with the sample size of 80-100 people. The study focuses on the awareness created by online media advertising of apparel on students and working professionals, and the influence of it. Since, most of the students and working-class are using online social media, these are the parties that are benefitted through onlineadvertising.

4. Research Methodology

This study is a pure research conducted by collecting first hand primary data. This data was collected by circulating questionnaires which had both closed and open ended questions. The study uses a simple random technique. The actual sample size of this research paper is 94, consisting of 50 students and 44 working people. The researchers will be analysing and interpreting the data obtained through graphs andtables.

5. Data Analysis and Interpretation

The study was performed in order to know the degree of influence of online advertising on students and working professionals and also to know the creation of awareness through online advertisement. 50 students and 44 working people responded to the questionnaire.

5.1 Responses

5.1.1 Age

Total the respondents were 94, in that 75% of the respondents were between 18-25 years, 21% of the respondents were between 25-40 years and just to have a little understanding about the age group of above 40 years, we included 4 respondents aged above 40 years. This data is tabulated in Table1.

5.1.2 Occupation

In order to get the right set of information, our target audience were the students and working people. Table 2 shows that 58% of the respondents are students and 40% are working people.

Age	Number of Responses	Percentage
Below 18 yrs.	0	0%
18 yrs. – 25 yrs.	70	75%
25 yrs. – 40 Yrs.	20	21%
Above 40 yrs.	4	4%
TOTAL	**94**	**100%**

Table 1: Age of respondents

Occupation	No. Of Responses	Percentage
Student	50	58%
Working	44	42%
TOTAL	**94**	**100%**

Table 2: Occupation of respondents

5.1.3 Awareness

In the questionnaire, a question regarding creating awareness of a product using online advertisements was given. The respondents were given 4 options. The results obtained were tabulated in Table 3 and represented in Figure 1. 24 of the respondents strongly agreed, agreed, 6 disagreed and 1 strongly disagreed with the question given.

Particular	No. Of Responses	Percentage
Strongly agree	24	25.5%
Agree	63	67%
Disagree	6	6.4%
Strongly Disagree	1	1.1%
Total	**94**	**100%**

Table 3: Creating awareness of a product using online advertisements

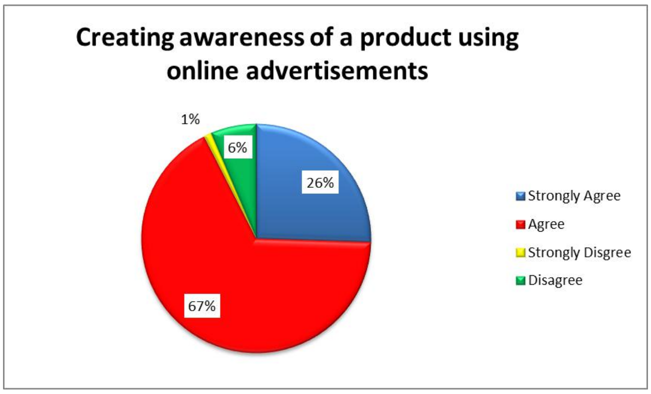

Figure 1: Creating awareness of a product using online advertisements

5.1.4 Influence

Among 94 respondents, the responses for the question regarding the influence of online advertisement on the sample people were as shown in Table 4 and Figure 2. 19% of the people strongly agreed, 66% of the people agreed, 10% disagreed and 5% strongly disagreed with the given question.

Particular	No. Of Responses	Percentage
Strongly agree	18	19%
Agree	62	66%
Disagree	10	10%
Strongly Disagree	4	5%
Total	**94**	**100%**

Table 4. Influence of online advertisement on people

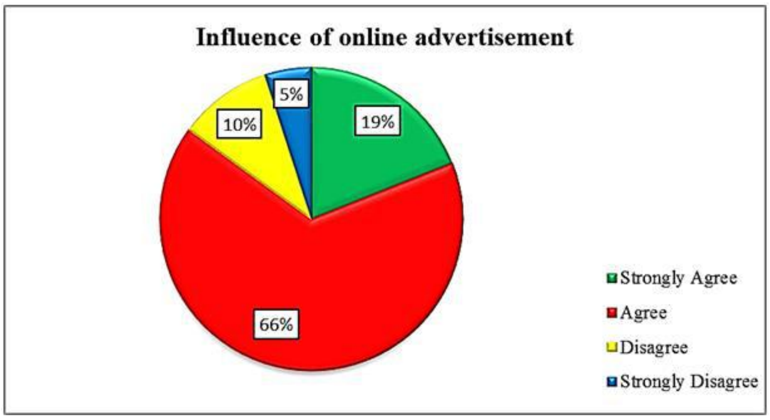

Figure 2: Influence of online advertisement on people.

5.1.5 Change of Brand

The responses regarding the change in brands of apparels on watching a more attractive advertisement was 62 out of 94. More than half of the sample size tends to change their brands on watching a more attractive advertisement. This can be seen in Table 5 and Figure 3.

Particular	**No. of Responses**	**Percentage**
Yes	62	66%
No	32	34%
Total	**94**	**100%**

Table 5: Changing brands of apparel on watching a more attractive advertisement

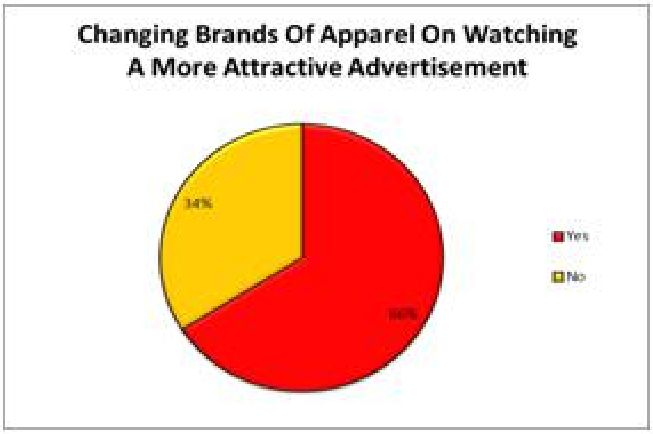

Figure 3: Change of brand.

6. Findings

Out of 94 respondents, 70 lie between the age group of 18-25 years, 20 lies between the age group of 25-40 years and the rest 4 are above 40 years. The questionnaire was circulated to these 94 people to understand whether the online advertising has an influence on them. In the survey conducted we found that 63 people agree and 24 people strongly agree to the question "does online advertising has helped you in creating awareness regarding the latest products?"And for the same question 6 disagreed and1strongly disagreed. We found that since people use more of social medias advertising on these medias create more of awareness than on any other media.

For the question "does online advertising has an influence on the consumer?", the response was 18 and 62 for strongly agree and agree respectively. And for the same question 4 and 10 was the response for strongly disagree and disagree respectively. The survey showed that more than half of the sample size agreed that online advertising does have an influence on them. For the same sample size, 62 respondents (66%) said 'yes' and 38 respondents (34%) said 'no' for the question- "will they change they brands of apparel if there is another more attractive advertisement of apparels?". The results show that more than 50% of the sample population will change their brands but the rest won't. It also shows that advertisement can have an influence on consumers regarding staying with the brand or shifting it.

7. Suggestions

Based on the analysis of the data received from the questionnaire conducted, here are some suggestions that the researchers have –

- Advertising should be done more frequently in order to retain consumers.
- The advertiser can come up with more attractive deals and offers to retain their present and attract prospective customers.
- The advertisements shown should be in a more attractive manner.
- The advertiser can use all kinds of Medias to advertise.

8. Conclusion

This study has helped the researcher to know how online advertising creates awareness and also has an influence on the sample selected. The study shows/proves that advertising has created awareness regarding the latest brands and products in apparels, at the same time the participants also agree that they will change their brands of apparels when they watch a more attractive advertisement.

For the same sample size, 62 respondents (66%) said 'yes' and 38 respondents (34%) said 'no' for the question- "will they change they brands of apparel if there is another more attractive advertisement of apparels?". The results show that more than 50% of the sample population will change their brands but the rest won't. It also shows that advertisement can have an influence on consumers regarding staying with the brand or shifting it.

The study can also help the advertiser. The study shows that to retain the consumers the advertiser has to keep advertising frequently and in a more attractive manner. Advertising frequently can make the brand of the apparels be remembered for a longer duration in the minds of the consumers. The study concentrates more on the students and working people since this group demands more of apparels than the other age groups of society. In India, especially in a metropolitan city like Bangalore, the students and working class is found in larger number and hence demand for products like apparels is more in this city.

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CHALLENGES AND SOLUTION OF E-COMMERCE IN INDIA

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Abstract

There are numerous definitions for the concept of E-Commerce relying upon the point of view of the viewer or the customer. A few customers characterize E-Commerce as being unique in relation to E-Business; others characterize both ideas as same. Commercial center is rapid transforming into e-commercial center now. Right from beginning , everything can be purchased on the web. With new players coming in, it is still common for the current players and new contestants to think of creative systems to offer their merchandise and services. Electronic commerce is more than simply one more approach to support or improve existing businesses. Or maybe, e-commerce has brought changes in the market. It is a problematic invention that is drastically changing the conventional method of doing business. Ecommerce is paying way for huge business development in our country. Expanding E clients have further added to its development. Ecommerce has made online travel industry grow through numerous methods and included another business boulevard through online retail industry in our nation. The current study has been attempted to portray the present scenario and facilitators of E-Commerce in India, dissect the present patterns of E-Commerce and look at the obstructions of E-Commerce in India.

Keywords: E-Commerce, India, E-Market.

1. Introduction

"Electronic trade is the sharing of business data, keeping up business connections and leading business exchanges by method for media transmission system" – Vladimir Zwass, 1996.

E-Commerce means electronic commerce which include to an extensive variety of online business exercises for various products and services. It implies managing merchandise and services through the electronic media and web. It refers to the site of the seller on the web, who offers items or services directly to the client from the gateway with the help of a digital shopping cart or digital shopping basket system and permits payment through internet banking or credit/debit cards. E-commerce or E-business includes carrying on a business with the assistance of the web and by utilizing the various information technology means. Basically, E-Commerce is the developing of business on the internet. E-Commerce has overnight turned into the prevail online activity.

1.1 Challenges Faced by e- Commerce in India

- **Indian clients exchange a great deal of the items they buy internet**

E business for India need a significant number principal the long run purchasers. This impliesthat they bring not yet. Produced dependent upon their brain something like what will anticipate starting with e-business sites. as a result, purchasers. Uncover regret furthermore give back the merchandise. However, purchaser regret is a worldwide problem, Universal diary of business management accessible. Anyway it may be every last one of a greater amount common done a nation in India, the place a great deal of the development hails from new purchasers. Returns would exorbitant to e-business companies, likewise opposite logistics displays interesting tests. This gets every last one of All the more mind boggling over cross fringe e-business.

- **Money down is the favoured instalment mode.**

Low Master card get and low trust over web transactions need prompted money down. Continuously the favoured instalment decision On India. Dissimilar to electronic payments, manual trade accumulation is painstaking, risky, further more unreasonable.

- **Instalment gateways have a secondary disappointment rate.**

Concerning illustration in those Inclination offers Inclination for money down might have been not awful enough, Indian instalment. Gateways bring a curiously secondary disappointment rate by worldwide principles. E-commerce Organizations utilizing Indians instalment gateways would lose out for business, similarly as a few. Clients don't reattempt instalment after a transaction fizzles.

- **Web infiltration is low.**

Web infiltration to India will be still a little portion about the thing that you might Figure clinched alongside a few Western nations. For highest priority on that, the nature for connectivity may be poor for a few locales. Be that as both these issues are quick vanishing. Those day is not far the point when connectivity. Issues might not characteristic previously, a rundown of tests will ecommerce for India.

- **Characteristic phones still tenet the perch.**

In spite of those downright number about cell phone clients clinched alongside India may be thick, as high, An huge. Lion's share even now uses characteristic phones, not cell phones. So, for every last bit useful purposes this. Shopper one assembly may be unabated to make ecommerce buys moving. However, we need aid. Even now several of quite some time out starting with the scales tipping energetic about smart phones, those fast. Descending winding in the cost from claiming entry-level cell phones may be an empowering sign. I. Anticipate that the next couple quarters will witness announcements from claiming new cell phones clinched alongside. India toward that $30-40 value perspective. That ought further bolstering goad development clinch alongside Smartphone proprietorship.

- **Postal addresses are not institutionalized.**

In you put a internet request Previously, India, you will exactly probable get a call starting with those logistics. Agency on ask you around your correct area. Obviously your address is not sufficient. This will be a result there will be minimal Institutionalization in the lifestyle postaladdresses need aid composed. Last mile issues add to ecommerce logistics issues.

- **Logistics may be an issue to many Indian towns**.

Those logistics test on India may be not practically the absence of Institutionalization to postal Addresses. Provided for that huge measure of the country, there would many towns that would. Not effectively receptive. Metropolitan urban communities and other major urban enters need a equitably. Hearty logistics framework. Anyway since the true appeal of the Indian advertise lies to its. Substantial population, nonattendance for consistent entry to An noteworthy extent from claiming prospective. A client is a dampener. Those issue for logistics may be exacerbatedEventually Tom's perusing those certainties that. Money down will be the favouredinstalment alternative to India. Global logistics.providers, private Indian companies, and the government- owned postal administrations need aid. Settling on a valiant exertion on unravel those logistics issue. In somebody Might change over those. Sheer size of the issue under an opportunity, we might quickly listen of extraordinary victory. .

- **Overfunded rivals need aid driving up cosset of client securing.**

The vibrancy in the Indian start up biological community through as far back as few of a long time need.Channelled a considerable measure about financing under that ecommerce segment. The long haul prospects for. Ecommerce organizations are thereabouts energizing that A few gurus would eager to use all the. Nonsensically helter skelter sums from claiming cash to procure advertise allotment today. Regularly that Indian shopper is ruined for decision. However, this pattern need turned around concerning illustration moguls would.

1.2 Solutions for the Challenges in E-Commerce in India

- **Shop at secure Web sites**

By what means would you advise 0n an Web site may be secure? Secure destinations utilize encryption innovation will exchange data starting with your machine of the web merchant's workstation. Encryption scrambles those data you send, for example, your Visa number, in place with prevent workstation hackers from acquiring it in transit. Those main people who could unscramble that code need aid the individuals with real right privileges. Here's how you camwood advice at you would manage a secure site: In you take a gander at that highest priority on your screen the place the Web• webpage location may be shown (the "address bar"), you ought further bolstering see https://. The "s" that is shown then afterward "http" demonstrates that Web webpage will be secure. Often, you don't perceive the "s" until you really move of the request page on the Web webpage.

- **Investigate the Web site when you request.**

Do benefits of the business with organizations you officially think. Though the organization is unfamiliar, do your homework in the recent past purchasing their results. In you choose on purchase all the something from a obscure company, begin with a modest request with gain In the organization may be dependable. Dependable organizations if promote their physical work locale Also no less than person telephone number. You might Additionally Scrutinize an organization through the superior benefits of the business department (see posting below), or an administration purchaser insurance office like those locale lawyer's office or those lawyer general.

- **What's Safest: credit Cards, accuse Cards, Cash, or Checks?**

The individuals practically secure way if shop on the web will be with a Visa. In the off risk something dives wrong, you would guarantee under the individuals national sensible praise charging showing. You require the right will discuss charges to your praise card, What's more you Might withhold portions All around a leaser examination. At its necessity been determined that your praise may have been used without authorization; you would best liable for the individuals central $50 previously, charges. You might rarely approached will pay this blame.With extra information once MasterCard customer protections, check your Visa might a chance to be a substantial Visa Furthermore not a charge card, and weigh card, alternately an ATM card.

- **Never provide for out your government disability number.**

Giving your government disability number will be not a pre-requisite to setting a request in an on the web shopping webpage. There is no need to the shipper should request it. Giving out your government disability number might prompt hosting your personality card stolen.

- **Reveal just the uncovered Realities at you request at putting an order,**

There may be sure majority of the data that you must gatherings give of the web dealer for example, such that your name and location. Often, a shipment will attempt to acquire additional data regarding you. They might solicit inquiries regarding your relaxation lifestyle or yearly salary.

- **Stay with Your international ID Private.**

A number on the web shopping destinations oblige that customer with log-in in the recent past setting or review a request. Those customer is generally needed with provide an username What's more a international ID. Never uncover your watchword to any individual. At selecting a password, don't use usually known information, for example, your birth date, mother's lady name, alternately numbers from your driver's permit or government disability number. Don't reuse the same international ID for different sites, especially destinations connected with delicate data. That best secret key need in any event eight characters Furthermore incorporates numbers Also letterpress.

- **Check the Web site location.**

The deliver bar during those highest priorities on your device's screen holds the web webpage address (also called those URL, alternately uniform asset Locator). By checking that address, you might verify that you would manage those right shares of the organization. Do not click around at whatever connection inserted inside a conceivably suspicious email. Instead, begin another web session Eventually we perusing writing in the link‘s url under those address bar Also pressing enter to make sure you would guide with an real Web site.

2. Research Design

Considering the quick of this data collection work, the enquiries were precisely chosen and intended to feel the beat of the customer the general population who truly utilize this administrations and E-Business stages. Sex, which will permit us know which sex really utilizes E-commerce stage more; Age gathering, which will give us which specific age assemble utilizes E-Business platform use every now and again, why?, and the relationship that exists among these gatherings; and by E-commerce stages, by gathering information along these lines, we could have a clear perspective of sort of exchanges were made and which stage was utilized make these exchanges by which sex and age bunch as we could explore effectively through the information and cross organize among various issues and difficulties with respect to advantages/ challenges, trust/security, furthermore basically how E-Business has possessed the capacity to influence the level of business exchanges among the respondent in a creating market.

3. Research Methodology

Descriptive Method was opted to proceed with the research and satisfy the objectives stated, which is applied to studies aimed at gathering additional information, learning more about an area of interest or becoming more familiar with the topic and gain knowledge about it. Our research, similarly is an in depth study about the problems faced due to e-ecommerce and the respective solutions to it. Also the Survey method is chosen for accurate and genuine results.

Sources of Data

In this study, an aggregate of 300 data was composed, displayed and controlled to respondents, and out of this 300 there is 158 female and remaining 142 were male, and the data was collected by distributing questionnaire sheet to them and coordinate individual data collection.

Sampling technique

Selection of components of the sample that will give a representative view of the whole is known as **Sampling Technique**. For the research, Probability Sampling was chosen under which the researchers opted for Simple Random Sampling (SRS).

Tools used

To ensure that our collected data is valid and reliable, the researchers chose Questionnaires as an instrument, and conducted an online survey using Google forms. Respondents were selected through Simple Random Sampling Technique and the votes and responses were automatically transferred to an Excel spreadsheet for further analysis and interpretation.

4. Data Analysis

Q1. Why do you use internet for?

a. Entertainment

b. Educational Purpose

c. Online shopping/Gaming

d. Communicational Purpose

No.	Label	Count	Weight
1	B	75	75.0
2	D	68	68.0
3	A	120	120.0
4	C	37	37.0

Table1. Reason for internet is usage

Q2. Why do you prefer online Shopping?

a. Saves times

b. Fun doing shopping on web

c. Wide range of choices

d. Security

No.	Label	Count	Weight
1	A	153	153.0
2	B	56	56.0
3	C	78	78.0
4	D	13	13.0

Table 2 – Online shopping preferences

Q3. Do you think the application of e-commerce has increased over the years in India?

a. Yes

b. No

c. Don't have any knowledge

d. None of above

No.	Label	Count	Weight
1	A	239	239.0
2	B	25	25.0
3	C	35	35.0
4	D	1	1.0

Table3 - showing E-commerce has increased over the years in India.

Q4.Do you agree that e-commerce can provide an alternate marketing channel by eliminating the middle man?

a. Agree

b. Disagree

c. Don't know

d. None of above

No.	Label	Count	Weight
1	B	42	42.0
2	C	69	69.0
3	A	182	182.0
4	D	7	7.0

Table 4 - Alternate marketing channel by eliminating the middle man

Q5 . What are the challenges to the implementations of e-commerce in India?

a. Slow penetration of internet

b. Security concern

c. Lack of trust

d. Other factors

No.	Label	Count	Weight
1	C	90	90.0
2	A	85	85.0
3	B	75	75.0
4	D	50	50.0

Table 5. Showing challenges to the implementations of e-commerce in India.

Q.6 Do you think that the government of India is doing enough to promote the e-commerce in India?

a. Yes

b. No

c. Don't know

d. none of above

No.	Label	Count	Weight
1	B	59	59.0
2	A	135	135.0
3	C	101	101.0
4	D	5	5.0

Table 6. Showing India is doing enough to promote the e-commerce in India

Q.7 - Which do you think is the most used e-commerce website in India?

a. Flip kart

b. Amazon

c. Jabong

d. Snap Deal

No.	Label	Count	Weight
1	A	88	88.0
2	B	137	137.0
3	D	47	47.0
4	C	28	28.0

Table 7 showing most used e-commerce website in India

Q.8 What are the most challenges faced by e-commerce in India?

a. Introduction of new e-commerce website in India

b. Internet expenses

c. Lack of users

d. Other measures

No.	Label	Count	Weight
1	D	51	51.0
2	B	97	97.0
3	C	65	65.0
4	A	86	86.0
5	G	1	1.0

Table 8. Challenges faced by e-commerce in India.

5. Conclusion

E-Commerce dominance has been on the increase and the growth worldwide has been phenomenon. While may be impossible to completely eliminate brick and mortar business, the reality is that E-Commerce is the future of commerce globally and developing nations been part of a world that has been reduced to a global village have no option than to flow in the direction of the tide or they will be left behind. It is also imperative the consumers who are the end users of the E-Commerce products are continually encouraged so as to ensure attitudinal changes so that they can become more disposed to using these products and platforms.

While issues and challenges of E-Commerce in developing nations are factual, consumer attitude to E-Commerce is changing, as we have seen in the data analysis chapter of the rise in the usageof different platforms by consumers in developing markets. The developing nations are becoming more dominant in the global economy as they are the terrain where growth opportunities for businesses now exist if this is juxtaposed with the realization that E-Commerce represents the future of commerce worldwide, it can therefore be concluded that for developing economies to keep developing, consumer attitude to frequently be checked by regularly feeling the pulse of the consumers that uses there E-Commerce products and platforms as it wouldn't make too much sense to invest so much into making these products and platforms available and consumer attitude as not moved away from the brick and mortar ways.

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A STUDY ON MANPOWER PLANNING AND ITS EFFECTIVENESS IN AN ORGANISATION

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Abstract

This research examines the need and importance of Manpower Planning for the effective utilization of human resources in organizations. Many organizations are faced with the challenge of poor utilization of human resources due to lack of manpower planning which leads to difficulty in achieving organizations goals and objectives. Manpower planning provides the organizations to have correct estimate of number of employees in the organisation to accomplish set goals, reduce waste in employment, reduce the uncertainties about the employees needs and eliminates the mistakes involved in staffing and enhances effective utilization of its human resources. This study also reveals that organizations need to be proactive in recruiting and retaining employees. This research recommends that organizations should improve their utilization of human resources in order to enhance efficiency and effectiveness in their day to day activities in order to achieve their goals and objectives through employee engagement and by increasing overall productivity of the organisation.

Keywords: Manpower planning, Human resources, corporate organisations, retaining and recruiting employees and productivity.

1. Introduction

Human resource is the most important asset of an organization. The planning of manpower ensures adequate supply, proper quality and quantity as well as effective utilization. Manpower planning is the process by which management determines how an organization should move from its current manpower position to its desired manpower positions through planning, management, strives to have the right place at the right time to do the things that in both the organization and the individual getting long time benefits.

Manpower Planning is a vital sub-activity of any HR department the organization. It pervades through a number of activities to acquire competent personnel for the organization, i.e right person for the right job contributes to overall efficiency in the organization.

1.1 Review of Literature

- An interesting paper by Abounde and Mcclean contains the discussions about the model where a manpower system with a constant level of recruitment is considered, Itis related to the production planning in the development of telephone services and linking the same to the work force. The constant level of recruitment necessary to bring the number of installations eventually up to their final is discussed. Also astochastic model is developed which evaluates the effect of implementing the recruitment policies in term of changing distributions of staff numbers, and the changing number of installations with time.

- Noel et al (2004) viewed that organizations should carryout manpower planning so as to meet business objectives and gain an advantage over their competitors. To do so, organizations need a clear idea of the strengths and weakness of their existing internal labour force. They also must know what they want to be doing in future as well as have a clear vision of how much they want the organization to grow.
- Walker (1992) pointed out that for some companies, human resources planning is essentially management succession and development planning. For others, it is thestaffing process which includes forecasting and planning for recruitment, deployment, development and attrition of talent in relation to the changing needs of the organisation.
- According to Geisler (1967), one of the objectives of manpower plan for a manager is Its utility as a planning and control techniques. A manpower plan, because it issystematically done, enables a manager to predict his manpower requirement andcontrol the member of manpower need to the firm's business plans, control wage and salary costs.

1.2 Scope of the Study

- The organization becomes aware of the importance of Manpower Planning.
- The management would give sufficient attention to manpower planning.
- The work force of the organization works efficiently to achieve the objectives of the organization.
- Promotes Good Industrial Relation
- Employees are assisted by the management in planning their career in the organization

1.3 Objectives of the Study

- Main objective is it's utility as a planning and control techniques.
- It enables a manager to predict his manpower requirement and control the member of manpower need to the firm's business plans, control wage and salary costs.
- The purpose of having manpower plans either in the short run or long run is to have an accurate estimate of the number of employees required, with matching skills requirement to accomplish organizations goals.
- Other objectives of manpower planning is to ensure optimum use of human resources in an

organization to cope with the technology development and modernization,

- To ensure higher labour productivity and most of all
- To ensure career planning of every employee of the organization and making succession programmes.

2. Research Design and Methodology

Research design used is Descriptive research study.

Primary data :-

- Structured questionnaire
- Personal interview with employees of the oragnisation.

Secondary data:-

- Annual reports of the company
- Magazine of the company
- Books from library, newspaper, and internet.

Sampling techniques

The sampling technique used in this research is Simple Random sampling.

Sample size

The sample size taken for the research is 100 employees.

3. Analysis and Interpretation

The data collected is tabulated and interpreted.

Table 1 shows that 75% of respondents agree that HR planning is aligned with organization policies and objectives and 25% of respondents agree that it can be aligned with company policies and objectives.

Table 2 indicates that 85%of the respondents agree that HR planning improves the productivity of the employees and 15% of the respondents agree that it may improve the productivity of the employees.

Particulars	Category	Percentage
- Showing the opinion of respondents	Yes	75%
whether the HR	No	-

planning is aligned with the company objectives and policies	Maybe	25%

Table 1. Respondents view on alignment of HR planning with organization policies and objectives

Particulars	Category	Percentage
- showing the opinion of respondents, on whether the HR planning improves the productivity of employees	Yes No Maybe	85% - 15%

Table 2. Respondents view on HR planning and productivity of employees

Table 3 indicates that 80% of the respondents agree that manpower planning makes optimum utilization of resources and 5% respondents agree with ‘no’ and 15% respondents agree that it may make use of human resources.

Particulars	Category	Percentage
- showing the opinion of respondents on	Yes	80%

how manpower planning makes optimum use of human resources	No Maybe	5% 15%

Table 3. Respondents opinion on manpower planning

4. Summary

Manpower planning is concerned with analysing the human resources available in an organization to determine with meeting the objectives of skilled personnel and providing productive employment for utilized and underutilized labour force. Thus, proper manpower planning policies are inevitable so as to avoid the duplication of efforts or ending up having excesses in one filed and shortages or non in others. Proper selection of talents and abilities needs to be done to allow for an easier utilization of human resources in an organization.

5. Conclusion

Manpower planning in any organization is very important. It is through this process that organizations can ensure optimum use of its human resources currently at their disposal as well as proving for the future of the organization. It is therefore concluded that the growth, success and development of any country can be measured by how its manpower is planned, how its human resources is being utilized. Therefore, manpower planning remains the single and the most important factor towards technological and economic advancement. In this present dispensation of technological development and advancement in all fields of human endeavor, manpower planning is carried out with the sole aim of increasing efficiency and effectiveness of individuals in an organization. The primary function of manpower planning is to analyse resources viable in an organization, and to determine how to obtain the kinds of personnel needed to staff position ranging from assembly line workers to chief executive.

Thus, the most important resources, the people who supply the organization are its human resource, the people who supply the organization with work, talent, creativity and drive. Thus, among the critical tasks of a manager is the manpower planning. An organization needs to plant its manpower requirement to be prepared for fresh demands in terms of numbers, skills, occupation groups, to meet increasing demands either due to business growth Or expansion. Beside, even if none of the above happened within an ongoing enterprise there would be attrition due to wastage, turnover, separations and mobility e.g. promotion, leaving gaps which have to be filled in.

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THE ROLE OF EMOTIONAL INTELLIGENCE IN COMMERCE

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Abstract - The purpose of writing this paper is to show how emotional intelligence is essential. Some people who possess a lot of talent do not testify successful outcome due to the lack of emotional intelligence conversely a person with little talent somehow succeed in everything they do because they practice emotional intelligence proficiently. Emotional intelligence is not justinter and intra-personal soft skill but, it is a built-in characteristic of our human system. As it is said emotional intelligence is the capacity to be aware of, control and express ones emotions, does not just relate to an individual but augments in commerce sectors as well. On implementation of emotional intelligence it is believed that an individual could learn and strengthen his/her connection with the commerce sectors. The insight of emotional intelligence is further discussed.

Keywords: Emotional Intelligence in commerce.

Introduction

"What really matters for success, character, happiness and lifelong achievements is a definite set of emotional skills – your EQ — not just purely cognitive abilities that aremeasured by conventional IQ tests."

— Daniel Goleman

The term "Emotional Intelligence" was first identified in the year 1964 in a paper written by Michael Beloch. This term was contemplated when Daniel Goleman's book Emotional Intelligence was released in 1995. Emotional intelligence is defined as "the ability to understand your own emotions, and the emotions of other people and how they impact the way we interact. It also includes the ability to use that knowledge to adapt interactions with others to achieve goals". The definition itself conveys the dynamic impacts it can have on an individual when it is implemented wittedly. The five areas such as, self-expression, self- perception, interpersonal skills, decision making and stress management can indicate the signs of high emotional intelligence although there are several other models of emotional intelligence as well. The global economy is exhorting the need for the right individuals with a right emotional intelligence to be employed in order to help drive the company's success.

This paper manifests the importance of emotional intelligence in commerce sectors. Some commerce sectors such as in Human Resource & Banking.

Role of emotional intelligence in Human Resource

As is it said human resource is used to describe both the people who work for a company or organization and the department responsible for managing resources related to employees. Emotional intelligence play a vital role since human resources focuses on areas such as:

- Recruiting and staffing
- Compensation and benefits
- Training and learning
- Labor and employee relations
- Organization development

In order for a successful & maximum output to be received from the employee it is necessary that the employee is aware of his emotional intelligence. This is when the human resource come into the picture. They train their employees on soft skills and also impose of them its importance of it in the work atmosphere because it is the 85% of these skills required for an individual's financial success and sustainability and 15% of the technical skills. Such is the article written by Goleman where he applies the emotional intelligence concept to the workplace setting. In this analysis, he argues that the emotionally intelligent worker is skilled in two key areas he presents in his emotional competence framework. These are "personal competence" - how we manage ourselves, and "social competence" - how we manage relationships. Hence emotional intelligence helps in understanding the duties and demands being placed on fellow staff members creates cohesive functioning. Understanding others' points of view will help make you a team player.

Role of emotional intelligence in Banking

(V. Karthikeyan & Dr.Shweta Lalwani) presented a paper on the role of emotional intelligence in banking sectors. They state that The components of EI theory believes that understanding, analyzing and managing emotions in themselves and others, lies the key to an improved quality of life. Such are other articles, Praveena, 2015 from Sri Lanka did a research paper on emotional intelligence of backing sectors and states that the bank managers with higher levels of emotional intelligence have higher level of job performance as well as job satisfaction at the workplace. Praveena 2015 reveals that emotional intelligence is the most critical skill that the managers should possess in the present day organization. Danquah from Ghana in the year 2015 evaluates the effects of emotional intelligence on the financial performance of commercial banks. She states that emotional intelligence significantly influences financial performance among the commercial banks. In her study she also mentions that relationship translates into the prediction of relationship marketing, service quality, customer satisfaction and financial performance.

Method

This paper focuses on emotional intelligence and how essential is its implementation in the commerce sectors. Given examples of the researches conducted by person/s and its end results stating the positive impact of emotional intelligence in various sectors. These are the secondary source information provided.

Result and Discussion

Thus, it may be stated with confidence that individuals with the right emotional intelligence are assets of the corporate sectors. Emotional intelligence bears a positive role when implemented right. Self-awareness, Self-actualization and Self-regard can help to accurately understand and evaluate oneself which can pave way to high emotional intelligence. High emotional intelligence can lead to improvement of one's emotional expression, assertiveness and independence. Emotional intelligence is a powerful way to focus your energy in one direction with a tremendous result. The application of emotional intelligence in commerce sectors can increase the working efficiency of individuals and can generate better work efficiency.

Conclusion

In conclusion I would state that emotional intelligence is an increasingly popular consulting tool. According to popular opinion and work-place testimonials, emotional intelligence increases performance and productivity; where by an emotionally intelligent person has a deep awareness of his or her emotions and the ability to draw upon those emotions as a resource to guide behavior. Since emotions affect people's behavior, a positive emotion can bring a tremendous change in the working atmosphere. Emotional intelligence is an ignition of an individual to give his best and act wittily in critical circumstances. Emotional intelligence enables productive growth and contributes massively to the economy. By being highly emotionally intelligent it recognizes the corporate social responsibilities. Further there is a need for employers and employees alike to find flexible and innovative solutions that maximize productivity without damaging employee's well-being, their family relationships and other aspects of life. Emotional Intelligence allows us to think more creatively and to use our emotions to solve problems. Emotional Intelligence probably overlaps to some extent with general intelligence. The emotionally intelligent person is skilled in four areas: Identifying emotions, using emotions, understanding emotions, and regulating emotions. Emotional intelligence will bring in better adaptability, empathy towards employee, leadership qualities, group rapport, participative management, decision making, and understanding among colleagues. Most of the organizations are nowadays taking those employees who are emotionally intelligent, so that they can face the workplace problems easily and they can become more productive for the organization. Emotionally intelligent organization can be made through organizational strategies, leadership skills, development programmes, self-awareness and self-management tools. The researcher from the study concludes that emotional intelligence is linked at every point of work place performance and it is of utmost importance nowadays. Hence, to be successful in life Emotional intelligence plays a vital role.

TECHNICAL SESSION 2

BUSINESS SUSTAINABILITY

BUSINESS COMMUNICATION IN DIGITAL MEDIA (SOCIAL MEDIA)

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Abstract

Social media are gaining popularity and are increasingly used in regular operations of many companies, including start-ups, small, medium-sized, and large organizations. The purpose of this research is to explore the impact of social media and to analyze to what extent social media have impact on organizational capabilities and business performance. Over the past few years social media has gained an enviable position in the life of many people and it has become a topic for discussion across different sections of our society and has gained wide spread acceptance in today's busy life. The freedom and the level of interaction one can have in the various social media platforms have also influenced the way business is carried out these days. One can safely assume that in many organizations different platforms of social media has been playing a very important role in business development and better performance

Keywords: Social media, Organisational performance, Better performance etc.

1. Background of Study

There has been a fundamental shift in the strategy of conducting business amongst the ever-evolving business community all over the world and the people who have not yet got in to the band wagon are forced to come on board due to the rapid spread and acceptance of social media among the general public and the consumers in particular. As social media has become a part of consumers' everyday life a lot of organizations have started exploring the positive qualities of internet and have now shifted their attention to e-commerce and online trading. One of the many advantages of social media is that it allows an organization to communicate closer to their target audience while it enhances the organization to increase its brand visibility.

"Many organizations active on the social networking scene have direct links from their corporate websites to their social networking sites like Facebook, LinkedIn, Instagram, Youtube and Twitter, and use these social media sites to promote brands and support the creation of brand communities" (Kaplan &Haenlein,

2010) A lot of studies and researches (Kaplan, 2012), (Mathew Mount, 2014), (Michaelidou et al., 2011) have been conducted on why and how social media has attained such an importance in consumers mind and the rapid explosion of social media in the global market. These studies have considered various reasons for which the consumers consider social media to be so important in their day to day life and the factors that drive them to actively engage in online activities. Additionally, other studies (Berthon et al., 2012), (Geehan, 2010), (Jussila et al., 2014), (Kusera, 2012) have explored the tangible and intangible benefits of social media in effective marketing like the influence it has on the consumers decision making process.

2. Research Aim

The purpose of this research is to ascertain the impact social media has on business development and its effects on organizational performance and how social media can enhance relationships. The researcher aims to accomplish this task through a mixed method approach using qualitative means.

3. Research Questions

- How social media can be effectively used for business development and communication?
- What are the different ways social media can influence the organizational performance?
- How social media can be positively used for influencing business to business relationships?

The impact of social media on business capabilities

Andriole (2010) identifies latent factors (business capabilities) that are influenced by using Web tools, and ultimately affect business performance:

4. Collaboration and communication

Web tools have the capacity to enhance communication and collaboration within and among organizations, thus fostering the rapid internationalization of companies and the globalization of their business operations (Bell &Loane 2010). The four indicators associated to "collaboration and communication" are

(i) the capability to coordinate discussions,
(ii) the capability to reach more people faster,
(iii) the capability to synchronize projects and tasks, and
(iv) the capability to audit communication streams.

5. Customer relationship management (CRM)

Web tools reshaped the traditional CRM processes, transforming them into CRM 2.0, by identifying and solving customer service issues, using forums, wikis and others. The four indicators are (i) the capability to mine customer data effectively, (ii) the capability to reach more customers, (iii) the capability to ask for customer feedback, and (iv) the capability to communicate effectively with customers.

Innovation

Innovation is the direct result of the exchange of ideas between experts, fuelled by user-generated content and mass co-creation (Bell &loane 2010). Web tools allow faster innovations to appear on the market by enabling around the clock, across boundaries communication between the persons having expertise in the field (Schenckenberg 2009). Innovation is measured as (i) the capability to syndicate innovation, (ii) the capability to improve success rates, (iii) the capability to increase innovation activities, and (iv) the capability to produce efficiently.

Knowledge management

Web tools may improve knowledge management processes, knowledge exchange, and knowledge creation (Schenckenberg 2009). Web tools with an internal focus may enhance the transfer of knowledge between employees, while tools with external focus on two-way communications with customers and suppliers. Knowledge management is measured as the capabilities to (i) share, (ii) retrieve, (iii) organize, and (iv) leverage knowledge.

Cost efficient

When a business in running on a fixed marketing budget, social media is the most cost-efficient way to market and promote the business. Websites like facebook, twitter, pintrest, etc, allow any business to share their content for no cost at all. Hence Social media is an affordable advertising platform.

Sales

Through the increased exposure on social media, it drives traffic into the company. This in turn converts the potential customers to actual customers. Therefore, increasing sales. According to Brian Solis some prominent examples of Social Media are

• Facebook is a popular free social networking website that allows registered users to create profiles, upload photos and video, send messages and keep in touch with friends, family and colleagues. According to statistics from the Nielsen Group, Internet users within the United States spend more time on Facebook than any other website.

• Twitter is a free microblogging service that allows registered members to broadcast short posts called tweets. Twitter members can broadcast tweets and follow other users' tweets by using multiple platforms and devices.

• Google+ (pronounced Google plus) is Google's social networking project, designed to replicate the way people interact offline more closely than is the case in other social networking services. The project's slogan is "Real-life sharing rethought for the web."

Connectivity

The business will always be connecting to the customers in terms of changing preferences, lifestyles and resources and adapt to the changing interest of the consumers. Companies will also be able to cater to the dynamic interests and innovate on their marketing campaign accordingly.

Social media influencers on the business

More than 80 per cent of that population is made up of "potential influencers". It is worth making the effort to identify who these people are in your network and connect with them to attract shares and likes which ultimately help to spread your brand name. One website which is excellent for identifying these people is Klout. Klout gives social networkers a score out of 100 which indicates how influential an individual is over their network while also identifying who the broadcasters and influencers are within that network.

Social Media as an Essential Marketing Tool

Traditional forms of marketing included print media, social media and broadcast media. This had its own drawbacks. Television advertisements, leaflets, direct mail and email no longer seem to have the same impact as they used to. One of the major drawbacks was that they had the same advertisement strategy or the same advertisement repeated over many years. Businesses using social media as a means to market their product allow innovation and creativity. Social media allows the company to have a strong online presence by always reaching out to their customers and also providing great service. Companies can adopt fresh new approach to all their product innovation and increase awareness among their target audience. Social tools can also help to strengthen brand perception by communicating core values to a wider audience. This, in turn, opens up the opportunity to start conversations, grow business partnerships and expand the online community to win new followers and potential customers. Social media demands innovation and creativity in every press release the company has to make. Companies also need to keep up with other companies to fight competition and cater to the demanding customers' needs and wants.

In order to stand out from competition, companies must listen and learn from their customers to map their needs against what else is going on in the social media domain. Efforts must be put to go beyond what is already existing and convert their corporate objectives in to existing and original social media activities. Dynamically using social media is one of the easiest ways to reach a large customer base and get the company or brand name in the heads of existing or potential customers. Not only does an already established network help to create new contacts, it will also help to deepen connections that have been formed.

6. Suggestions

Based on the study and the observations made on social media the researcher recommends the following:

Opportunities - Social media as a great platform for mass engagements can offer unparalleled opportunities to an organization. It is essential for organizations to make their presence on it but it is equally important that the number of postings is done at the right intervals. Too much of posts or too little posts will not have the desired results.

Content matters – In order to portray the right image organizations need to have a clear control over the content of the materials posted on social media. Content matters a lot and can have diverse results depending on the kind of impression organization wants to create in the public space.

Focus – It is very crucial for the organization to determine which social media sites are most popular with its customers. This can be ascertained based on the number of followers, likes, comments, feedback etc. Identifying this will enable the organization to focus all its marketing efforts on just a few of these social networks and this will facilitate the organization to reach the maximum number of potential customers.

Control & Sustain – Organizations must assign key staff to implement social media strategy and also control postings, maintain various social sites and also sustain the tempo so that there is regular activities on the networks which will eventually increase the visibility and brand value of the organization.

7. Conclusion

Many companies are using Social media as well as traditional form of media to market their products and to have a better connect with their customers. Via Social Media, one is able to reach out to more customers and cater to their specific needs better. Companies can also build their brand image via social media. Social media is an effective tool in doing business today and brings out innovative strategies out of companies that used to be very monotonous. The above study also determines that social media has a positive impact on business and it growth and performance. Companies that are at maturity stage in the product lifecycle can adopt social media to extend their business survival, if they fail to do so, they are undoubtedly going downhill in the coming years.

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TO CREATE AN AWARENESS AMONG YOUTH THE EFFECTIVENESS OF CORPORATE SOCIAL RESPONSIBILITY

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Abstract

In this paper, there is a striking history associated with the evolution of the concept and definition of corporate social responsibility (CSR). Corporate social responsibility (CSR) refers to policies corporations or firms conduct their business in a way that is ethical, society friendly and beneficial to community in terms of development. This article examines the meaning of CSR based on some theories available in literature. The article then discusses the role of CSR in community development.

Corporate social responsibility, also called as corporate sustainability is the obligation of organisation management to make decision and take actions that will enhance the welfare and interest of society as well as the organisation. It may be proactive or reactive. Some organisations show their responsibility towards the society willingly while the others are forced by external factors like government policy, competition etc., The basis of what we consider to be the modern definition of CSR is rooted in Archie Carroll's "Pyramid of Corporate Social Responsibility." CSR deals with women empowerment, helping the environment, eradicating poverty, eradicating child labour etc. Companies now are incorporating social responsibility into their business strategy. There are various theories related to CSR, some of them include the Stakeholder Theory, Business ethics theory of CSR and the shareholder value theory of CSR. Companies engage themselves in social responsibility to retain talent, improve the company's brand, stand out among the competitors, etc. Being a part of the society, companies must be responsible towards it.

Keywords: proactive, reactive, evolution of CSR, trends, Company's Act, Indian, foreign, pyramid, legal, ethical, sustainability, policy

1. Introduction

Corporate social responsibility, also called as corporate sustainability is the obligation of organisation management to make decision and take actions that will enhance the welfare and interest of society as well as the organisation. There are several areas of social responsibility, they include the society as well as the stake holders like consumers, employees, investors, communities, government and others.

Corporate social responsibility benefits the society as well as the organisation. It benefits the organisation by maximising the positive impact on the stakeholders and minimising the negative impact of its obligations.

The concept of corporate social responsibility is similar to the "Give and Take" concept. The organisation takes inputs from the society for its growth and development so it gives back something to the society.

Corporate social responsibility can be proactive or reactive. Some organisations show their responsibility towards the society willingly while the others are forced by external factors like government policy, competition etc.,

The four faces of corporate social responsibility show the basic differences between proactive and reactive (Fig. 1)

FACE 1 Illegal and socially irresponsible	**FACE 2** Illegal and socially responsible
FACE 3 Legal and socially irresponsible	**FACE 4** Legal and socially responsible

Figure 1: The pyramid of corporate social responsibility

2. CSR -Theories

While Corporate Social Responsibility (CSR) has been emerged since 1950s, its importance and practice came into picture much later. The basis of what we consider to be the modern definition of CSR is rooted in Archie Carroll's "Pyramid of Corporate Social Responsibility." In this Pyramid a organisation has four types of responsibilities. The first one is the economic responsibility to be profitable. The second is the legal responsibility to follow the laws set forth by society. The third, which is closely connected to the second, is the ethical responsibility. That is to do what is right even when business is not bound to do so by law. The last one is the philanthropic responsibility which is also called the discretionary responsibility.

Nearly 20 years later the Pyramid remains highly related. It is regularly debated, modified and criticized by academia, corporate leaders, and politicians. Carroll's CSR Pyramid (Fig. 2) is a simple outline that helps argue how and why organisations should meet their social responsibilities.

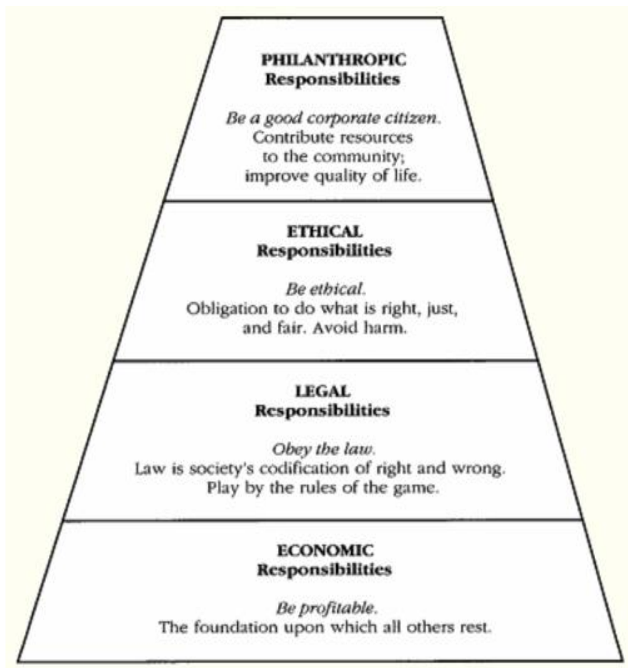

Figure 2. Carroll's CSR Pyramid

CSR in equation form is the Sum of Economic Responsibilities (Profit making), Legal Responsibilities (lawful), Ethical Responsibilities (Be ethical), and Philanthropic Responsibilities (Good corporate citizen)

Theories related with CSR are:

- Stakeholder Theory
- Business ethics theory of CSR
- The shareholder value theory of CSR

2.1 The stakeholder theory of CSR

It argues that the number of stakeholder pressure groups has developed broadly since the 1960s' and the stakeholder forces impact on business must not be underestimated. The stakeholder theory highlights special social rather than any others unrelated to the corporation. Stakeholders are very much necessary for the survival of the firm. Stakeholder theory involves protecting the interest of all the stakeholders in the organisation.

2.2 Business ethics theory of CSR

The business ethics theory is based on social obligation and the moral duty that business has towards society. Ethical theories focus on the ethical requirements that strengthen the relationship between business and the society.

Corporation as a better citizen in a society to contribute to social cause and social well-being.

2.3 The shareholder value theory of CSR

The shareholders theory argues that only social responsibility of business will develop its profits. The due idea is to maximize the shareholders interest.

Although maximizing the profit of shareholder is justified as the most important or only corporate responsibility, corporate social obligations are regarded often as strategic tool for corporate competitive benefit and more profit gain.

3. Why Companies Involve Themselves in CSR (Corporate Social Responsibility)?

Corporate social responsibility (CSR) is not going to solve the world's problems. That said, CSR is a way for companies to benefit

Social responsibility has become very important to companies over the last few years. The social issues can be local, national, or global. CSR deals with women empowerment, helping the environment, eradicating poverty, eradicating child labour etc. Companies now are incorporating social responsibility into their business strategy. Here are some of the reasons why companies engage themselves in social responsibility.

Improvising the company's brand

Being a socially responsible a company can build and attain a good brand image. For a company public's perception towards the company is very important in terms of both customer and the shareholders. By projecting a positive image, a company can attain a good name for itself which helps the company to make profit. Also, by being active in the public, a company's personnel are engaging with potential customers and in doing so, indirectly marketing the company in the process.

Engaging customers

Building relationships with customers is the foundation of a successful company and having a social responsibility policy can impact the purchasing decisions of customers. Some customers are always ready to pay more for a product if they know a portion of the profit is going to worthy cause.

Retaining top talent

Employees always want to feel they are the part of big and reputed organisation. Social responsibility empowers employees to influence the corporate resources at their disposal to do good. Being part of a strategy that helps the greater good can boost employee morale and lead to greater productivity in the workforce.

Helping companies stand out from the competition

When the companies are involved in the public, they stand out from the competition. Building relationships with the customers and their neighbourhoods helps improve the brand's image. For instance, Elon Musk, CEO of Tesla Inc. (TSLA) has connected the gap between the corporate world and his socially responsible vision by offering electric-powered cars and environmentally friendly automotive products.

Public relations benefits

Public relations are a potent tool for shaping consumer perception and building a company's image. Corporations that actively promote their social responsibility activities often take steps to publicize these efforts through the media. Getting the word out about corporate donations, employee volunteer programs, or other CSR initiatives is a powerful branding tool that can help build publicity for you in both online and print media.

Building a positive workplace environment

one of the greatest benefits of promoting social responsibility in the workplace is the positive environment that they build to the employees. When employees and management feel they are working for a company that has a true ethics, they will likely be more enthusiastic and engaged in their jobs. This can build a sense of community and cooperation which brings everyone together and leads to better-off, more productive personnel.

4. Evolution of CSR

The global evolution and the Indian story of CSR is depicted in Fig 3 & 4 respectively.

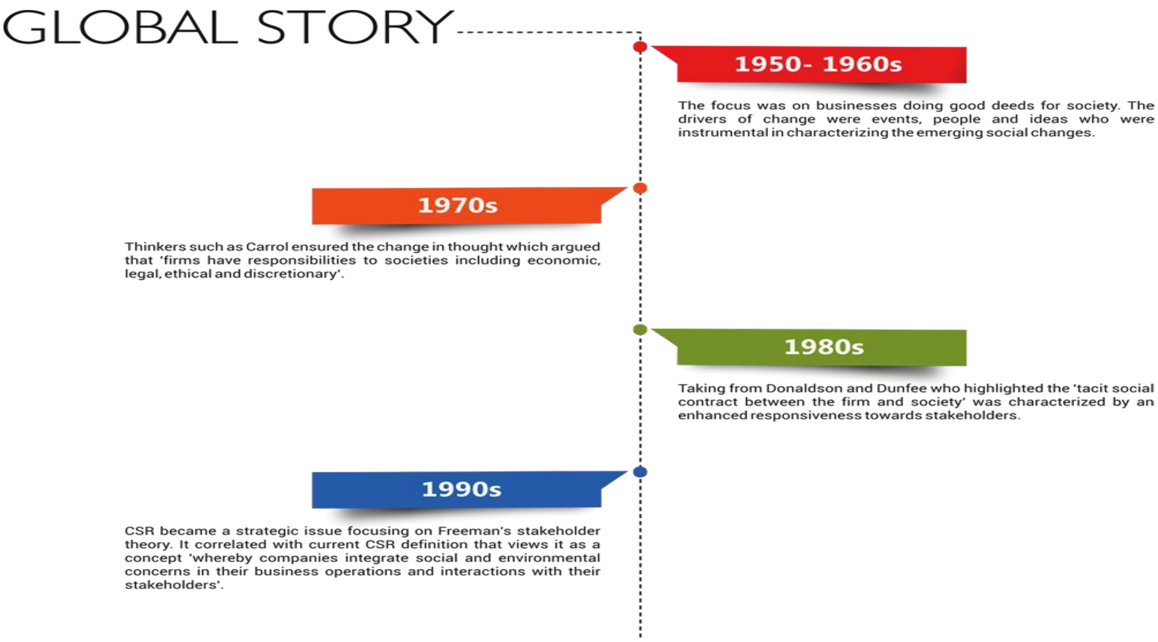

Figure 3. The global story of CSR

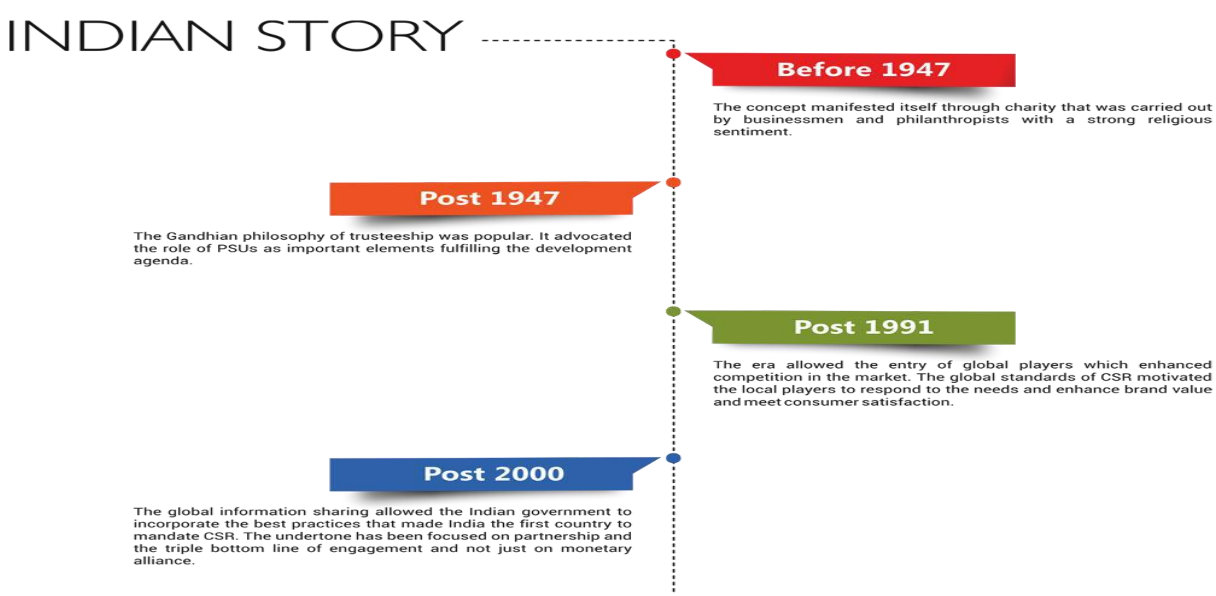

Figure 4. The Indian story of CSR

4.1 The Companies Act, 2013

As per Corporate Social Responsibility is concerned, the Companies Act, 2013 is a law that made India the first country to mandate and quantify CSR expenditure. The details of corporate social responsibility are mentioned in the Section 135 of the Companies Act, 2013. The Act came into force from April 1, 2014, every company, private limited or public limited, which either has a net worth of Rs 500 crore or a turnover of Rs 1,000 crore or net profit of Rs 5 crore, needs to spend at least 2% of its average net profit for the immediately previous three financial years on Corporate social responsibility activities. The CSR activities in India should not be undertaken in the normal course of business and must be with respect to any of the activities mentioned in Schedule VII of the act. The companies are required to setup a CSR committee which designs a CSR policy which is approved by the board and incorporates the CSR activities that the corporations decide to take.

In Schedule VII of the Bill there are 9 specified and 1 provisional generic category of activities: Eradicating extreme hunger and poverty , Promotion of education, Promoting gender equality and empowering women , Reducing child mortality and improving maternal health, Combating human immunodeficiency virus, acquired immune deficiency syndrome, malaria and other diseases, Ensuring environmental sustainability, Employment enhancing vocational skills, Social business projects, Contribution to the Prime Minister's National Relief Fund or any other Fund set up by the Central Government or the State Governments for socio-economic development and relief and funds for the welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women, Such other matters as may be prescribed.

The Indian companies in the last two years have invested majorly in education & skill development, healthcare & sanitation, rural development projects and environment after being mandated to allocate a portion of their profits towards community development.

In a written reply to Rajya Sabha, Corporate Affairs Minister Arun Jaitley on 1st March 2016 said a total of 460 listed firms have so far disclosed spending Rs 6,337.36 crore in 2014-15. This included 51 PSUs that spent Rs 2,386.60 crore. Of the 460 companies, 266 firms spent less than 2 per cent of the average profit.

4.2 CSR trends in India

2015-16 observed 28% growth in CSR spending in comparison to 2015-2016.

Listed companies in India spent Rs 83.45 billion in various programs ranging from educational programs, social welfare, skill development, healthcare, and environment conservation. The Prime Minister's Relief Fund saw an increase Rs 7.01 billion in comparison to Rs 1.68 billion in 2014-15. The education sector received the maximum funding of Rs 20.42 billion followed by healthcare at Rs 16.38 billion, while programs such as child mortality, gender equality, maternal health, and social projects saw negligible spend.

2017 CSR spends further rose with company firms aligning their initiatives with new government programs such as Swachh Bharat (Clean India) and Digital India, in addition to education and healthcare.

5. Companies Which are Socially Responsible in India

5.1 Tata Group

The Tata Group corporation in India brings out various CSR projects, most of which are poverty alleviation programs and community improvement programmes. It is engaged in women empowerment activities, income generation, rural community development, and other social welfare programs. In the field of education, the Tata Group provides scholarships and awards for many institutions.

Tata group also engages in healthcare projects such as assistance to child education, immunization and creation of awareness of AIDS. Other areas include economic empowerment through agriculture programs, environment protection, providing sport scholarships, and infrastructure development such as hospitals, research centres, educational institutions, sports academy, and cultural centres.

5.2 Ultratech Cement

Ultratech Cement, India's largest cement company is involved in social work across 407 villages in the country aiming to create sustainability and self-reliance. Its CSR activities focus on healthcare and family welfare programs, environment, social welfare, education and sustainable livelihood.

The company organises medical camps, plantation drives, water conservation programs, immunization programs, sanitization programs, industrial training, and organic farming programmes etc

5.3 Mahindra & Mahindra

Indian automobile manufacturer Mahindra & Mahindra established the K. C. Mahindra Education Trust in 1954, followed by Mahindra Foundation in 1969 with the purpose of encouraging education. The company mainly focuses on education programs to assist economically and socially disadvantaged communities. CSR programs invest in scholarships and grants, healthcare for remote areas, water conservation, and disaster relief programs. M&M runs programs that focuses on girl's education.

5.4 ITC Group

ITC Group, a company with business interests across hotels, agriculture, IT, and packaging sectors has been focusing on creating sustainable livelihood and environment protection plans. The establishment has been capable to generate sustainable livelihood opportunities for six million people through its CSR activities. Their e-Choupal program, which aims to join rural farmers through the internet for procuring agriculture products, covers 40,000 villages and over four million farmers

5.5 Foreign companies that are socially responsible

5.5.1 Company 1: LEGO

LEGO is a line of plastic construction toys invented by Ole Kirk Christiansen. It is manufactured by The Lego Group, a private company in Denmark. The company's product, Lego, consists of plastic bricks that can be interlocked to create different structures. They come in many colours accompanying an array of gears, figurines called minifridges, and various other parts. Lego was started in the year 1949 and is known for their corporate social responsibility activities. some of the CSR activities that are undertaken by Lego to benefit the environment and society are as follows:

- "BUILD TO GIVE" for children in hospitals around the world

The Lego Group ran a campaign during the holiday season called "BUILD TO GIVE" to lift the spirits of children in the hospital. Children all over the world were invited to display the ornaments they built. In return the Lego Group donated over 40,000 Lego sets to the hospitalised children.

- Engaging with the local communities

Lego reached over four hundred thousand (400,000) children to involve them in environmental and social issues with creative play experiences. This was done to build their ideas to overcome the present issues and create a better world. They got a great response as thousands of passionate Lego users volunteered this activity during their spare time.

- Safe and high-quality play experiences for children.

Lego launched a social network for kids which would enable them to share their creations online to inspire other builders around the world. This platform also helps the children to become capable digital citizens. This social network was named LEGO Life and it provided a fun and safe online environment for children.

- Coding and Cleaning up River Thames

The LEGO Group challenged children in London, UK, to put on their creativity, thoughts and imagination, and solve practical environmental and social problems through coding. London encouraged around 450 school children to design, build and code a LEGO prototype device to help get rid of rubbish from the River Thames, harnessing the power of physical and digital play in a playful and appealing environment. The programme gives children the self-determination to discover, experiment and problem solve, nurturing skills such as collaboration, critical thinking, and innovation.

5.5.2 Company 2: United Colors of Benneton

Benetton Group is a global fashion brand founded by Luciano Benetton in Ponzano Veneto, Italy. The name comes from the Benetton family, who founded the company in the year 1965. Benetton has a network of about 5,000 stores in the main international markets. The Women Empowerment Program (WE Program) is a Benetton Group sustainability program designed to support women all over the world. This is a long-term plan women empowerment plan.

To achieve the goal of women empowerment and gender equality, Benetton Group has recognized five significant priorities in accordance with the UN agenda:

• Sustainable livelihood:

This is to guarantee that women have access to decent work in safe places so that they may gain social and economic freedom

• Non-discrimination and equal opportunities:

All forms of discrimination must be ended. Women and girls must be approved equal opportunities with men and boys in leadership, employment, and decision-making at all stages. They must play a part in peace building and state-building and have complete access to information and communications technology.

• Quality education:

All women and girls must be approved access to inexpensive and quality education at all levels, including vocational, technical, and university education.

• Healthcare:

Girls and women must be granted access to affordable and suitable healthcare facilities. They must have universal access to reproductive and sexual health and reproductive rights.

• Fight against violence:

Within a span to 10-12 years, the Benetton group wants to eliminate all forms of violence against all women and girls in the public and private spheres. This includes child marriage, sexual and other types of exploitation, trafficking, and harmful practices such as genital mutilation.

5.5.3 Company 3: M·A·C

MAC Cosmetics, stylized as M·A·C, is a cosmetics manufacturer company founded in the year 1984 by Frank Toskan and Frank Angelo. The company's headquarters is in New York City and became part of the Estée Lauder Companies in 1998. MAC is an abbreviation for Make-up Art Cosmetics.

M·A·C has five social initiative programs currently in place

M·A·C Cruelty-Free Beauty:

This principle prohibits animal testing and the policy is extended to ingredient suppliers as well. The products manufactured by MAC is no longer tested on animals unless it is mandated by the law.

- M·A·C Kids Helping Kids:

This programme was started in 1994 where kids living with HIV/AIDS create images/pictures that are reproduced as greeting cards. All the money collected by selling the greeting cards goes back to participating organizations. This is financially helping the children suffering from HIV/AIDS.

- M·A·C Viva Glam

Cent percent of the purchase price of any Viva Glam products that include lipsticks, lip-glosses and holiday sets, goes to the M·A·C Aids Fund. Multiple Celebrities have recommended the MAC Viva Glam products. Such celebrities include: Nicki Minaj, Lady Gaga, Cyndi Lauper, Elton John, and More.

- M·A·C Recycling:

MAC offers free lip-gloss, eyeshadow, or lipstick at any M·A·C location (lipsticks only at M·A·C counters in department stores) with the return of six empty M·A·C containers. Some products like Viva Glam, Pro Longwear gloss and Pro palette Shadow and sheen supreme lipsticks are excluded.

- The M·A·C AIDS Fund:

MAC supports community organizations providing direct services to people living with HIV/AIDS. To date the foundation has raised over $240,000,000 US Doller since its commencement in 1994.

6. Using Corporate Social Responsibility to Build a Positive Corporate Image

The CSR activities show that the organization is concerned about the well-being of the society and the protection of the environment. Organizations with developed CSR builds a favourable and positive corporate image compared to organizations that do not take CSR activities into consideration. Many organizations use CSR as an instrument for building a good corporate image to the public. CSR has a positive influence on the progress in revenues, economic performance of the organization, the corporate image and status, relations with all investors and the customer trustworthiness. CSR also gives consumers the chance to feel that they have taken the correct decision by choosing a specific service or product. The optimistic image of the organisation allows it to attract new customers and to rise the benefits and the confidence of all investors. The image of a socially responsible organization improves the dependability of the brand, creates and strengthens the competitive advantages, increases customer faithfulness and creates an emotional bond between the organization, the employees and the customers

7. Conclusion

CSR is becoming a progressively significant commotion for organizations in the emerging markets as the expectations and the necessities of consumers are also increasing. A. Chattananon and M. Lawley12 note that the corporate image is shaped by three main aspects in the organization:

1. Corporate Marketing Communications,

2. Corporate Social Responsibility, and

3. Consumer Demographics.

The concepts for CSR and corporate image are integrated and go hand in hand. A company or organization that is socially responsible creates a positive impact in the global market which in turn creates a positive brand and corporate image.

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ANALYSIS OF EMPLOYEE ENGAGEMENT IN SFS INSTITUTION

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Abstract

Human engagement consists of complex and emotional behavior which carries multiple undertones. It is difficult to control human behavior in different situation. Similarly it is difficult to understand and predict the behavior of humans. The same is applied to the employees working in various sectors.

This research tries to focus on employee engagement analysis on the employees of all the SFS Institutions in Bangalore. SFS group of institutions is one of the prominent education institutions in Bangalore, proving its significant presence over a number of years.

This primary study will try to analyze the Employees engagement factors like workload, stress, growth, recognition, relationship, fairness, autonomy and diversity as well among the employees. Our study will also be helpful in emphasizing the role of educators or teachers in their personal and professional life. This research will also help in identifying the problems faced by them and its probable remedies.

Keywords: Employee engagement, SFS group of institutions, Professional life and Stress Management

1. Introduction

In today's competitive business world employee engagement is needed for every organization but the biggest challenge today is fully engaging the talented people and capturing their minds at each phase of their work life. Now-a-days employee engagement has emerged as an important driver of business success and it can be a deciding factor in organizational success. It helps the organization in achieving their goals through employee's performance.

Employee engagement is about treating people as people not merely as an employee. Employees go the extra miles and deliver excellent result in terms of performance when employee engagement is greater. It is a key link to an organization's reputation, employee retention, loyalty, productivity, stakeholder value.

1.1 Objectives

1. To know the level of employee engagement in the institution
2. To know the motivational factors affecting employee engagement
3. To understand the opportunities of growth available in the institution

1.2 Hypothesis

- H1: There is a high level of employee engagement in the institution
- H0: The level of employee engagement in the institution is low

2. Methodology

Collection of primary data

1. Sample size - 60
2. Sample unit - Academician
3. Sampling technique - Convenience sampling
4. Sampling frame - SFS Educational Institution
5. Collection of data - Schedule
6. Analysis of data - Tabulation and interpretation

3. Factors Affecting Employee Engagement

- **Workload**:- If workload on a person is more and more then the person feels the stress, depressed and they cannot concentrate either on personal life nor professional life
- **Growth**:-when the status of an employee increases in an organization, there will be a competition and greed between the employees. The growth of an employee may affect his/her physical as well as mental health.
- **Reorganization**:- if an employee doesn't get recognized for his/her work what they deserve them that might affect their work-life balance
- **Stress**: - stress has a direct connection between his/her personal as well as professional life. If their work-life balance is not well balanced it will directly affect their work.
- **Clarity**: - the employee should have clear and clarity of their objective and purpose of being in the organization.
- **Relationship**: - Relationship plays a vital role in any organization and its goal. So a good inter-personal relationship should be maintained between the employee and employer as well as peer group.

4. Findings and its Inferences

Table 1 shows that more than half 52% of respondent agree that what is expected from them at work. 46% of respondent agreed for the same.

Basis	Frequency	%
Strongly disagree	0	0
Disagree	1	2
Neither agree nor disagree	0	0
Agree	31	52
Strongly agree	28	46

Table 1. You know what is expected of you at work

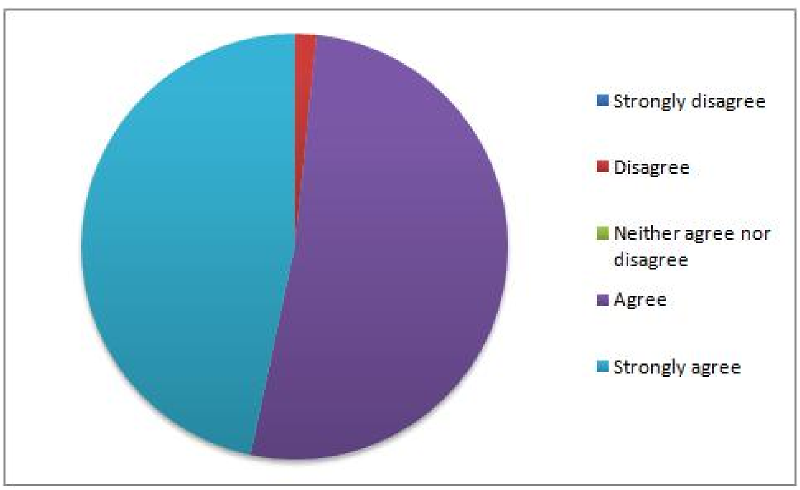

Figure 1. What is expected from work?

The data given in Table 2 shows that more than half 65% of respondent agree that they have materials and equipment needed to do their work right. 27% of respondent agreed for the same. Fig. 2 depicts the same more clearly. Table 3 and Fig.3 show that more than half 55% of respondent agree that they have the opportunity to do their best. 32% of respondent agreed for the same.

Basis	Frequency	%
Strongly disagree	0	0
Disagree	2	3
Neither agree nor disagree	3	5
Agree	39	65
Strongly agree	16	27

Table 2. Availability of the materials and equipment you need to do your work

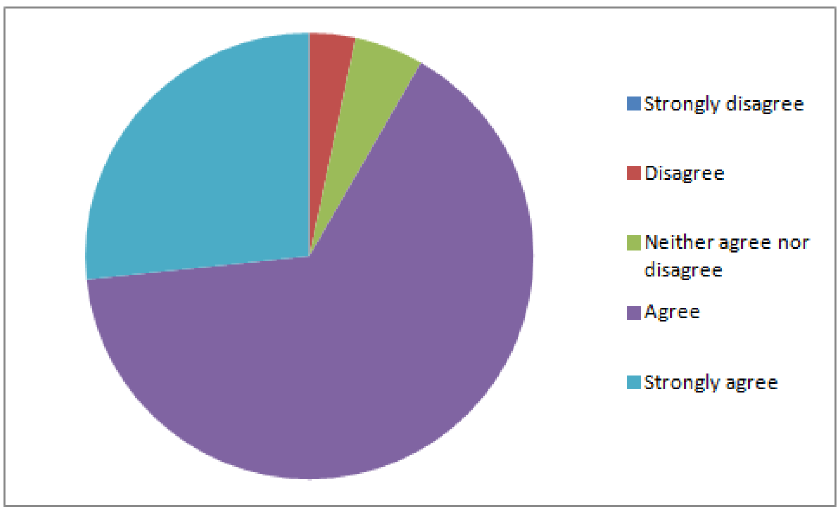

Figure 2. You have the materials and equipment you need to do your work

Basis	Frequency	%
Strongly disagree	0	0
Disagree	2	3
Neither agree nor disagree	6	10
Agree	33	55
Strongly agree	19	32

Table 3. At work, you have the opportunity to do what you do best every day.

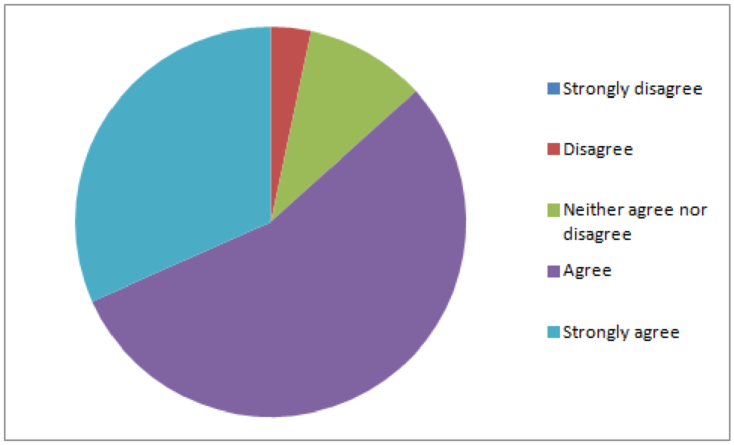

Figure 3. At work, you have the opportunity to do what you do best every day

Table 4 shows that 32% of respondent neither agree nor disagree that in last 7 day they didn't get any reorganization for their work. 26% of respondent agreed whereas the Fig.4 supports the same.

Basis	**Frequency**	**%**
Strongly disagree	4	7
Disagree	15	25
Neither agree nor disagree	19	32
Agree	16	26
Strongly agree	6	10

Table 4. In the last 7 days, have you received recognition or praise for doing good work.

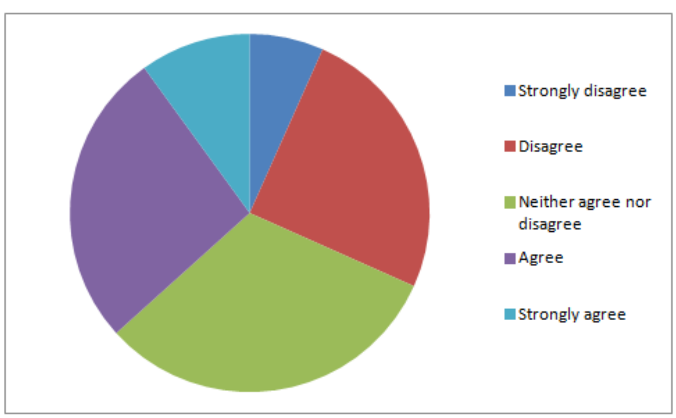

Figure 4. In the last 7 days, have you received recognition or praise for doing good work.

45% of respondent agree that supervisor, or someone at work, seem to care about them as a person. 28% of respondent agreed for the same (Table 5 & Fig. 5)

Basis	Frequency	%
Strongly disagree	1	2
Disagree	3	5
Neither agree nor disagree	12	20
Agree	27	45
Strongly agree	17	28

Table 5. Your supervisor, or someone at work, seem to care about you as a person?

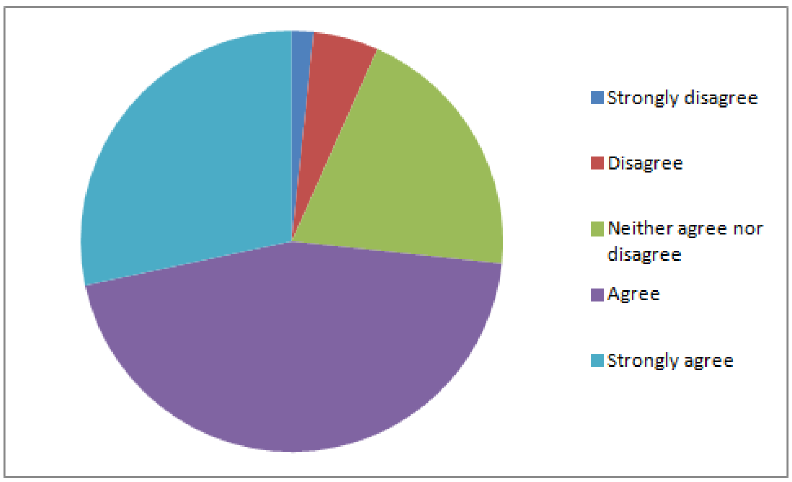

Figure 5. Your supervisor, or someone at work, seem to care about you as a person?

It is evident from the survey results (Table 6 & Fig. 6) that more than half 55% of respondents agree that there is someone at work who encourages their development and 22% of respondent agreed for the same. The results (Table 7 & Fig. 7) also show that more than half 55% of respondent agree that their opinions are taken to into the consideration. 20% of respondent agreed and also disagrees.

Basis	Frequency	%
Strongly disagree	2	3
Disagree	3	5
Neither agree nor disagree	9	15
Agree	33	55
Strongly agree	13	22

Table 6. There is someone at work who encourages your development

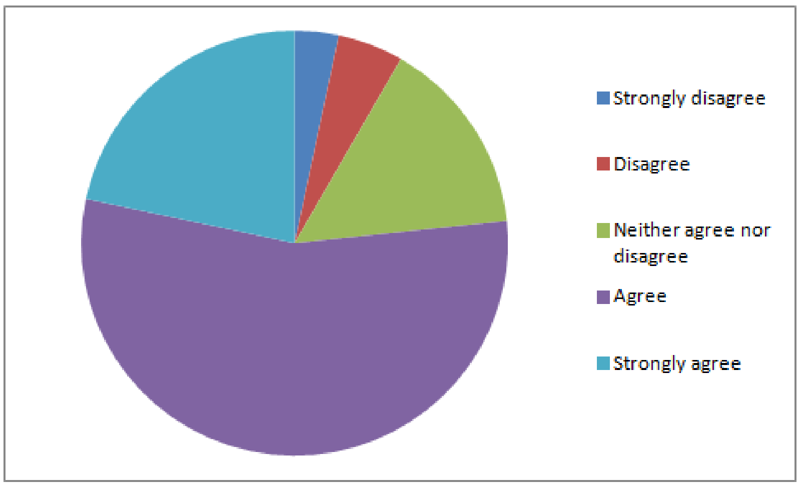

Figure 6. There is someone at work who encourages your development

Basis	Frequency	%
Strongly disagree	2	3
Disagree	1	2
Neither agree nor disagree	12	20
Agree	33	55
Strongly agree	12	20

Table 7. At work, your opinions seem to be count.

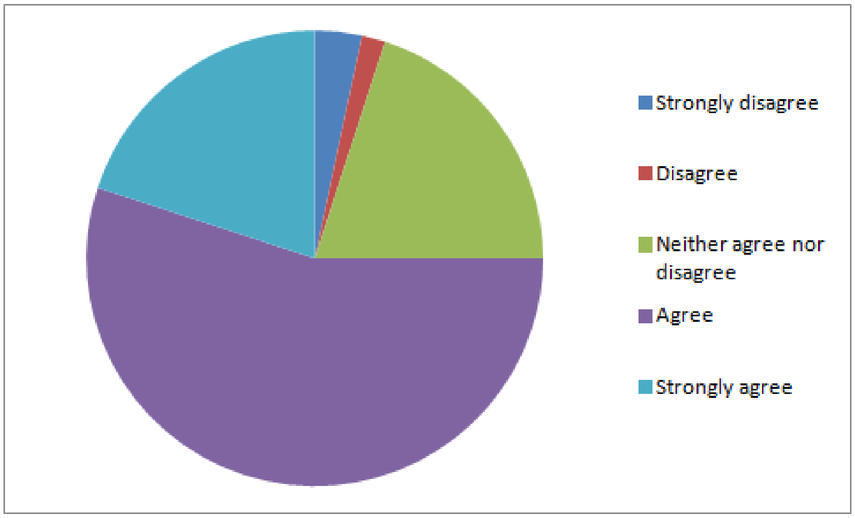

Figure 7. At work, your opinions seem to be count.

It can be observed that more than half 59% of respondent agree that they feel important for their job and 28% of respondent strongly agreed for the same (Table 8 & Fig. 8). Also the data obtained as given in Table 9 and Fig. 9 clearly states that that more than half 59% of respondent agree that their associates(fellow employee) are committed to doing quality work while 20% of respondent neither agreed nor disagree for the same.

Basis	**Frequency**	**%**
Strongly disagree	1	2
Disagree	2	3
Neither agree nor disagree	5	8
Agree	35	59
Strongly agree	17	28

Table 8. The mission/purpose of your institute make you feel your job is important.

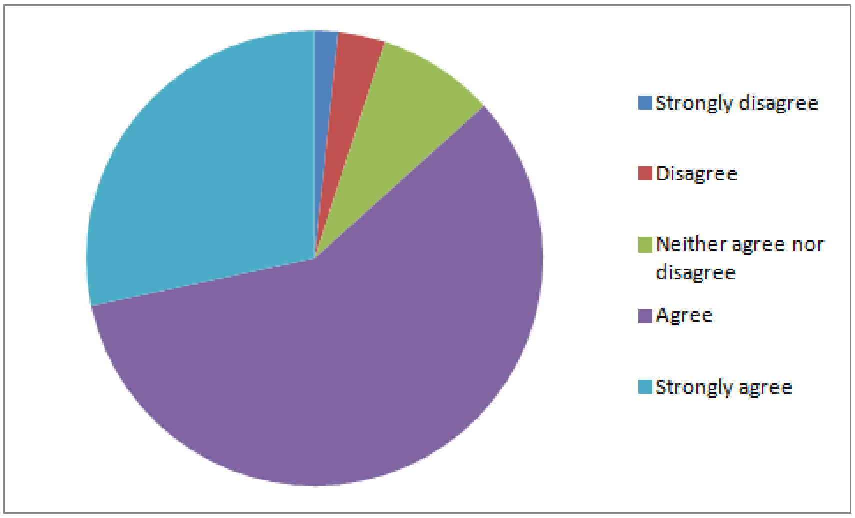

Figure 8. The mission/purpose of your institute make you feel your job is important.

Basis	Frequency	%
Strongly disagree	0	0
Disagree	2	3
Neither agree nor disagree	12	20
Agree	35	59
Strongly agree	11	18

Table 9 . Your associates (fellow employee) are committed to doing quality work.

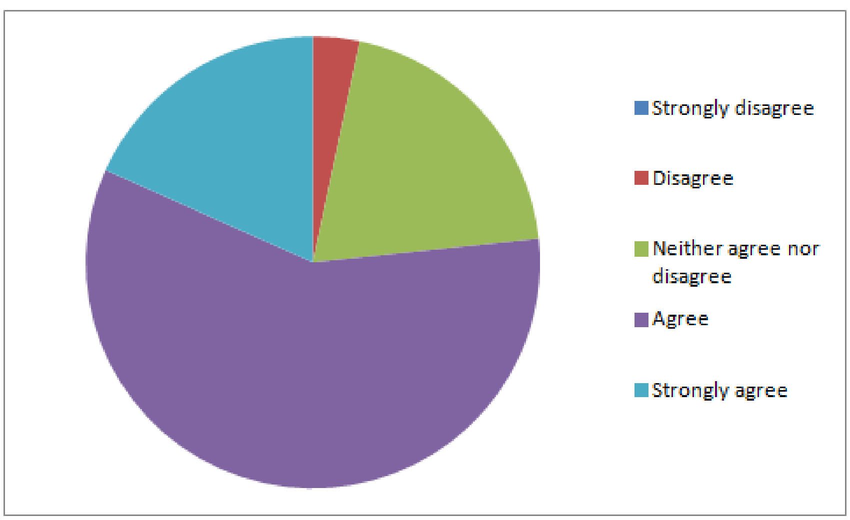

Figure 9. Your associates (fellow employee) are committed to doing quality work.

Table 10 and Fig. 10 shows that 37% of respondent agree that they have best friends at work. 35% of respondent strongly agreed for the same.

Basis	Frequency	%
Strongly disagree	2	3
Disagree	6	10
Neither agree nor disagree	9	15
Agree	22	37
Strongly agree	21	35

Table 10. You have a best friend at work.

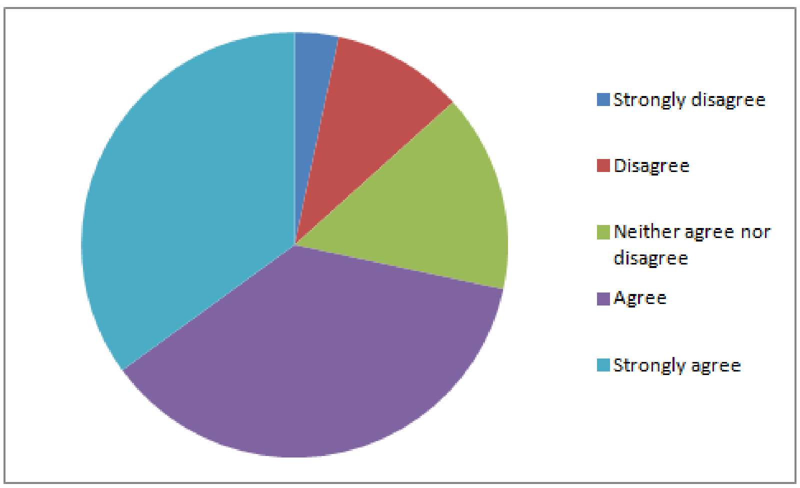

Figure 10. You have a best friend at work.

Table 11 shows that 45% of respondent agree that in the last six month, someone at work talked to them about their progress. 18% of respondent strongly agreed for the same. The aforesaid observations are clearly depicted in Fig.11. As given in Table 12, more than half 60% of respondent agree that in the last year, they had opportunities at work to learn and grow for which 16% of respondent have strongly agreed (Fig. 12).

Basis	Frequency	%
Strongly disagree	4	7
Disagree	9	15
Neither agree nor disagree	9	15
Agree	27	45
Strongly agree	11	18

Table 11. In the last six month, someone has at work talked to you about your progress.

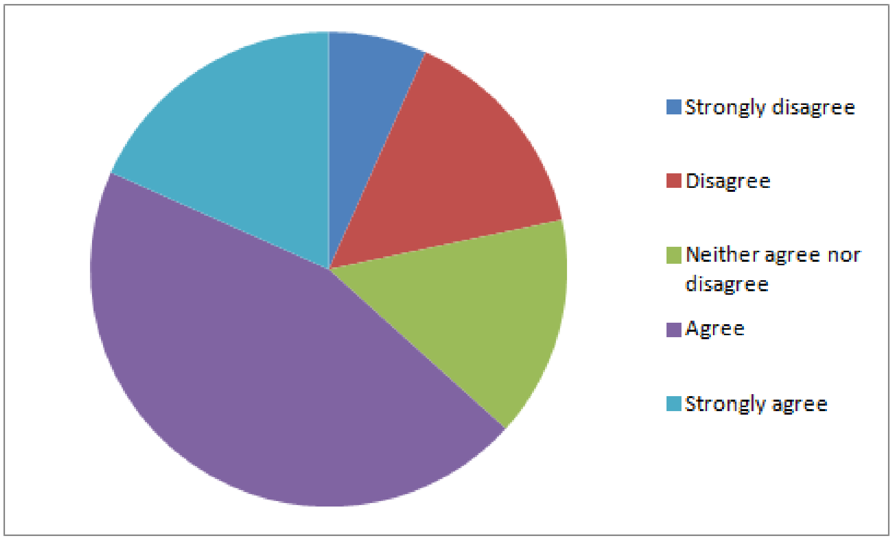

Figure 11. In the last six month, someone has at work talked to you about your progress

Basis	Frequency	%
Strongly disagree	1	2
Disagree	7	12
Neither agree nor disagree	6	10
Agree	36	60
Strongly agree	10	16

Table 12. In the last year, you have had opportunities at work to learn and grow.

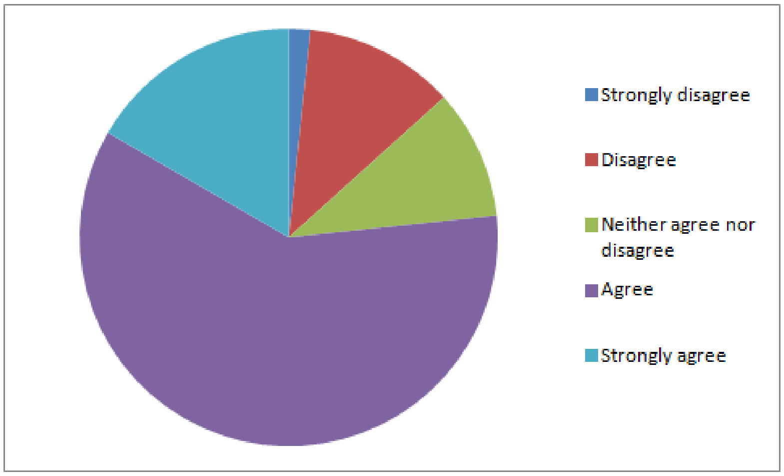

Figure 12. In the last year, you have had opportunities at work to learn and grow.

Table 13 shows that 38% of respondent agree that the pay and benefits in their organization comparably similar institutions. 25% of respondent neither agree nor disagree for the same.

Basis	**Frequency**	**%**
Strongly disagree	1	2
Disagree	9	15
Neither agree nor disagree	15	25
Agree	23	38
Strongly agree	12	20

Table 13 :The pay and benefits in your organization comparable to similar institutions.

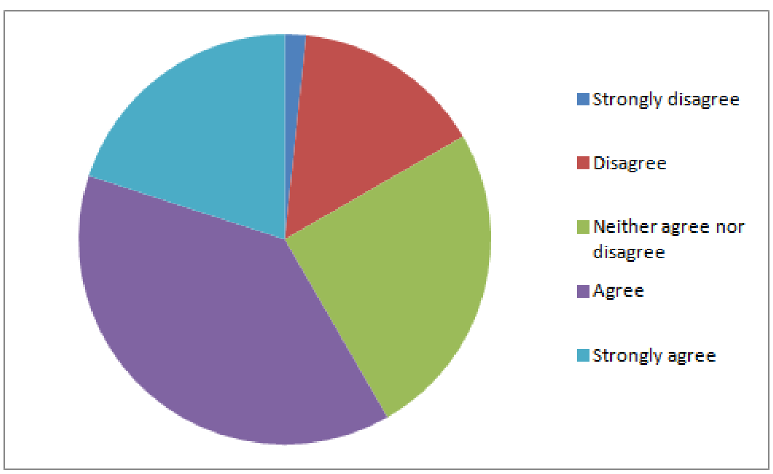

Fig13 :The pay and benefits in your organization comparable to similar institutions.

Table 14 shows that 49% of respondent agree that Job promotions in this organization is fair and objective while 30% of respondent neither agreed nor disagree for the same (Fig. 14).

Basis	Frequency	%
Strongly disagree	2	3
Disagree	5	8
Neither agree nor disagree	18	30
Agree	29	49
Strongly agree	6	10

Table 14. Job promotions in this organization is fair and objective

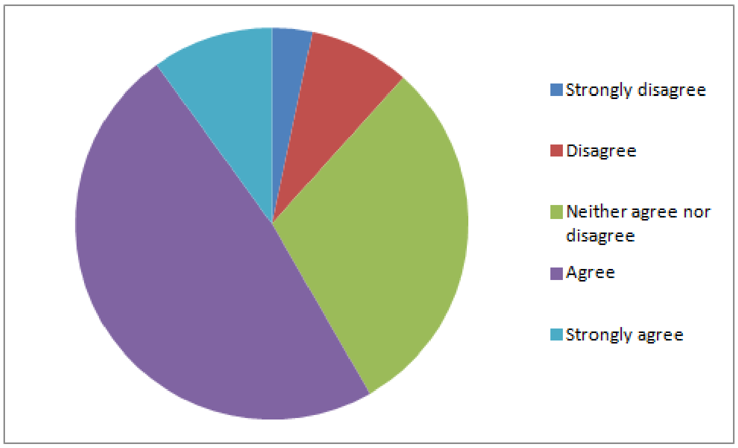

Figure 14. Job promotions in this organization are fair and objective.

Table 15 shows that more than half 54% of respondent agree that organization policies clearly communicated in the organization. 28% of respondent strongly agreed for the same (Fig. 15). The results shows that 42% of respondent strongly and 38% of respondent agreed to see themselves continuing to work for this organization two years from now (Table 16 & Fig. 16).

Basis	Frequency	%
Strongly disagree	1	1
Disagree	3	5
Neither agree nor disagree	8	12
Agree	31	54
Strongly agree	17	28

Table 15. Organization policies are clearly communicated in the organization

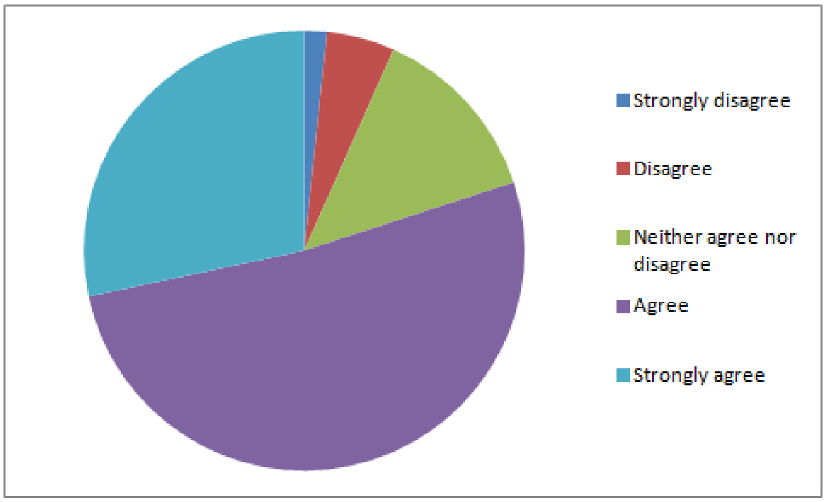

Figure 15. Organization policies are clearly communicated in the organization.

Basis	Frequency	%
Strongly disagree	1	2
Disagree	5	8
Neither agree nor disagree	6	10
Agree	23	38
Strongly agree	25	42

Table 16. You see yourself continuing to work for this organization two years from now

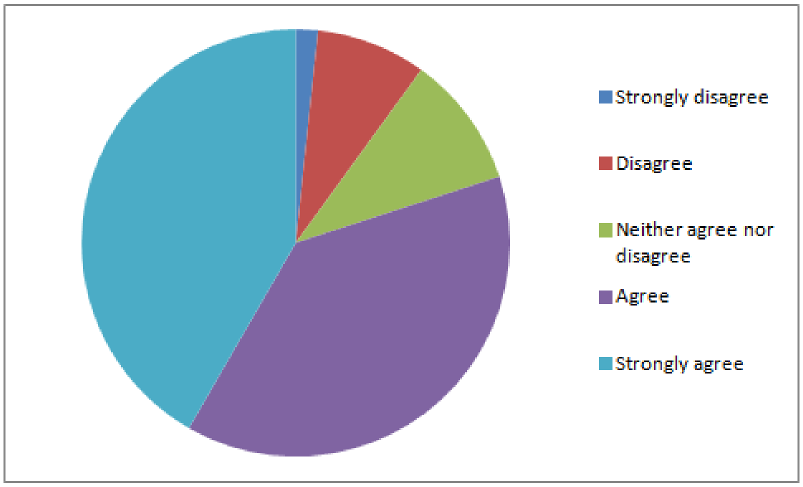

Figure 16. You see yourself continuing to work for this organization two years from now

5. Suggestions

- Placing right people on the right job.
- Giving them the training.
- Task meaningful work.
- Check in often.
- Frequently discus employee engagement.

6. Conclusion

The findings of the study conclude that more than half of the employees working at SFS Group of Institutions are satisfied and happy with the work culture. It also determines that more than half of the employees find it easy to interact with other employees coming from different backgrounds and also feel that they diverse background and cultures are respected in the organizations. The organization also ensures that their employees feels that they contribution and work is valued, hence fostering a feeling of belongingness within the organization.

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IMPACT ON EMPLOYEE ENGAGEMENT BY WORK FORCE DIVERSITY IN SERVICE SECTOR

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Abstract

Employee engagement is a complex but then a very important goal for any organisation .an organisation is combination of group of individuals having different goals whereby the organisation coordinates these individual goals and its need through employee engagement. every organisation would like to hold back its employees, at the same they also consider regarding the employee engagement. Work force diversity and employee engagement play a crucial role in the performance of the organisation and its results as well as growth in the near future. This study says about how both workforce diversity and employee engagement are related. It also attempts to examine the impact of workforce diversity on employee engagement and to what extent employee engagement is affected. The key areas focussed are regarding the effects of work force diversity, advantages and disadvantages.

Keywords: Employee engagement, Work force diversity

1. Introduction

The focus of this research is to determine the impact of workforce diversity on employee engagement in service sector. In today's era, every organisation not only face the challenge of holding back its employees but at the same time they aim to engage the employee fully. Organisation deals with heterogeneous individuals in respect to gender, race, ethnicity, etc., work force diversity means similarities and differences among the employees in terms of age, cultural background, physical abilities, disabilities, religion, etc., employee engagement is producing results by not changing the job frequently. Employee engagement leads to satisfaction, retention, productivity, client loyalty, etc.,

Employee engagement can be measured by four dimensions namely:

1. How can we grow?
2. Do I belong?
3. What do I give?
4. What do I get?

Due to work force diversity management use various strategies to improve the performance levels, attract and retain employees. Today's organisations have realised and respect workforce diversity. They have also understood the need for employee engagement. It's clear that "when people are financially invested, they want a return. When people are emotionally invested, they want to contribute".

A group of people get together and exist as an institution and it is called an organisation so that they are able to accomplish something collectively that they could not accomplish separately. Thus there is a need for organisations to respect the diversity, provide due importance to its employees.

2. Research Design

The research is undertaken to determine the impact of workforce diversity on employee engagement. The research is conducted using research questionnaire in Vimalalaya hospital Huskur gate, gold coins club resort and teachers from few colleges nearby. The data obtained from the research is analysed in a manner which clearly determines whether workforce diversity has an impact on employee engagement and if so whether the impact is positive or negative**.**

The data collected is in the form of questionnaire is answered by the respondents from gold coins club workers, nurses in the hospital and teachers. Hence the information collected is processed and tabulated suitably by highlighting all the parameters for analysing the data simple tally method is used and for presentation of data bar diagrams are used.

2.1 Objectives of the Study:

1) Relationship between workforce diversity and employee engagement.
2) To understand and respect workforce diversity
3) To help organizations to realise the need for employee engagement.

3. Analysis and Interpretation

Sl.no	Content	Disagree	Agree	Strongly agree	Strongly disagree	No opinion	Total
1	Criticized	6	4	1	21	3	35
2	Religious holidays	0	17	17	1	0	35
3	Gender equality	0	14	13	6	2	35
4	Discrimination	17	4	2	7	5	35
5	Sex oriented problems	20	1	1	12	1	35
6	Motivated	1	23	9	0	2	35
7	Satisfaction and interested	0	12	13	10	0	35
8	Opportunities	3	20	10	1	1	35
9	S-understanding needs	1	24	6	0	4	35
10	Decision information	9	17	5	2	2	35
11	Recognition	2	20	8	2	3	35
12	Feedback	5	16	9	2	3	35
13	Decision authority	6	19	5	1	4	35
14	Protect interests	1	22	9	0	3	35

Table 1. Results of the Survey

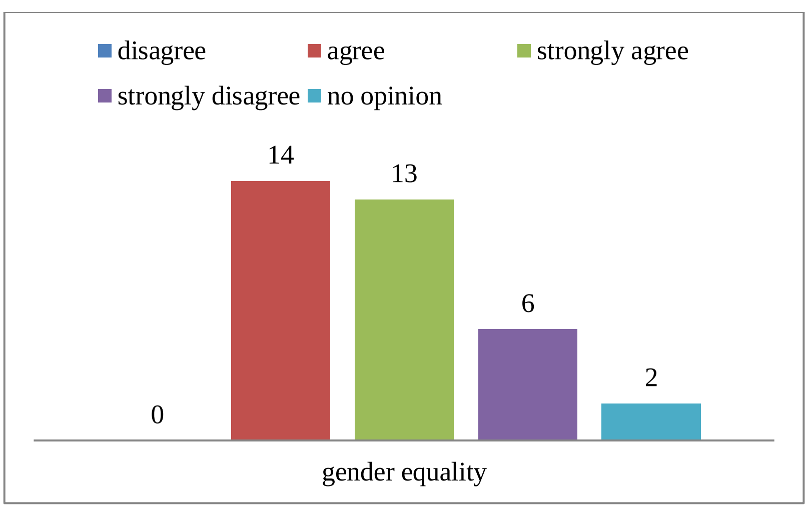

Figure 1. Gender equality

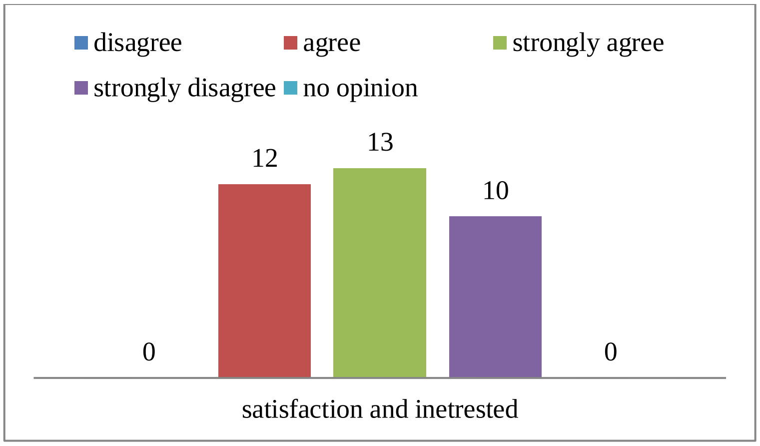

Figure 2. Satisfaction and interested

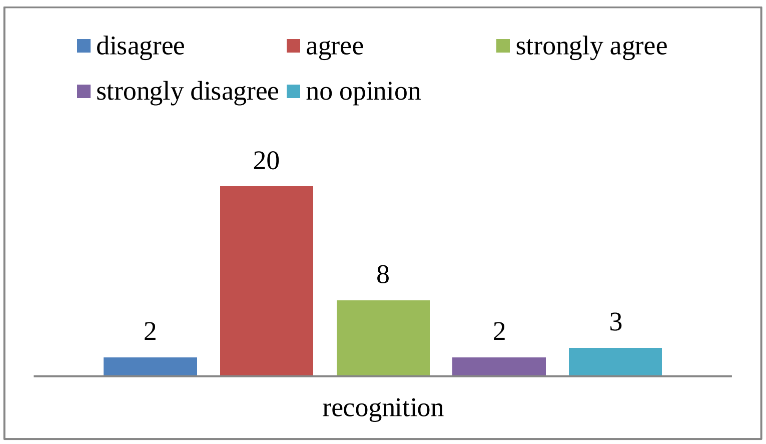

Figure 3. Recognition

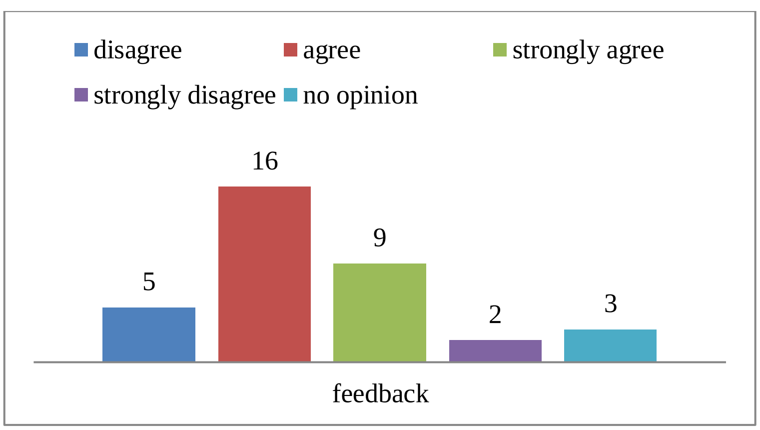

Figure 4. Feedback

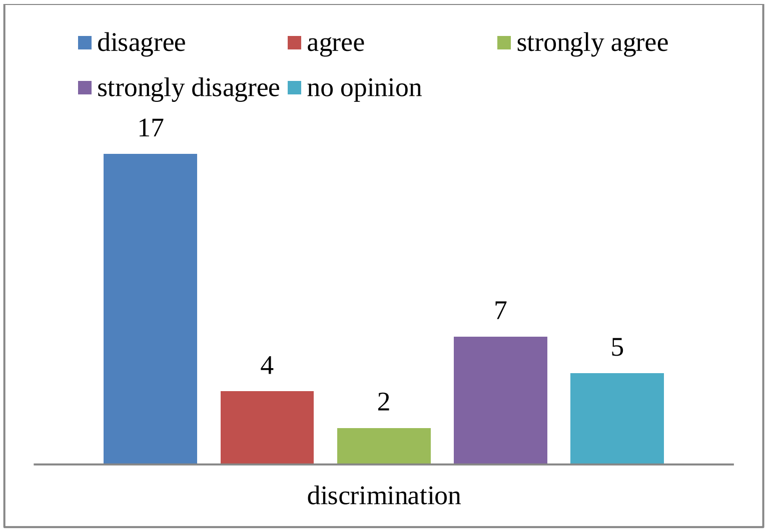

Figure 5. Discrimination

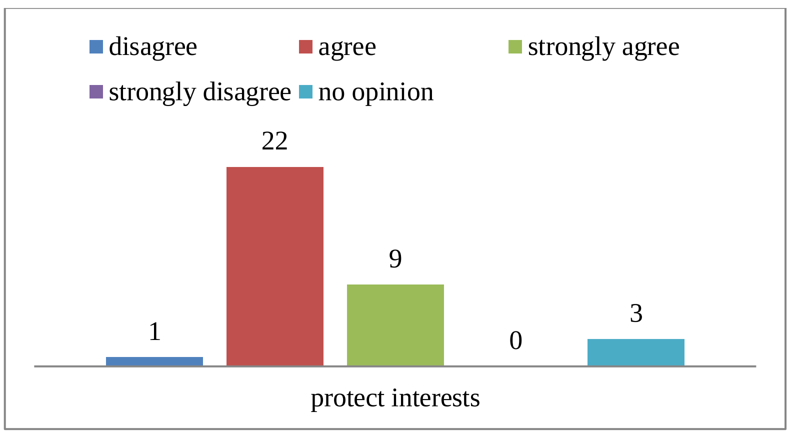

Figure 6. Protect interests

4. Conclusion:

The findings of the study reveal that more than half of the employees/workers who answered the questionnaire are satisfied and happy with the work culture. Most of the employees feel that their personal individual diverse background is respected by their organisations. It also concludes that the organisations make sure that the employees are accomplished for their work and contributions because according to the study employees are satisfied with their work, feel motivated, and recognized.

The main aim of this study was to find whether workforce diversity has impact on employee engagement. Hence the study reveals that workforce diversity and employee engagement are directly related. However the study says that there is a positive impact on employee engagement due to workforce diversity.

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RECENT TRENDS IN CORPORATE SOCIAL RESPONSBILITY

Shivani S.

Affiliation

Abstract

The practice of corporate social responsibility ("CSR'') as a paradigm for organization and business to follow has evolved from its early days as a slogan that was to be considered to be the trend of certain organizations following it to present day realities of the 21st century where it has not just remained fashionable but a business requirement to be socially responsible.Corporate Social Responsibility is an important business strategy because, to some extent consumers want to buy products from companies that are trustworthy, a supplier wants to form a business partnership with companies on which he can rely on, an employee want to work for a company he respects, other concerns want to establish business contacts with companies that seek feasible solutions and innovations in areas of common concern.

Keywords:

1. Introduction

The Companies Act, 2013("**The Act**") does not define the term CSR. But as per 2(c) of the CSR Rules "Corporate Social Responsibility means and includes but is not limited to:

- Projects or programs relating to activities specified in schedule in VII of the Act; or
- Projects or programs relating to activities undertaken by the Board Of Directors of a company (Board) in pursuance of recommendations of the CSR CommitteeCSR is the way in which firms integrate social, environmental and economic concerns into their values, culture, decision making, strategy and operations in a transparent and accountable manner and thereby establishing better practices within the firm, creating wealth and improving the society
- The World Business Council for Sustainable Development describes CSR as the business contribution to sustainable economic development.

1.1 Need for corporate social responsibility

- Business uses scarce resources of society.
- Business often adversely affects the environment.
- Problems are too vast and complex- government efforts need to be supplemented by business.

- Social and environmental can be a threat to the survival of business.
- In order to improve the image of the corporate.
- To increase the coverage of the media.
- To attract and retain the investors.
- To increase the participation of foreign corporate.

1.2 How is corporate social responsibility applicable?

Section 135 of the Act provides for the applicability of the CSR provisions on all the corporates. Sub-section (1) of the section lays down that every company having (i) Net worth of Rs.500 Crore or more, (ii) Turnover of Rs.1000 Crore or more, (iii) Net profit of Rs.5 Crore during any financial year should constitute a CSR Committee of Board consisting of three (3) or more director, out of which at least one (1) director will be an independent director .Rule 3 of the CSR Rules specifies that every company which ceases to be a company under section 135 as the limits specified under three consecutives financial years shall not be required toconstitute a CSR committee then comply for the provision of section 135, till such time so that it meets the required criteria.

1.3 Applicable to holding and subsidiary companies

Rule 3(1) provides that CSR is applicable to every company including its holding or subsidiary; and in case where the company fulfills the criteria specified in sub-section (1) of section 135 of the Act. The net worth, turnover or net profit of a foreign company will be prepared in particular with the requirements of the Act.

1.4 Applicable of CSR policies

A foreign company defined under clause (42) of section 2 of the Act having its branch office or project office in India which fulfills the criteria specified in sub-section (l) of section 135 of the Act shall comply with the provisions of section 135 of the Act and the rules. The net worth, turnover or net profit of a foreign company under the Act shall be computed in accordance with balance sheet and profit and loss account of such company prepared in accordance with the provisions of clause (a) of sub-section (1) of section 381 and section 198 of the Act.

1.5 Clarifications given by the ministry of affairs regarding corporate affairs on corporate social responsibility.

The Ministry has received various references and representation from stakeholders seeking clarifications on the provisions under Section 135 of the Companies Act, 2013.

1.6 The CSR expenditure be spent on the activities beyond the Schedule VII

The statutory provision and policies of CSR Rules, 2014, is to ensure that while activities undertaken in pursuance of the CSR policy must be relatable to Schedule VII of the Companies Act 2013, the entries in the said Schedule VII must be interpreted socially, so as to capture the essence of the subjects enumerated in the Schedule.

Tax benefits availed under CSR

No tax exemptions.

1.7 What are the additional requirements to be included in Schedule VII or to be clarified as already being covered under Schedule VII of the Act?

One-off events such as marathons/ awards/ charitable contribution/ advertisement/ sponsorships of TV programmers etc. would not be regarded as part of CSR expenditure. Contribution to corpus of a Trust/ Society/ Section 8 Company will qualify as CSR expenditure as long as the trust/society/section 8 company is created exclusively for undertaking CSR activities or where the corpus is done exclusively for a purpose directly relatable to a subject covered in Schedule VII of the Act. Expenses incurred by companies for the fulfillment of any Act/ Statute of regulations (such as Labor Laws, Land Acquisition Act etc.) would not count as CSR expenditure under the Companies Act.

Expenditure incurred by foreign holding company for CSR activities in India will qualify as CSR spend of the Indian subsidiary if, the CSR expenditures are routed through Indian subsidiaries and if the Indian subsidiary is required to do so as per section 135 of the Act. Salaries paid by the companies to regular CSR staff as well as to volunteers of the companies (in proportion to company’s time/hours spent specifically on CSR) can be factored into CSR project cost as part of the CSR expenditure.

2. Objectives

- An obligation, beyond that required by law and economics for a firm to purse long term goals that are actually best for our society.
- The continuing commitment of the business by the concern or business to be and behave ethically that can contribute economic development while improving the quality of life of the workforce and their families as well as that of the local community and society at large
- What and how company manages its business process to produce an overall positive impact on the society
- Support various national campaigns on the social and hence develop issues that need support to have a greater impact ex: sustainable development, education health and sanitation and helps community to develop at large.
- To maintain long run success of the business and achieve customers loyalty.

3. Scope of the Study

Initially, CSR emphasized the official behavior of individual firms. Later, it expanded to include supplier behaviour and the uses to which products were put and how they were disposed of after they used.

4. Advantages

- It helps to avoid excessive bribery and corruption.
- For companies to know what is eventually expected by them .for promoting a level playing field
- Many aspects regarding the CSR behavior are right for business such as reputation of business human resources branding and easier to locate communities.
- CSR helps in improving the growth sustainability, and profitability
- .Few areas ,such as downsizing could help in addressing the problems for the companies
- Rogue companies would then find hard and difficult to compete through low standards.
- The wider community would receive benefit as and when companies reach out to the key issues of underdevelopment around the world.

5. Disadvantages

- Additional bureaucracy, which helps with rising costs for observance.

- Costs particularly regarding operation could rise above required continued profitability and sustainability.
- Critics have already argue that the CSR of the companies is simply to make profit and legislation would the increase vocalization of the concerns
- Reporting criteria varies company wise, state wise and also technically in the evolution.

6. Emerging trends of corporate social responsibility

Attitude by the business and its relationship is been changed and not shaped by the outside events .these are the demonstrations of social problems that rapidly change the environment .within which companies do business. These can be diverse as extreme climate event changingthe profile and the public concern about climate change because corruption behavior are called upon the business to solve the problems related to external data. Secondly –expert practitioners should have a vision as of how sustainable business should be operated and develop new ideas as of how this would increase the expertise on past experiences. Lastly outside agencies would create a vision for the achievement for the future goals

- **Moving from internal engagement**.

The current model of CR reporting has eventually hit something of a celling term of the quality of the data we have spent for the past years evolving our approach for measuring our progress but then still have not been close to the original goal so that findings ways to measure CSR in a reliable and purposeful way that enable us to compare performance with other individual companies.so some of the companies are now starting to focus on their aim on the engagement side . since customers , employees and suppliers generally don't read reports companies are beginning with the experiments ways to interest its early days but for this one ,but the implications of this trend is due to its CSR executives becomes less compliance focused and more involved in discussion with marketers.

- **It's about the business model**

More companies are starting to understand a little more the scale of the challenge that eventually faces sustainability and but the central dilemma on the model is that if the company do well it will nowhere harm the environment but since it is not the achievement of positive outcome for which company has work hard to achieve in spite of your business process or can find a business model where social outcome can be better achieved.it is not though easy to jump from all sides interface floor carpets tried to tackle it when, the business customer they offer a service of professional floor covering rather than selling a thing

- **Findings our own identity and respect**

CSR executives have been asking themselves for some time whether they are part of a proper professional discipline or not when accountability was first formed in the late 1990s, it would have been styled the institute of the social environmental accountability with a view that it would happen , but then we have also seen the CRO in the states and the corporate responsibility group in the tackling the same question .but there are also minuses and pluses here . An s acknowledged profession can establish standards of expertise for those entrusted by the companies with the important responsibility which gains respect within corporations and increase authority of voice in aboard room.The potential minuses come because of the baggage that comes with professionalization. No to put too fine a point on it, professions create for themselves a series of perverse incentives.

- **Taking role of global citizens**

Business have always taken an interest in influencing the public policy agenda , but historically and purely for a defensive purpose of tending off potential restrictions on its ability to make profit companies are pragmatic entitles and that who always makes adaptability to change that is where they are uniquely suited for responding globally challenges but when governments are really suffering in this regard the global economy had made them be in this defensive position where the citizens are holding them responsible for the fact that they suddenly they can no longer afford the things they able to hence it becomes difficult to hold back the in the area where many people believe to be separate and disconnected to the people to their current discomfort and the fact is that it isn’t disconnected that it makes no difference if what’s people believe.

7. Conclusion

Corporate Social Responsibility concerns in treating the stakeholders of the firm ethically or in a responsible manner. “Ethically or Responsible” means treating stakeholders in a manner deemed acceptable in civilized societies. Social includes economic responsibility. Stakeholders exist both within and outside the firm – the natural environment is a stakeholder for example. The wider aim of social responsibility is to create higher and higher standards of living, while preserving the profitability of the corporation, for peoples both within the corporation and outside it.

Successful CSR initiatives take organisations beyond compliance with legislation and leads them to honour ethical values and respect people, communities and the natural environment. CSR is sustainable – it involves activities that your organisations can maintain without affecting your business goals. CSR is about more than environmental responsibility or having a recycling policy. CSR considers the whole picture, from your internal processes to your clients, and takes part in every step that your business takes during day-to-day operations.

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A BRIEF INTRODUCTION OF FORENSIC ACCOUNTING AND ITS TYPES

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Abstract

Forensic accounting, forensic accountancy or financial forensics is the specialty practice area of accounting that describes engagements that result from actual or anticipated disputes or litigation. The integration of accounting, auditing and investigative skills yields the speciality known as Forensic Accounting. “Forensic", according to the Webster's Dictionary means, "Belonging to, used in or suitable to courts of judicature or to public discussion and debate."

Keywords: Forensic accounting, Auditing, financial forensics

1. Introduction

"Forensic accounting", provides an accounting analysis that is suitable to the court which will form the basis for discussion, debate and ultimately dispute resolution. Forensic Accounting encompasses both Litigation Support and Investigative Accounting. Forensic accounting integrates an understanding of accounting principles with investigative techniques to determine whether the actions behind financial records and statements are suspicious.

Objectives of the Study

1. To highlight about forensic accounting and its various types.
2. To estimate various procedures involved in forensic accounting.
3. To highlight importance of it in today’s accounting world
4. To highlight the scope and nature of forensic accounting and also the career opportunities.

Components

Forensic accounting has two major components: litigation support and investigative accounting. Forensic accountants can be involved in either one or both of these areas.

Litigation support

Forensic accountants act as expert witnesses or consultants for parties involved in a lawsuit. Litigation support often involves determining financial damages or valuing businesses or assets. Both sides in a lawsuit may retainforensic accountants to testify as expert witnesses.

Investigative Accounting

Investigative accounting involves using auditing, quantitative methods, and related skills to reconstruct financial records and determine if fraud or other illegal financial activities have occurred. Investigative accountants are sometimes called fraud auditors or fraud examiners. For example, an investigative accountant might reconstruct a business's financial records, as in the Madoff case, or a business might call in an investigative accountant if it suspects an employee is embezzling money. Investigative accountants also work for law enforcement during fraud investigations.

Computer forensics b

Computer forensics is also a large part of forensic accounting. With the aid of technology, it has become a lot easier to perpetrate and hide fraud. However, forensic accounting has brought about innovative technology that can detect even the most encryptedfraud, ensuring that every dollar that companies earn is accounted for.

Aim

Forensic accounting aims to determine the probability and/or extent of the occurrence of fraud. By analyzing definite financial and non-financial information, checking public records, and administering fact-finding and admission-seeking questioning and evaluation, suspicions or accusations will be resolved and refuted.

2. Importance

Forensic accounting is very importance not only because they have special skill and trained in investigation, and expertise in accounting records, but also because of the evidence that found are play the very importance role in judge decision making. This job is quite different from auditor and cannot substitute by them. As we know, auditor performs their testing in the accounting records against accounting standard like US GAAP or IFRS.Their responsibility is not investigating and quantifying the fraud that happen in the company and also the evidence found in by auditor might not use by court. However, the evidence that found by forensic accounting could be used by court as expertise evidence. For example, FBI also has forensic accounting team to working for them in investigating any mater related to accounting

Forensic accounting procedures

Forensic Accounting Procedures are not too much different from audit procedures. Those procedures include analytical reviews, inquiries, observations, recalculations, and inspection etc.

- **Inquires**

  It is the importance in Forensic Accounting Procedures. Sometime Forensic Accountant requires the officers or personnel who being investigated to be vacant temporary. This procedure has its own purpose. For example, one the officer being investigate is on leave, and then his daily job is done by someone else. During this time, Forensic accountant could be able to notify if there any opportunity that the fraud could have happen. Yet, this procedure does require the corporation from top management of the company.

- **Analytical Procedures**

  For analytical procedure, Forensic Accountant should always pay very strong caution which to make sure that the data they use for analysis is accurate. However, sometime the analytical review may not be used for gather data since the result from analytical review is based on the best projection and estimate.

- **Recalculations, and Inspection**

  Inspection of data and records is the most popular procedure to be used in gathering evident regarding to Forensic Accountant's job. It just simply mean collecting the sample of original invoices, receipts, and others importance documents. Then, figure out how much the lost should be or figure out the amount of which item, in this procedure.

3. Observations

Before perform some specific testing, of cause, it is require understanding some specific procure or function and to do so they need to perform actual observations. It is the very importance part of FA accountant's job or FA auditor's jobs. Other importance things are, they might need some specific information from the person who involve in specific procure like payroll account the one who involve with calculating salary. Moreover, Forensic Accountant might inquire information from the low level of staff to the top level or from external party if required like banks, suppliers or investors.

In summary, the Forensic Accounting Procedures is similar to audit procedure, but the evident need to be more specific and realistic. It also involve in planning, detail testing, and conclusion, but the conclusion need to be more specific like how much the fraud or loss. Of cause, the Forensic Accounting also need to issue the report, but this report going to be used legal purpose or dispute resolutions. This report is different from the audit report.

3.1 Forensic Accountants

Forensic accountants, investigative accountants or expert accountants may be involved in recovering proceeds of serious crime and in relation to confiscation proceedings concerning actual or assumed proceeds of crime or money laundering.In India there is a separate breed of forensic accountants called Certified Forensic Accounting Professionals. In India there is a separate breed of forensic accountants called Certified Forensic Accounting Professionals.Forensic accountants utilize an understanding of economic theories, business information, financial reporting systems, accounting and auditing standards and procedures, data management & electronic discovery, data analysis techniques for fraud detection, evidence gathering and investigative techniques, and litigation processes and procedures to perform their work. Forensic accountants are also increasingly playing more proactive risk reduction roles by designing and performing extended procedures as part of the statutory audit, acting as advisers to audit committees, deterrence engagements, and assisting in investment analyst research.

4. Conclusion

Forensic accounting is growing rapidly in the world of accounting and also in India. Companies like CIME holding etc. are currently using it for decreasing frauds. It has a huge scope in future and will soon become a prominent part of it.

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IMPACT OF CASHLESS ECONOMY "ISSUES AND CHALLENGES"

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Abstract

A cashless economy is an economy in which all types of transactions are carried out through digital means. It includes e-banking (Mobile Banking or Banking through computers),debit and credit cards, card-swipe or point of sales(POS) machines and digital wallets .The paper under study tries to throw light on the rising trend of digital transactions in India being carried out in various cashless modes over the last few years but simultaneously being ourselves making alert of the negative impact of going cashless thereby showing downside of digital India . As the people of India are showing amazing response towards move of digitalization, it is the big indicator of prosperous future for India to be cashless India. So the need of an hour is to spot the weakness involved in cashless transactions and work out on them to achieve the vision of Prime Minister Modi's digital India.

Keywords : Card-swipe, cashless e-banking, mobile banking, POS.

1. Introduction

Prime Minister Mr. NarendraModi launched the programme "Digital India" with a vision to transform India into a digitally empowered nation and creating a cashless, paperless economy. As per the current status of India only 7% to 8% of all the payments are taking place electronically . On Nov 8 2016 a historical date PM talked about making India a cashless economy and on Nov 27 during an election rally in Uttar Pradesh, PM again motivated the people of India to become familiar with cashless transactions . On the same day during his radio programme "Mann kiBaat", he said : "learn how this digital economy works . Learn the different ways you can use your bank accounts and internet banking. Learn how to effectively use the apps of various banks on your phones. Learn how to run your business without cash. Learn about card payments and other electronic modes of payment. Look at the malls and see how they function. A cashless economy is secure, it is clean. You have a leadership role to play in taking India towards an increasingly digital economy."

Meaning of cashless economy and where India stands?

A cashless economy is an economy in which all types of transactions are carried out through digital means. It includes e-banking (Mobile Banking or Banking through computers), debit and credit cards, card-swipe or point of sales (POS) machines and digital wallets . At present India is far behind to other economies with regard to cashless transactions. The ratio of cash to gross domestic product in India is one of the highest in the world 12.42% in 2014 as compared with 9.47%in China or 4% in Brazil. Another report by Boston Consulting Group (BCG) and Google India mentioned that last year around 75% of transactions in India was cash based while it was 20-25% in developed nations such as US, Japan, France, Germany etc. another statistics have revealed that India has 76.47 billion currency notes in circulation in 2012-13 as compared with 34.5 billion in the US. Moreover various other studies have shown that people prefer to make payments in cash in malls even when they carry credit cards with them. But the step taken on Nov 8 2016 of demonetization has pushed digital and e-transaction to the forefront in India due to depletion in cash. Now e-banking, e-wallets and other transaction apps are becoming more prevalent.

2. Benefits of Going Cashless to the Economy

Going cashless has helped in creating a positive impact on society as the paper based methodology in financial transactions has been reduced thereby economy in operations, time and cost.

Various benefits of going cashless can be listed out as under:

1.It will help in curbing the generation of black money.The cashless economy has attacked the parallel economy. People who hoard money under their bed, people who launder money bypassing banking channels, terrorist who need money to finance their terror will find difficulty in cashless economy.

2..It will help in reducing instances of tax avoidance. All the transactions can be monitored and hence traced back to an individual. Income tax officials can easily trace out the transactions and it will become difficult for individuals to evade taxes. Ultimately it will help in increasing revenue of the government from taxes and more productive activities can be carried out in the economy.

3.It will lead to reduction in real estate prices because of curbs on black money as most of it is invested in real estate which ultimately inflates the prices of real estate markets.

4.RBI spent Rs.27 billion in financial year 2015 on currency issuance and management. This could be avoided if India becomes a cashless economy.

5.Cashless economy will boost consumption as people would not be attracted towards keeping money in banks. More consumption will lead to more production, more employment opportunities and hence income of people will increase.

Practical implementation for moving on path of going cashless (in context of India)

For making India cashless these are the various modes available in form of digital transactions which are being considerably implemented and which clearly indicate that cashless transactions are being actively used by people in India. These can be highlighted as under:

1.Payments Banks

Payment bank is a new model of banks introduced by RBI. Payment can issue services like ATM cards, mobile banking, net banking and debit cards etc. These payment banks offer amazing competition to traditional banks in terms of services. Two such prominent licensees are Airtel (founded in 1995, in 2016 reaching at revenue of $14.5 billion) and PayTM (founded in 2010 and valued at $1 billion presently).

2.Electronic fund transfer systems

Two popular methods RTGS and NEFT are increasingly used by people at a large scale for making funds transfer from one bank to another leading to less time and economy in operations.

3.Mobile wallets

Option to open a zero KYC or a full KYC wallet along with your mobile number and the application to be downloaded to your smart phone.

4.Internet banking

For this type of digital service to take benefit of the individual must hold a bank account and opt for the online service same.

5.Banking cards

Banking cards are available by the bank by providing the KYC (know you customer) information to the bank. Applying for a card and getting a pin for the same. Credit and Debit cards are plastic cards that are used as method of payment.

6.Banks prepaid cards

For this service a bank account is there with wallet or a prepaid card and a smart pone to generate the MPIIN.

7.Point of sale

A handheld device with the biometric reader along with a merchant bank account and internet connectivity. POS machines facilitate acceptance of payment from customers by swiping of their debit/credit/prepaid cards on POS terminals. Number of POS terminals in India has increased from 5 lakh in year 2010 to 14.62 lakh in year 2016.

8.Mobile banking

A bank account is required along with a mobile phone application of the bank and internet connectivity to take benefit of this digital service. Mobile banking concept is gaining its momentum over the years.

3. Negative Impact of Going Cashless

As we know every good has its bad side also surely aura of cashless transactions is spreading all over India converting India into Digital India simultaneously the more and more use of internet is giving rise to various negative effects also. Following can be highlightesd as the negative effects of going cashless with reference to India:

- Increase in cyber crimes

Due to the increasing rate of online frauds, the risk of hacking will also increase as more people will be on the digital mode. More and more use of internet is giving boost to cyber crimes at an increasing pace as can be seen below:

- Increased chances of trapping

Performing digital transactions using public networks can be more prone to traps on mobile devices and thereby giving opportunity to hackers to access account related sensitive information.

- Frauds through digital transactions

A report by ASSOCHAMEY on study titled “Strategic Nation measures to combat cyber crimes” highlights 46% complaints of credit/debit cards frauds, 18% on account of hacking of email ids and 21% complaints on account of cheating through mobiles.

In Oct 2016 3.2 million card details were stolen in malware related security areas. These cards belonged to customers of SBI, HDFC, ICICI, Axis bank and were used at ATMs. Stolen debit cards were used in China. No legal decision has been taken and the case is still under investigation.

4. Challenges in Making India a Cashless Economy

- A large part of the population approx 50% of Indians is not covered under any banking system. According to 2015 report by Price Water house coopers Indians unbanked population was at 233 million. Though bank accounts have been opened through Jan DhanYojana most of then are lying unoperational. Unless people start operating bank accounts cashless economy is not possible.
- The digital mode is a big hurdle for the tech unfriendly people. Since India has a low penetration of 34.8% as per Internet live stats and only 26.3% of all mobile phone users have a smart phone therefore it is difficult to go digital.
- The low literacy rates in rural India and lack of infrastructure like internet access and power make things extremely difficult for people to adopt cashless economy.
- In India there are approx 350 million internet users. The internet penetration rate is just 27% which is very low in comparison to countries like Nigeria, Kenya and Indonesia etc. It has to be at least 67% which is global median.
- Only 17% of Indians use smart phones which is very less and only 15% of Indians have internet on their smart phones.
- The internet loading speed is very low. The average page load time is 5.5 seconds in India in comparison to 2.6 seconds in China.
- POS machines (Point of sales) are must for any cashless transactions. A study was conducted by Macquarie Research and it was posted on website of National Payments Corporation of India in which it has been highlighted that India still far behind in terms of number of POS machines which is 2 per 1000 debit cards as compared to other countries like in Brazil 14.8, China 12.5, Russia 6.1, US 13.1 and in Australia is 33.2 per 1000 debit cards.
- Since India is dominated by small retailers therefore they don't have enough resources to invest in electronic payment infrastructure.
- Most card and cash users have the perception that they will be charged more if they will be charged more if they use cards. Moreover non users of credit cards are not aware of the benefits of credit cards.

5. Steps Taken by RBI and Government to Discourage Use of Cash

Government is also promoting mobile wallets. Mobile wallet allows users to instantly send money, pay bill and recharge mobiles, book movie tickets and send physical and e-gifts both online and offline. Recently the RBI had issued certain guidelines that allow the users to increase their limit to Rs 1,00,00 based on certain KYC verification. Various incentives offered by government to promote digitalization in India to make India "Digital India" by focusing on cashless modes are:

(i)On digital transactions up to rupees 2000, service tax of 15% waived off.

(ii)Digital purchase of fuel through credit cards, mobile wallets or e-wallets, discount of 0.75%.

(iii)Free accident insurance worth rupees 10 lakh on account of online ticket buyers.

(iv)On purchase of new LIC policies online via its site 8% discount is offered.

Government has also launched UPI (pdf) (Unified Payment Interface) payment system that can be used for immediate mobile transfers between account holders of two different banks.

Government has introduced various technologies like BHIM (Bharat Interface for Money) app to transact between each other as well as with other merchants. BHIM app currently has 17 million downloads in less than 3 months since its launch. And government is considerably promoting their digital cashless technologies other than BHIM such as UPI and Aadhar Enabled Payment Systems. As per National Payments Corporation of India, payment transactions through Aadhar Enabled Payments Systems have raised 12 times over 6 months from April 2016 to October 2016 which is highlighting that traditional bank themselves are moving towards e-wallet services on mobiles at a faster pace.

In addition to govt or RBI, companies are also participating in combating of cyber crimes because of increasing trend of cashless or diital transactions. Microsoft opened full scale cyber security center called Cyber Security Engagement Center(CSEC) in India. This centre located in Delhi functions as a satellite to company's Redmond Digital Crime Unit (DCV). This centre monitors how viruses are spreading from where cyber attacks are originating and helping customers to tap pool of security specialists.

6. Measures to be taken for Stepping towards Cashless India

- Basic cyber hygiene must be taken care of such as non-sharing of passwords with others, non saving of passwords on public networks and better access to control techniques with strong authentication measures should be implemented by mobile e-wallet companies.
- Open bank accounts and ensure they are operationalized.
- Abolishment of government fees on credit card transactions, reduction of interchange fee on card transactions, increase in taxes on ATM withdrawals.
- Tax rebates for consumers and for merchants who adopt electronic payments.
- Need is to scale up the capabilities of POS machines for faster rollouts in country.

- Making electronic payment infrastructure completely safe and secure so that incidents of cyber crimes could be minimized and people develop faith in electronic payment system.
- The Reserve Bank of India too will have to come to terms with a few issues from figuring out what digital payments across borders means for its capital controls to how the new models of payment affect key monetary variables such as the velocity of money.

8.RBI will also have to shed some of its conservatism part of which is because it has often seen itself as the protector of banking interests rather than over all financial development.

7. Conclusion

The future of the cashless India looks pretty promising as the response of the country people towards this move of the government and the support towards it is a clear indication that the governments move is likely to succeed. The transparency in the economy will increase through the e-commerce transactions and the digital payment gateways which will increase the GDP of the economy. This will increase the creditability of the country and make a rise in investments. This step of cashless is truly going to create ripples of big success and it will help to attain vision of Prime Minister Modi's vision of "Digital India".

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IMPACT OF CASHLESS ECONOMY: ISSUES AND CHALLENGES

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Abstract

Cashless economy is an economic system in which transactions are not done predominantly in exchange for actual cash. It does not refer to an outright absence of cash transactions in the economic setting but one in which the amount of cash-based transactions are kept to the barest minimum.

Keywords: Cashless economy,E-Payment etc

1. Introduction

A cashless economy or an e-payment system is a situation where there is little or very low cash flow in a given society, meaning thereby, transactions will be made by electronic channels like debit cards, electronic funds transfer, mobile payments, multifunctional ATMs, and internet banking. It is the economy that run mostly on plastic or digital money and thus with minimal cash or money in paper form. In other words, it refers to the widespread application of computer technology in the financial system. It is designed to breakdown the traditional barriers hindering financial inclusion of millions of Indians and bring low cost, secure and convenient financial services to urban, semi-urban and rural areas across the country. Nevertheless, cashless economy is defined as one in which there are assumed to be no transactions frictions that can be reduced through the use of money balances, and that accordingly provide a reason for holding such balances even when they earn rate of return. It is not the complete absence of cash but it is a payment system that is secure, convenient, and affordable. It is an economic system in which goods and services are bought and paid for through electronic media.

2. Types of Cashless Modes and Payments

- **Mobile wallet**

It is basically a virtual wallet available on mobile phone. A mobile wallet is a way to carry credit card or debit card information in a digital form on mobile device. A user can pay with his/her Smartphone, tablet, or smart watch instead of using your physical plastic card to make purchases. A user needs to make an account with a mobile wallet provider. After which money is added to the 'mobile wallet' account using a debit, credit, online transaction from bank account or via cash. An individual can store cash in his/her mobile to make online or offline payments. Various service providers offer these wallets via mobile apps, which is to be downloaded on Asian Journal of Applied Science and Technology (AJAST) She/he can transfer the money into these wallets online by using credit/debit card or net banking. This means that there is no need to furnish the card details every time while paying a bill or make a purchase online via the wallet. It can be used to pay bills and make online purchases.

- **Plastic money**

It includes credit, debit and prepaid cards. The latter can be issued by banks or non-banks and it can be physical or virtual. These can be bought and recharged online via net banking and can be used to make online or pointof-sale (PoS) purchases. They can be given as gift cards. These cards are used for three primary purposes – for withdrawing money from ATMs, making online payments and swiping for purchases or payments at PoS terminals at merchant outlets like shops, restaurants, fuel pumps etc.

- **Net banking**

It does not involve any wallet and is simply a method of online transfer of funds from one bank account to another bank account, credit card, or a third party. It can be used through a computer or mobile phone. A person has to log in to her/his bank account on the internet and transfer money via national electronic funds transfer (NEFT), real-time gross settlement (RTGS) or immediate payment service (IMPS), all of which come at a nominal transaction cost.

2.Benefits of Cashless Economy

Faster transactions

It has been proved that queuing at point of sale terminals and vending machines is greatly reduced; typically three times more people can be served using a cashless system than could have been if they were paying cash. This leaves employees more time to enjoy their break. Improving the speed of service may also offer the benefit of reducing staff levels at off peak times.

Prompt settlement of transactions

E- banking speeds up the settlement of transactions both locally and internationally, where the bank stands as paying bank to the customers for settlement of transaction or as collecting bank for collection of payment on transactions.

Convenience and lower risk

The ease of conducting financial transactions is probably the biggest motivator to go digital. There will be no need to carry cash, plastic cards, or even queue up for ATM withdrawals. It is easy to block a credit card or mobile wallet remotely if it has been stolen. But, it’s impossible to get the stolen cash back.

Taxation

There is lesser scope of hiding income and evading taxation because of lesser availability of hard cash at homes and more in banks. When there are more tax payers, it ultimately leads to a lesser rate of taxation for the whole country.

3.Challenges of Cashless Policy In India

Digital literacy

More than half of the nation still does not know how to use a computer. People in rural areas still don't know about smart phone. Besides, there is lack of internet facilities and without it a country cannot become cashless. There are still many rural and urban areas where there the access of having 2G network is very difficult. Moreover, the cost of Internet access is very high as compared to developed countries.

Few banks in villages

The capital city New Delhi alone has about 20 HDFC bank branches. There are several villages and Tehsils that don’t even have one. More the banks, more the cash deposits in accounts. Banks in villages should be helpful in teaching the residents the process, usage and benefits of plastic cards.

Low literacy rate

Low literacy rate hinders the accessibility of banking services. Citizens should not only know how to read and write but also possess basic ICT literacy to fully enjoy the benefits of e-payments.

Language barrier

Internet is an English based platform. The details on the plastic card are also in English. The message received on mobile regarding transaction is also in English. Therefore, it is required to use multiple languages regarding these processes or make everyone learn English.

Costly swipe machines

Swipe machines are also not subsidy free. It can only be afforded by rich shopkeepers. It can't be expected from an auto driver or a normal grocery seller to afford swipe card machines. Besides, many street vendors, shopkeepers don't know how to use swipe machines.

Objectives of the Study

- To elucidate the concept of cashless economy.
- To highlight the challenges before cashless economy in India.
- To examine the benefits of cashless economy to the general public

4. Challenges and Opportunities Ahead

“A vision can't be wrong, its implementation strategy may go wrong "

It was July 2010. While shopping with my sister in Aurangabad,I felt thirsty. I saw a coconut water hawker with his old cart. I realized I have no money in my wallet and for taking money from atm of pnb I will have to walk some distance away from the hawker. I asked my sister:"Didi just imagine this hawker also have a post machine and i can have coconut water by swiping my card "

India is a country with currency in circulation Rs. 17.97 lakh crore (trillion) as on November 2016 and with annual population growth rate of around 1.2% annually the need of currency for transaction will also rise .With 1.34 billion population of this country and only 3-4% actually paying taxes there is really a point of concern .Please take note every year Government bear around 1.7% of real GDP as a cost of cash and foregone tax revenues from the 'shadow' economy account (Fig. 1) for 3.2% of GDP.

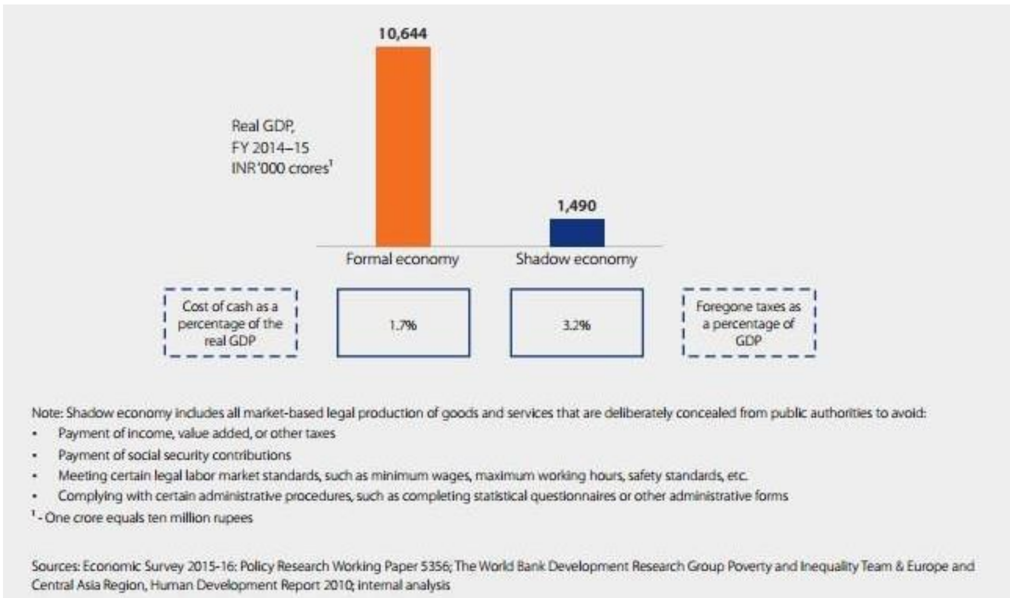


Figure 1. Size of the formal shadow economy

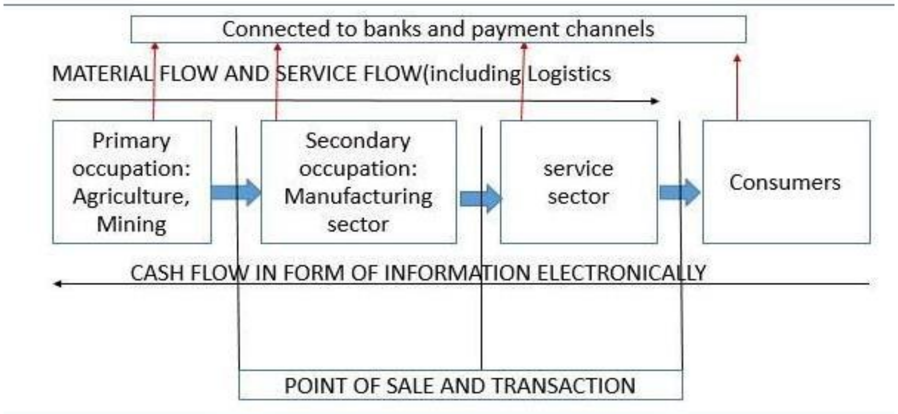
After reading almost number of articles regarding demonetization ,some positive and most of them negative ,many questions have came in my mind. Like why do people avoid taxes even after earning so much money and how to reduce this tax evasion.

1) Why do we have to carry a note in our pocket when we have a card ,smart-phones these days with us ?
2) Why still many companies into old way of doing business transaction with cash in the entire supply chain pipeline when they have to bear a risk of carrying cash with them in pipeline ?
3)What is that which can actually bring job to this country in rural sector apart from giving the same old pot digging work under MNERGA?

"Problems are Opportunities" when we know a problem actually exists in tax payment in this country and there is a problem of black money generation ,there is an opportunity also .

Cashless Economy

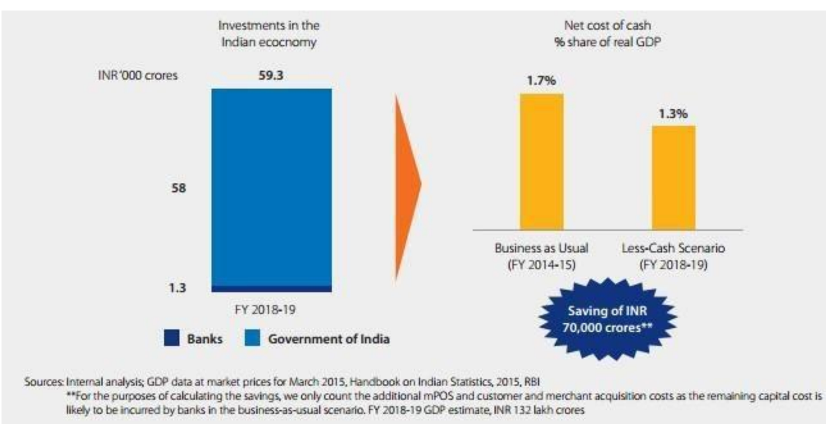
Figure 2. Supply chain pipeline of cashless economy



Mindset Of Keeping and Saving Cash : This is the most dominating factor in our country which will give challenges to this transformation . But this can be solved if government give reasons/advantages for moving to digital economy .Be it incentives or bonuses or other benefits , if government use the money which is saved because of going digital (cost of cash) in these kind of promotion , I think there will be more acceptability .

For a total investment of about INR 60,000 crores over 5 years, India could reduce its cost of cash from 1.7% to 1.3% of GDP. and this saved money can be used effectively in solving the 3 A's :AVAILABILITY (Infrastructure),ACCEPTABILITY (buying behavior and mindset),Afford-ability(cost of setting infrastructure like pos machine).

Figure 3. GDP analysis



Financial inclusion: Still many people are not in the financial inclusion of the country . For women the figures are really bad . What I believe : government should promote the cashless economy by using the platforms of women empowerment so that be it entrepreneurial role or a housewife role or a mother role the transaction through digital channel gets increased .Imagine a situation where a mother does not give pocket money to her school going child and give instead a separate card having dedicated amount for his expenses in account.

Digital literacy : Personally i know many people who do not know how to use payment apps like Paytm .Some do not know how to make on-line payments . Despite of bearing pain of standing in queue many people do money transfer standing in queues especially in rural areas and tier 3 cities and places which are close to such areas. And this happens because they are not knowing how to use such tools . I think this is where opportunities are in creating jobs . Imagine for every villages there is one trainer assigned by government or banks who train few people and they also join government initiative as an employee in training others . But just providing knowledge about how to use is not sufficient .From security point of view required information should be given like Dos and Don'ts .

Connectivity : Still many areas do not get proper Internet connections .Especially in remote areas . I really can not understand what kind of infrastructure do these companies have developed that when I go to any village areas in my home state the connectivity and speed are the issues always existing . In case of connectivity ,it is so terrific sometimes that I skipped the idea of using mobile in such areas. I think the biggest challenge and first challenge in building a cashless economy is developing an infrastructure for that "you cannot run a train in an area where you don't have railway track "

Besides these ,government can promote the cashless transactions among those MSME entities who are still not into financial inclusion of economy by educating them about the benefits of this in any business , technology adaption always save the cost to a great extent .And this will save their cost .

"Many colleagues of mine said to me :" this cashless economy ,digital economy wont succeed in villages .These are not for poor". I think they are wrong .Because in research report by Accenture in 2014, it is clearly mentioned out of 2800 rural consumers across 8 states and 10 Focus Group Discussions, 50 percent expressed willingness to use digital channels to gather information about offerings and make purchases, while 38 percent said getting explanations on how to use digital channels could help them accelerate usage.

What government should do on an urgent basis to push this digital economy :

- Make the payment mode digital at places like government offices , petrol pumps , toll points , railway stations ,banks,state buses and their bus stops mandatory .
- Make the payment channels in supply chain involving rural sector digital with cash going directly to the real person and for this appoint individuals within those areas to train them and to guide them to promote

this transformation among villagers .

If sector like organized dairy sector can get benefits from this cashless transactions like they got after demonetization , why cannot other sector get benefit !

I know , absolute cashless economy is not possible but even a 15% rise will benefit our economy to great extent .

5. Conclusion

From the above analysis, it has been found that cashless economy is an economic system in which there is little or very low cash flow in a society and goods and services are bought and paid through electronic media. Cashless economy is the economy in which transactions are made by debit cards, credit cards, cheques or direct transfer from one account to another. There are many benefits of cashless economy like faster transactions, increased sales, prompt settlement of transactions, convenience and lower risk, transparency and accountability, and reduced maintenance costs. Despite many benefits, there are several challenges before cashless policy in India such as inadequate number of ATMs, digital illiteracy, lack of internet facilities, few banks in villages, costly swipe machines etc. Nonetheless, the present study also conducted a survey of 112 respondents in Aligarh District through questionnaires designed on five point likert scale to evaluate the benefits of cashless economy to the general public. One sample t-test has been applied as the statistical tool to test the hypothesis. The findings revealed that there are no significant benefits of cashless economy to the general public.

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IMPACT OF CASHLESS ECONOMY IN BUSINESS

Subin Vince, Sathwik Shastry K.

Abstract

Cash may no longer be the king. Cashless economy is a system of transactions being done through the digital means like debit, credit cards, electronic fund transfer, mobile payments, internet banking, mobile wallets and other newly evolved payment channels, which leave a very little scope for flow of hard cash in the economy. In which we talk about the difference of India and other countries and their advantages and disadvantages of having a cashless economic system, reference to what are the major advancements of the business in a cashless economy and finally why to adopt a cashless payment system convenience over liquidity crunch.

Keywords: Cashless economy, Debit and credit etc.

1. Introduction

Cashless economy as meant is a system of exchanging goods and services the without using physical form of the currency. Its in an economy which facilitates conducting financial transactions electronically over internet.in the traditional economy paper money and coins are the mediums of making and receiving payments. But in cashless economy there are mediums like internet banking, debit, credit card,E-wallet,mobile based payment application etc. Moving from cash to cashless economy gives birth to many challenges and opportunities. The largest economies of the world are running with partially cashless economy to cope with the challenges of a fully cashless system .India is one of the fastest growing economics of the world and has stepped forward toward cashless digital system.

2. Brief on Indian Economy

From Cash to Cashless System Indian economy is the seventh largest economy of the world. Agricultural sector dominates in in Indian economy. But contribution of service and manufacturing sector in GDP is also increasing rapidly. Most of the financial transactions takes place by actual exchange of currency notes and coins. Currency notes of Rs.1, Rs.2, Rs.5, Rs.10, Rs.20, Rs.50, Rs.100, Rs.500 and Rs.1000 denomination were in circulation. Coins of the face value of Rs.1, Rs.2, Rs.5 and Rs.10 were in use. Total value of currency in circulation was Rs. 17, 54, 000 crore. 98% of total financial transactions used to be performed in cash mode. This was the glimpse of Indian economy before 8th November 2016, the day Prime Minister Mr. Narendra Modi announced demonetization of Rs.500 and Rs.1000 currency notes. This step was taken to reduce the volume of black money in Indian economy but is also proved to be a milestone in forcing the Indian economy towards a digitally transacting hub. Rs.500 and Rs.1000 notes together accounted for Rs.14.2 lakh crore which was 86.4% of the total currency in circulation as of 31st March 2016. Immediate lack of liquid currency motivated people to look for alternate modes of making and receiving payments. This resulted in growth of users of different digital payments platforms like RTGS, NEFT, Internet banking, mobile wallets, mobile applications based payments systems etc. Digital payments increased to 22 % from October 2015 to October 2016.

Mobile banking and immediate payment system (IMPS) witnessed drastic growth in last 12 months ended October 2016. Mobile banking transactions increased 175% while IMPS transactions increased 116%. Prepaid payment instruments also known as PPI doubled during last 12 months. Transactions using National Electronic Fund Transfer (NEFT) grew 16% post demonetization. According to data of central statistical office, consumptions of goods and service increased 2.8% in the quarter ended September 2016 compared to the previous quarter of the same year. In the same period, cashless payments in the country increased 6%. Thus, it can be concluded that the consumers are responding well to the government initiatives to digitalize the economy. The transactions using unified payments interface (UPI) increased from 30 crore in August 2016 to 480 crore till December 2016. Bharat interface for money (BHIM) which is developed by national payments corporation of India based on UPI. It was released on 30th December 2016. During union budget 2017, finance minister Mr. Arun Jaitley declared that it is currently being used by 125 lakh Indian citizens. All these facts and figures are indicating that India is moving rapidly from traditional cash based economy to a digital cashless economy. The progress of the economy post demonetization is satisfactory but it is not sufficient.

3. Situation in India

Looking into Indian economy after note ban, cashless economy is still a distant dream. If we were to go by data with RBI, cash is still king while cashless forms just 5 per cent of all the transactions in India. The word demonetisation became a part of everyday vocabulary on November 8, 2016. Before that day if you had asked the common man what it was he would respond with a shrug. Ask him now what it means and he will not only tell you what it means but also what he thinks about it. This is because the country was sent into a tizzy on November 8, as Prime Minister Narendra Modi announced that come midnight, Rs 1,000 and Rs 500 currency notes would become invalid. In his 40-minute speech, Modi said that this was done to weed out black money and to promote a less cash economy. A year has passed since then and according to the Reserve Bank of India (RBI), 99% of the demonetised high value currency notes have come back into the banking system. But what about increasing the usage of digital payments? Have we, as a country, reduced our dependence on cash?

If we were to go by data with RBI, cash is still king. The number and value of cashless transactions, understandably, shot up right after the note ban and remained high till about March 2017 and has since come down to pre-demonetisation levels. In November 2016, a total of 523.23 million cashless transactions took place worth Rs 93.63 lakh crore and by March it was 682.45 million transactions amounting to Rs 150.24 lakh crore. Now, coming to cash, as on October 2017, the total cash in circulation was a whopping total Rs 1, 31, 81, 190 crore and the total currency with the public was Rs 15, 32, 850 crore. All of us together have put in money worth Rs 1,03, 65, 840 crore in time deposits with banks. And cashless forms just 5 per cent of all the transactions in India.Does this mean that demonetisation has not succeeded in taking India closer toward a cashless economy? Although it has definitely led to all of us taking a giant leap towards digital payments, there is still a long way to go.

3.1 Why do Indians love cash?

All stakeholders are to blame; right from regulations, digital payment infrastructure, to the mind sets of the people. "The government needs to keep putting pressure on all stakeholders to make sure that digital payments are accepted more. We are one of the few countries where the usage of cash is incentivised. This has to change," said Alpesh Shah, senior partner and managing director, Boston Consultancy Group.

3.2 What are the advantages & disadvantages of cashless system

As the country moves towards cashless environment after demonitisation so in a way or another it promotes the concept of digital india. But at the initial stage it gives a lot of confusion to the people whether it will give benefit and convienence or stress.

4. Advantages

Like everything have two aspects i.e. positive and negative, cashless transactions also have its positive effects as well as negative effects, some advantages and disadvantages as well. First of all I want to throw some light on the advantages of the cashless transactions in India.

In various economic activity, paper contains some cost. Thus, currency in physical form also contain some cost, cash operation costs RBI and commercial bank Rs. 21000 annually. It gives convienence to customer because they need not to carry cash with them. In case of internet banking they don't need to carry atm's with them. Security measures are provided with cashless transactions which is not available with physical availability of cash. It is easy for customers to close their digital wallet and debit cards if it goes in wrong hand. Biometric security system is available with the cashless transaction option. It reduces the chances to forfeit currency. By linking all accounts with adhaar card no. it will help in tracking the black money. Same benefit will be received by doing cashless transactions. It will result in more transparency in the system. It gives more discount options especially in purchasing insurance policy, petrol and in rail tickets which will result in improved cash flow of an individual. It tracks spending of an individual. It helps in filing income tax returns and in case of any scrutiny one will be able to explain his expenditures. By being cashless one can pay off all his borrowings, alike Government Of India aims to enable all loans to be sanctioned within 5 minutes by digital working of a system. One can pay off to the shopkeepers exact amount without worrying about the change.

5. Disadvantages

But making India a cashless economy, government will face some problems initially. Especially in a country like India where majority of people reside in rural area, the cashless economy concept will face some resistance by the people. So, coming on the point the disadvantages of the cashless transactions in India are as follows:-

As majority of the population live in rural area they are still outside the banking net. Inspite of having credit and debit cards the ability to use them are still limited. Rural people are not aware or educated enough to use these digital facility .As 90% of the population works in an unorganized sector, it will not be easy for an informal sector to accept this change of cashless transactions. Technological factor plays an important role like in metro cities people are facing problems due to poor networks. Banks have to invest more in technological and security needs which will result in cost increment at initial stage. People will only opt for cashless transactions when they will find it easy and convienent to use. Government will have to take proper steps in encouraging cashless economy by discouraging cash payments and by not taking too aggressive steps. It will result in over spending as people do not feel the pain of parting away with money because the pain of parting away with money will only be felt when the money is available in physical form with the individual. Inspite of these disadvantages the cashless transactions will benefit India in long run. Since Goverment is making his full effort for making India a cashless economy as an initiative for this the Goverment Of India had launched a BHIM app which will help rural India in becoming digitally advanced and thus enhancing the cashless transactions by more and more transparency in banking system.

Digital competence is the most recent concept describing technology related skills.The dream of Digital India will only come true when people of India are digitally competent. A cashless society is a society w here currency notes or cash money are not used inmonetary transactions.

5.1 Why to adopt cashless payment system?

The pase of inovation in finance requries regulatours to not only be responsive but also proacitive, so they can balance new product development with stibility and consumer protection.

6 Conclusion

Throught the researsh we may see there is wide scope for cashless digital economic system in India but low literacy rate and lack of basic infrastructures like access to internet and power are making it difficult for middle and lower class of the society to adopt digital mediums of transactions. Government of India should attempt to digitalize the country in a phased manner. Either state wise or district wise within a state. Point of sale terminals should be increased on a large scale so as to reach the rural sectors of the country.

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TECHNICAL SESSION 3

INTEGRATING SCIENCE, MATHEMATICS AND ENVIRONMENT

CLIMATE CHANGE AND ITS IMPACT

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1. Introduction

Climate change plays a very important role in our environment and in the overall world. There are numerous discussions going around the world mainly dealing with the climate change and its impact. It is mainly due to the human activities which are happening throughout the world. Global warming is one of the crucial reasons of the climate change. These discussions mainly focus on the global dangers posed by the earth's warming and climate change. There are many limitations which is happening due to this climate change. The resources are the limitations. Human beings are the main reason for these limitations. They are using the planet's limited resources. The main objective of this paper is to provide many information about the climate and it also makes us aware of the present climate of the world and also to know about the impacts caused due to this climate change.

1.1 Climate Change and Global Warming

Climate change is referred as the change in the earth's overall temperature with massive and permanent ramification. It is also a subject of how the weather patterns are changing over decades or longer.

Climate change takes place due to the natural and human influences and activities. Since the industrial revolution (i.e 1750), human beings have contributed to climate change through the emissions of GHGs and aerosols, through the changes in the land use resulting in the rise in global temperatures. Increases in the global temperatures may have different impacts on the nature. The impacts such as increase in storms, flood, droughts, rise in the sea levels, and the decline of the ice sheets, sea ice and glaciers.

Global warming refers to the long term rise in the average temperature of the earth's climate system. It is a major aspect of the current climate change, and has been demonstrated by the direct temperature measurements and by the measurements of the various effects of the warming.

The earth receives enough radiation from the sun. and it emits many harmful rays which are very harmful to the environment and the surroundings. GHGs play an important role of trapping the heat , maintaining the earth's temperature at a level that can sustain life. This phenomenon is called as the greenhouse effect. It is a natural and necessary to support life on the earth. Without the greenhouse effect, the earth would be approximately 33 degree celcius cooler than it is today. The greenhouse gases such as carbon, methane, CFCs etc. These gases contribute a lot to the environment causing major issues. In recent centuries, humans have contributed to an increase in the atmospheric GHGs as a result of many problems. They are, increased fossil fuel burning, grazing of the animals, recycle pollutions, deforestation. The rise in the GHGs is the primary cause of the global warming over the last century. And in the present still it is increasing. These issues also provide a major role in affecting the health of human beings in many ways.

1.2 The Cause of Global Warming

There are number of factors which affect the climate on the earth. These factors include the output of energy from the sun (warming effect), volcanic eruptions (cooling effect), concentration of GHGs in the atmosphere and aerosols. Since the industrial revolution the largest contributor of the increase in global warming is carbon dioxide (CO_2), followed by methane(CH_4). Carbon dioxide concentrations have increased from 278 ppm in the late 1700s and 401 ppm in 2015 a 44 % increase.

Water vapour has an indirect effect on temperature increases resulting from the increase in the GHGs concentration. Increased global temperature resulting from GHGs increases the capacity of the atmosphere to hold the water vapour. It acts as positive feedback. We come to know that even water vapour also produces greenhouse gases. Water vapour is not a significant initial forcing, but is nevertheless a fundamental agent of the climate change.

AEROSOLS - It results from industrial emissions have worked offset about 26% of GHG warming due to blocking of the solar radiation from reaching the earth's surface. There is, however large uncertainty regarding the extent of influence that aerosols have on climate, mainly due to aerosol interactions between the clouds. GHGs have a longer residence time in the atmosphere mainly CO_2 compared to aerosols. As a result the short term effect of the industrial pollution can be cooling followed by the long term warming. The greenhouse effect occurs when the solar energy making contact with the earth's surface is retransmitted through the atmosphere in the form of infrared thermal radiation. This wave has a lower wave frequency than solar energy itself. GHG molecules absorb this thermal radiation at lower frequencies, causing these molecules to vibrate. Non GHGs such as oxygen and nitrogen do not absorb these thermal radiations.

2. Environmental and Social Impacts of Climate Change.

Climate change involves a variety of potential environment, social, and economic impacts. In most situations, these effects will be adverse. In a few isolated situations it is favourable such as increased crop yield. The severity of adverse impacts will increase with the rise in the average global temperature. Even if the global warming is kept 2D C related to pre- industrial levels , adverse impacts will be experienced and the world will need to take appropriate measures to adapt to the new climate conditions. If the heating of the earth is more than 2D C then the consequences would increase rapidly widespread and irreversible.

Canada has already become warmer on average from 1950 to 2012(Vincent et al, 2018). Climate change is expected to make extreme weather events, such as heat waves , acute rainfall, floods, storms, droughts and forest fires, more frequent and more severe in Canada.

2.1 Floods and droughts:

Floods are expected to occur more frequently on more than half of the earth's surface. In some regions, they could decrease. During winters snowfalls are expected to decrease in mid lattitudes, resulting in less snowmelt floods during the spring season. In Canada , increased rainfall is forecasted for the entire country.

2.2 Reduction in water resources

Renewable water supply is expected to decline in certain areas and expand in others. In regions where gains are expected, temporary deficits of water resources are still possible because of increased fluctuations of stream flow(caused by higher volatility of precipitation and increased evaporation during all seasons) and of seasonal cutbacks(because of lower accumulation of snow and ice). Clean water supply may also decrease due to warmer environment inducing lower water quality. For eg – algae producing toxins could damage the quality of sources such as lakes. Such overall decline in renewable water supply will intensify competition for water among agriculture, ecosystems , settlements, industry and energy production, affecting the regional water, energy and food security.

2.3 Rise of sea levels

In some regions such as the U.S Eastern coast tides are reaching up to three feet higher than they used to 50 years ago. Rising sea levels will have more and more negative consequences near the coasts- such as flooding, erosion of the coasts, and submergence of low-lying regions putting at the populations, infrastructure, animals, and vegetation near the coasts. Low lying regions(like Bangladesh)and whole islands like Maldives and Kiribati are at risk of destruction in the short term from rising ocean levels, floods and more intense storm urges.

2.4 Food production and security

Climate change could potentially interrupt progress towards the world without any hunger. A robust and coherent global pattern is discernible of the impacts of climate change on crop productivity that could have consequences of food availability. The stability of the whole food systems may be at risk under climate change because of short term variability in supply. However , the potential impact is less clear at regional scales, but it is likely that climate variability and change will exacerbate food insecurity in areas currently vulnerable to hunger and under nutrition. Likewise, it can be anticipated for food access and utilization will be affected indirectly through collateral effects on households and individuals incomes, and food utilization could be impaired by loss of access to each individual.

2.5 Climate change impacts on the banana yields around the world

Nutritional diversity is a key element of food security. However, research on the effects on food security has thus far focused on the main food grains, while the responses of other crops, particularly those that play an important role in the developing world, are poorly understood. Bananas are a staple food and a major export commodity for many tropical nations. Here in 27 countries-accounting for 86% of global dessert banana production- a changing climate since 1961 has increased annual yields by an average of 1.37 ha-1. Past gains have been largely ubiquitous across the countries assessed and African producers will continue to see yield increases in the future. However, global yield gains could be tampered or disappear, reducing to 0.59t ha-1 and 0.19t – ha by 2050 under the climate scenarios for Representative Concentration pathways 4.5 and 8.5, respectively, driven by declining yields in the largest producers and exporters. By quantifying climate – driven and technology driven influences on yield, we also identify countries at risk from climate change and those that are capable of mitigating its effects or capitalising on its benefits.

2.6 Bitcoin

Bitcoin is a power hungry crypto currency that is increasingly used in an investment and payment system. Here we show that projected bitcoin usage , should it follow the rate of adoption of other broadly adopted technologies, could alone produce enough CO_2 emissions to push warming above 2 degree C within less than three decades.

2.7 Enhanced oceanic CO_2 uptake along the rapidly changing west Antarctic peninsula

The global ocean is an important sink for anthropogenic CO_2. Nearly half of the oceanic CO_2 uptake occurs in the Southern ocean. Although the role of the southern ocean CO_2 sink in the global carbon cycle is recognized, there are uncertainties regarding its contemporary trend, with a need of improved mechanistic understanding, productive Antarctic coastal regions experiencing substantial changes in temperature and sea ice. Here, we demonstrate strong coupling between summer upper ocean stability, phytoplankton dynamics and oceanic CO_2 uptake along the rapidly changing West Antarctic Peninsula using a 25 year dataset (1993-2017). Greater upper oceanic stability drives enhanced biological dissolved inorganic carbon drawdown, resulting in greater oceanic CO_2 uptake. Diatoms achieve higher biomass oceanic CO_2 uptake and uptake efficiency than other phytoplankton. Over the past 25 years, changes in sea ice dynamics have driven an increase in upper ocean stability, phytoplankton biomass and biological dissolved inorganic carbon drawdown, resulting in a nearly fivefold increase in summer oceanic CO_2 uptake. We hypothesize that continued warming and declines in the ice will lead to decrease in biological dissolved inorganic carbon drawdown, negatively impacting summer oceanic CO_2 uptake. These results from the west Antarctic peninsula provide a framework to understand how oceanic CO_2 uptake in other Antarctic coastal regions may be altered due to climate change.

2.8 Acidification diminishes diatom silica production in the southern ocean.

Diatoms large bloom forming marine microorganisms builds frustules out of silicate, which ballasts the cells and aids their export to the deep ocean. This unique physiology forges an important link between the marine silicon and carbon cycles. However the effect of ocean acidification on the silicification of diatoms is unclear. Here we show the diatom silicification strongly diminishes with the increased acidity in a natural Antarctic community. Analysis of single cells from within the community reveal that the effect of reduced PH on silicification differs among taxa, with several species having significantly reduced silica incorporation at CO2 levels equivalent to those projected in 2100. These findings suggest that, before the end of this century, ocean acidification may influence the carbon and silicon cycle by both altering the composition of the diatom assemblages and reducing cell ballasting, which will probably alter vertical flux of these elements to the deep ocean.

2.9 Fish die-offs are concurrent with thermal extremes in temperate lakes.

As environmental temperatures continue to rise and organisms experience novel and potentially lethal conditions, the possibility of increased mass mortality events for animal populations appears likely. Yet due to die off rarity and unpredictability, there have been few large scale attempts to quantify the relationship between the mass die off and local environmental temperatures. Here we address this issue by analysing the database of 502 freshwater fish die offs combined with lake specific temperature profiles simulated for north temperate lake ecosystems. Die offs driven by the extreme summer conditions occurred disproportionality in lakes with average surface temperatures and during periods of extreme heat. In contrast, we observed no relationships between the current thermal extremes and die offs attributed to infectious diseases or winter environmental conditions. We forecast fish die offs driven by summer environmental conditions to double by mid century for north temperate lakes (2041-1059) and to increase more than fourfold by late century (2081-2099), particularly at southern latitudes. These results expose a direct links between novel temperature regimes and the increased probability by catastrophic ecological events in freshwater ecosystems.

3. Major health affects human beings due to climate change.

A new UN report says that health risks related to climate change are on the rise worldwide. At some time, coordinated international responses can help impacts on climate change on health.

Youssef Nassef, Director of the Adaptation Programme of the UNFCCC secretariat, says “the report clearly highlights the need for the UN and partners to continuously strengthen their actions to support governments to build climate resilience, including measures to protect human health.”

Climate change is expected to exacerbate health problems that already pose a major burden to vulnerable populations. Some of the problems are:

- Certain groups have higher susceptibility to climate- sensitive health impacts owing to their age (children and elderly) gender (particularly pregnant women), social marginalization (associated in some areas with indigenous populations poverty or migration status), or other health conditions like HIV. The socioeconomic costs of health problems caused by climate change are considerable.

- Many infectious diseases including water-borne one, are highly sensitive to climate conditions. A main concern in both developed and developing countries was the increase in and increased geographical spread of diarrhoeal diseases, the report found.
- Climate change lengthens the transmission season and expands the geographical range of many diseases like malaria and dengue transmission are likely to expand significantly across the globe.
- Climate change will bring new and emerging health issues, including heatwaves and other extreme events. Heat stress can make working conditions unbearable and increase the risk cardiovascular, respiratory and renal diseases. Additionally, it is estimated that 22.5 million people are displaced annually by climate or weather- related disasters and these figures are expected to increase in the future. Climate-induced human mobility has a socioeconomic cost and can affect mental and physical health.
- Malnutrition and under nutrition were highlighted as a concern for a number of developing countries in Africa, Asia and Latic American, which discussed the impacts of climate change on food security, particularly in relation to floods and drought.
- Heat waves: Of all the types of extreme weather, heat waves may be the most obvious one to connect to climate change and well a warming world. As humans burn more and more fossil fuels, we are releasing heat trapping gases like carbon dioxide into our atmosphere. As a result, we are seeing more and warmer than average years and more frequent extreme heat events.
- Infectious disease: The projected global increase in the distribution and prevalence of infectious diseases with climate change suggests a pending societal crisis. The subject is increasingly attracting the attention of health professional with respect to malaria and other vector transmitted human diseases. The result has been the emergence of a crisis discipline, reminiscent of the early phases of conservation biology. Latitudinal, altitudinal, seasonal, and inter annual associations between climate and disease along with historical and experimental evidence suggests that climate, along with many other factors can affect infectious diseases in a nonlinear fashion. However, although the globe is significantly warmer than it was a century ago, there is little evidence that climate change has already favoured infectious diseases. While initial projections suggested dramatic future increases in the geographic range of infectious diseases, recent models predict range shifts in disease distributions with little net increase in area. Many factors can affect infectious disease, and some may overshadow the effects of climate.

4. Conclusions

The objective of this paper was to present the views on climate change and resource sustainability that have been widely accepted in the world. On any contentious issue , it is impossible to have 100% acceptance. The world community has accepted the need to limit the increase in the earth’s temperature to 2degree C and initiate changes to achieve this objective. This will require the way to move away from burning of fossil fuels and effectively reach a stage of zero carbon emissions. This will require a radical change in the way humanity lives as we move forward. The new risks have been recognized by world wide professional bodies and other organizations including the actual organizations. The actuarial profession is well equipped to understand and analyse the risks. It should make its contribution in these efforts doing nothing will be an option.

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MATHEMATICS IN NATURAL ENVIRONMENT

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Abstract:

Mathematics is an omnipresent discipline. Though we seldom note it, it is found everywhere in the universe. The natural environment is one of the best examples of mathematics around us. We often admire the beauty of nature. However, most of us fail to see the mathematics behind this beauty. Right from fragile spider webs to the complex human body, the visible world is full of patterns that can be described mathematically. In this paper, we aim to cover the different mathematical concepts that are present in nature. Few areas that are explored include fractals, spirals, Fibonacci series, golden ratio, patterns and symmetry, each for which an array of examples is provided.

Keywords: Fractals, spirals, symmetry, patterns, golden ration, Fibonacci sequence

1. Introduction

When you sit in a garden and look around, you can easily recognise several natural designs. You see bees buzzing around flowers with neatly arranged petals, trees whose trunks are surrounded by pinecones

With their distinctly patterned bracts, and maybe a little snail with a spirally shelled house on its back. But what exactly makes these designs look the way they do? It may sound weird, but it is actually mathematical concepts. Discussed below are few such concepts which add to the beauty of nature.

2. Fractals

Coined by Polish Mathematician Benoit Mandelbrot in 1975, fractals are irregular geometric shapes that have the same degree of irregularity on all the scales. It is a fragmented or rough geometric shape that can be split into parts, each of which is (at least approximately) a reduced-size copy of the whole. The nature around us is full of examples of these never-ending geometric shapes.

2.1 Romanesco Broccoli: The Romanesco Broccoli, a variant of cauliflower is the epitome of fractals in nature. On a Romanesco, the whole head is made up of smaller heads that mimic the larger, and each of those smaller heads is made up of smaller, similar heads. Its pattern is a natural representation of the Fibonacci or golden spiral.

2.2 Unfurling Ferns: Ferns are a common example of fractals, which means that their pattern can be mathematically generated and reproduced at any reduction or magnification.

2.3 Trees: Trees are yet other examples of fractals in nature. In many trees, such as sycamore, a central trunk forks into two or more branches which themselves fork again and again into thinner and thinner branches before finally terminating in tiny twigs.

2.4 Waterfall: Similar to canyons, a combination of rock irregularity and gravity produces repeating patterns as water flows over the side of a sharp ledge.

2.5 Sea Shells: The chambered nautilus is one of the most famous examples of a fractal in nature. The perfect pattern is called a Fibonacci spiral.

2.6 Queen Anne's Lace: The delicate Queen Anne's lace, commonly called as wild carrot, is a beautiful example of a floral fractal. Each blossom produces smaller iterative blooms.

Apart from the above given examples, fractals are also found in snowflakes, clouds, lightning, crystals and mountain ranges.

3. Spirals

Spiral is a curve which emerges from a point, moving farther away as it revolves around the point. The equiangular spiral is one of the most beautiful forms in nature, and it arises in a variety of systems at enormous range of scales. No matter what the size, the shape of a given spiral remains the same. Spiral patterns are omnipresent in the natural world. They occur in plants and natural systems, including the weather. There are mainly two kinds of spirals in nature- the flat curve and the helix. Spirals are found in sunflowers, the DNA double helix, path of draining water, vine tendrils, phyllotaxis, mollusc shells, horns of various animals, and many more. Few more examples of spirals in the natural world are mentioned below.

3.1 Galaxies: Galaxies are the best examples of spirals. A single spiral galaxy may contain a trillion stars. Interestingly, there is a relatively uniform distribution of stars in a spiral galaxy.

3.2 Hurricanes: Hurricanes or typhoons (also called cyclones in the southern hemisphere) are the largest spirals here on Earth. In the north, they spin counter clockwise, while in the south they spin in the clockwise direction.

3.3 Nautilus: A nautilus shell illustrates the simple, recurrent process that creates a spiral. The Nautilus expands its home by adding sections to its shell. Each section is a little bigger than the one before, and a little bit rotated. The scaling factor and the rotation angle remain the same at every step in the process. It is this simple combination of rotation and expansion that creates the spiral.

3.4 Spirogyra: Spirogyra, commonly found in freshwater habitats is a genus of filamentous charophyte green algae. It is named so for the helical or spiral arrangement of the chloroplasts that is characteristic of the genus.

3.5 Plants: Plant forms have both types of spirals. Spirals are seen as a flat curve in ferns, but also as a 3D spiral in petals as they unfurl around the flower bud.

4. Symmetry

Symmetry is when one shape becomes exactly like another when you move it in some way like turn, flip or slide. In order to say two objects are symmetrical, they must be the same size and shape. In symmetry, the initial image is called the pre-image, and the second image is called the image. Few types of symmetry found in nature are mentioned below:

4.1 Snow Flake: Most snowflakes exhibit six-fold radial symmetry with identical and elaborate patterns on each of its arms. Water molecules change to solid state by forming weak hydrogen bonds. These bonds align in an ordered arrangement that reduces repulsive force and maximizes attractive force. This in turn results in the overall hexagonal shape of the snowflake.

4.2 Starfish

Starfish is an example of dihedral radial symmetry. It has five lines of reflection and is also found in the sea urchin and sand dollars.

4.3 Animal Body: Animals with bilateral symmetry have one line that divides them into two mirror images. A butterfly is the perfect example of bilateral symmetry in animals. Dogs, cats, and elephants all have bilateral symmetry. Animals with radial symmetry have body parts arranged around a central point. Any line drawn from one side through the center to the opposite side will divide the animal into two symmetrical halves. Some examples of these animals are jellyfish, sea urchins, corals, and sea anemones.

4.4 Spider web: There are around 5,000 types of orb web spiders, and all create nearly perfect circular webs with equidistant radial supports coming out of the middle and a spiral is woven to catch prey. Orb webs are built for strength and the radial symmetry helps to evenly distribute the force of impact when prey hits the web which reduces rips in the thread.

4.5 Milky way Galaxy: Milky Way galaxy is an example of symmetry. It has a near perfect mirror image of itself. The Milky Way has another incredible design which is similar to nautilus shells and sunflowers.

4.6 Human Body: Humans have bilateral body symmetry, which means that it can be divided into matching halves by drawing a line through the center. Bilateral symmetry helps our brain to recognize when our body is in different positions and make visual perception easier.

5. Patterns

5.1 Voronoi pattern: It provides clues to nature's tendency to favour efficiency: the nearest neighbour, shortest path, and tightest fit. Each cell in a Voronoi pattern has a seed point. Everything inside a cell is closer to it than to any other seed. The lines between cells are always halfway between neighbouring seeds. Other examples of Voronoi patterns are the skin of a giraffe, corn on the cob, honeycombs, foam bubbles, the cells in a leaf, and a head of garlic.

5.2 Spots and stripes: Leopards and ladybirds are spotted whereas angelfish and zebras are striped. One function of animal patterns is camouflage. Another example is lady bird. It cannot be spotted by predatory birds that hunt by sight because of the spots on its body.

5.3 Cracks: They are linear openings that form in materials to relieve stress. The pattern of cracks is an indicator of whether the material is elastic or not. In a tough fibrous material like oak tree bark, cracks are formed to relieve stress. Since each species of tree has its own structure at the levels of cell and of molecules, each has its own pattern of splitting in its bark.

5.4 Sand dunes: When winds blow over large bodies of sand, they create sand dunes. Dunes may form a range of patterns including crescents, very long straight lines, stars, domes and parabolas shapes. Example of this kind of pattern is in Namib Desert.

6. The golden ratio and the Fibonacci sequence

The "golden ratio" is a unique mathematical relationship. Two numbers are in the golden ratio if the ratio of the sum of the numbers (a b) divided by the larger number (a) is equal to the ratio of the larger number divided by the smaller number (a/b). The golden ratio is about 1.618, and represented by the Greek letter, φ. The Golden Ratio is often referred to as the Divine Ratio.

The Fibonacci sequence is a set of numbers that starts with a one or a zero, followed by a one, and proceeds based on the rule that each number (called a Fibonacci number) is equal to the sum of the preceding two numbers.

6.1 Flower Petals: The number of petals in a flower consistently follows the Fibonacci sequence. Famous examples include the lily, which has three petals, buttercups, which have five; the chicory has 21 petals while the daisy has34. Phi appears in petals on account of the ideal packing arrangement as selected by Darwinian processes. Each petal is placed at 0.618034 per turn (out of a 360° circle) allowing for the best possible exposure to sunlight and other factors.

6.2 Seed heads: The head of a flower is also subject to Fibonaccian processes. Seeds are produced at the centre, and then migrate towards the outside to fill all the space. Sunflowers are an example of spiralling pattern.

6.3 Pinecones: The seed pods on a pinecone are arranged in a spiral pattern. Each cone consists of a pair of spirals, each one spiralling upwards in opposing directions. The number of steps will almost always match a pair of consecutive Fibonacci numbers.

6.4 Tree branches: The Fibonacci sequence can also be seen in the way tree branches form or split. A main trunk will grow until it produces a branch, which creates two growth points. One of the new stem's branches into two, while the other one lies dormant. This pattern of branching is repeated for each of the new stems. For example, sneezewort plant. Root systems and even algae exhibit this kind of pattern.

6.5 Shells: Another example based on the properties of golden rectangle is shells. A rectangle in which the ratio of the sides a/b is equal to the golden mean (phi), can result in a nesting process that can be repeated into infinity and which takes the form of a spiral. It's called the logarithmic spiral. Shells take the shape of logarithmic spiral.

6.6 Spiral Galaxies: Spiral galaxies also follow the familiar Fibonacci pattern. The Milky Way has several spiral arms, each of them a logarithmic spiral of about 12 degrees.

6.7 Faces: Faces abound with examples of the Golden Ratio. The mouth and nose are each positioned at golden sections of the distance between the eyes and the bottom of the chin. Similar proportions can be seen from the side, and even the eye and ear itself.

Everyone's body is different but the average population tends towards phi. It is said that the more closely our proportions adhere to phi, the more "attractive" those traits are perceived. For example, the most "beautiful" smiles are those in which central incisors are 1.618 wider than the lateral incisors, which are 1.618 wider than canines, and so on.

6.8 Fingers: The length of our fingers from the tip of the base to our wrist differs from the other by roughly the ratio of phi.

6.9 Animal Bodies: Our bodies exhibit proportions that are consistent with Fibonacci numbers. For example, the measurement from the navel to the floor and the top of the head to the navel is the golden ratio. Animal bodies exhibit similar features, including dolphins, the eye, fins and tail all fall at Golden Sections. Starfish, sand dollars, sea urchins, ants, and honey bees also exhibit golden ratio. Approximate golden spirals can be found throughout nature, most prominently in seashells, ocean waves, spider webs and even chameleon tails.

6.10 Honey bees: Honey bees follow Fibonacci in many ways. They divide the number of females in the colony to the number of males in the ratio 1.618 which is the golden ratio. The family tree of honey bees also follows the familiar pattern. Males have one parent (a female), whereas females have two (a female and male). Hence, when it comes to the family tree, males have 2, 3, 5, and 8 grandparents, great-grandparents, gr-gr-grandparents, and gr-gr-gr-grandparents respectively. Following the same pattern, females have 2, 3, 5, 8, 13, and so on. Bee physiology also follows the Golden Curve rather nicely.

6.11 The uterus: According to Jasper Veguts, a gynaecologist at the University Hospital Leuven in Belgium, doctors can tell whether a uterus looks normal and healthy based on its relative dimensions, dimensions that approximate the golden ratio.

6.12 DNA : One of the most amazing examples of Golden Ratio is found within the human DNA structure. This can be seen in a single DNA cross section that reveals the DNA double helix forms a decagon shape. This is a combination of two pentagons, rotated 36 degrees from each other forms the DNA double helix. The double helix spiral itself forms a pentagon. Even a single DNA molecule reveals a basis of the Golden Section or Divine Proportion.

7. Conclusions:

Euclid once said "The laws of nature are but the mathematical thoughts of God". Mathematics is a natural science and many aspects of the universe adhere to universal laws of mathematics. A look at the nature around us provides us plenty of examples of mathematical concepts. From minute beings to the entire universe, mathematics is everywhere. In this paper we have explored different aspects of mathematics like fractals, spirals, symmetry, patterns, golden ratio and the Fibonacci series and how they are present in nature.

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PTHALATE CONTAMINATION- A REVIEW

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Abstract:

The safety of our food is a primary concern . However, with increased industrialization and globalization of world economics and food supplies, ensuring the safety of our food presents huge regularly challenges chemical contamination of the food supply is perhaps one of the more difficult challenges. Persistent organic pollutants and toxic metals are ubiquitous environmental pollutants. Following their release into the air, water and soil, these chemicals slowly degrade and bioaccumulate in the food chain. Due to these pollutant it contaminate the parts per trillion in the food, can burden the life of humans as well as animals. one among such pollutant is phthalate which is a component present in plastics materials. Phthalate slowly release into the stored materials and can contaminate on prolonged storage. As food stored in a plastic materials for long time it releases a pollutant which effect the humans and animals too. This paper is a review on studies conducted on phthalate contamination which includes a comparision on the levels of phthalate in various samples and precautions.

Keywords: Phthalate, Food, Drinking water, Cosmetics, Pollution

1. Introduction

Pollution is the declining of the quality of any resources. Pollutants have adverse effects on the health of the community. As plastics now Omni present everywhere and one convenience of life depends many materials made of plastics or broadly known as polymers. Contaminants in natural environment that cause adverse change in the form of killing of life, toxicity of environment, damage to ecosystem and aesthetics of our surroundings**.** Usually the substances used in the manufacture of package materials can contaminate the contents. Since plastics or polymers are extensively used by the population it is time to look into the sources and impacts of contaminates present in them.

Polymer is the substances which are used as an additive for plastics which results in toxicity, carcinogenic effects. Phthalate or phthalate esters (Fig. 1) or the materials which is used as plasticizer during the manufacture of plastics.

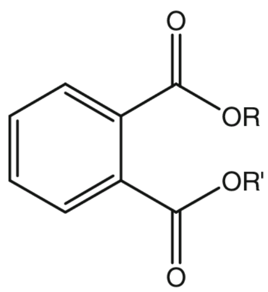

Figure 1. The structure of Phthalate

They are found in hundreds of our everyday products , such as plastic food containers cosmetics, detergents, plastic toys,fragrances and items . Phthalate are readily released into the environment and create a risk of exposure for humans and other living organism plasticizers are not chemically bound to PVC , they can leach ,migrate or evaporate into indoor air and atmosphere , foodstuff,other materials ,etc.(Heudorf et.al,2004)

The main objectives of this review are as follows:

- To create awareness of phthalates contamination
- To generate a cumulative data on the extent of phthalate contamination
- To review the effects of phthalates on human beings. This review focuses on the aspects
- of phthalate contamination in food , drinking water , cosmetics.

2. Phthalates in food

A number of studies of fat containing foods have suggested that the presence of phthalates in food is due to general contamination of the Environment and food chain (MAFF UK,1998,1996), So ingestion o phthalates in food can occur irrespective off the packaging and / or processing involved. Packaging as become an indispensable element in the food manufacturing process. Recently the packaging as been found to represent a source of contamination itself through the migration of substances from the packaging into food (Lau and Wong, 2000). Lipid rich food are having the high concentration of phthalates in them. Ortho-phthalates (phthalates) are a class of chemicals commonly found in many types of food — from fast food to fresh fruits and vegetable. The chemicals get into food mainly through packaging and food handling equipment, like cellophane, paper and paperboard, and plastic in contact with food.

3. Phthalates in drinking water

Occurrence of thyroid Harmon activities in drinking water from eastern china- contributions of phthalate esters (Shi,et.al,2012). A simple and efficient liquid phase micro traction technique using a hollow-fibre membrane, in conjunction with gas chromatography-mass spectrometry has been developed for extraction and analysis of six phthalate esters in water sample (Psillakis & Kalogerakis, 2003). The presence of phthalates have been found in 10 different brands of bottled water available in Saudi markets and under different conditions (Al-Saleh & Alsabbaheen, 2011). Ultra trace analysis of phthalates have been found in drinking water (Serodio,et.al, 2006). The phthalate levels of drinking water significantly increased by contact of hot water with disposable plastic and paper cups and by sunlight exposure of bottled water (Part etal 2016, Zaki and Shoeib, 2018, Bach etal, 2012) . Both the carcinogenic and non-carcinogenic health risks of the phthalates in drinking water were considered to be very low (Abtahi et al, 2019).

4. Phthalates in cosmetics

In 1995, diethyl phthalate (DEP) was reported to be present in 67 cosmetic formulations at concentrations ranging from 0.1 to 50% (SCCNFP, 2002). People are exposed to phthalates through their daily contact with consumer products, food, and indoor air. (Koo and Lee, 2004). Varieties of phthalates have found in different kind of beauty products which is used in day to day life. DBP was detected in 19 of the 21 nail polishes and in 11 of the 2 perfumes,DEP was detected in 2 of the 2 perfumes and 2 of the 8 deodorants(Koo and Lee, 2004). Historically, the phthalates used in cosmetic products have been dibutyl phthalate (DBP), used as a plasticizer in products such as nail polishes to reduce **cracking by making them** less brittle; dimethyl phthalate (DMP), used in hair sprays to help avoid stiffness by allowing them to form a flexible film on the hair;

5. Effects on human beings

Different types of phthalate present in different types of materials shows a very adverse effect on human health (Shi,et.al,2012). Phthalate give rise to variety of health issues like reproductive toxicity in adults,as well as insulin resistance .Even it give rise to diabetes, obesity, allergy, asthma ,cancer, and epigenetic modulation. Phthalate concentration also effect the environment and animals too (Swan,2008, Renner, 2000).

6. Overall ways to reduce the use of phthalates

Phthalates have been banned in european union since 2005. Nine other countries including Japan,Mexico and Argentina have also banned

The following ways can be adopted to reduce the use of phthalates:

- Reduce use of processed and packaged foods
- Increase use of fresh food
- Reduce storing and heating foods and beverages in plastic containers
- Avoid the packaged water
- Use phthalate free lotion and soaps
- Reduce use of products with fragrance
- Use nail polish brands that advertise that NO DBP

7. Conclusions

Phthalates, the salts and esters of phthalic acid are ubiquitous in environment. Phthalates do not bind with the products to which they are added as an additive. Phthalates are used in numerous industries, and they are difficult to eliminate from our daily surroundings. Phthalates are found in plants, air, soil, water, treated effluents and landfill waste. As we the human being is responsible to save our mother earth, we should try to use the products which are free from any kind of contaminants. if we are using such products means it is danger for our health as well as environment too. Use biodegradable substances which are not harmful for environment as well as living beings. Use each and every product by seeing the ingredients present in it. Avoid those products which are harmful for our health. As a overall review of our studies we seen that not much research have been made on phthalates especially India .So in future many research should be conducted on phthalates and want to create awareness among the public.

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E-WASTE MANAGEMENT

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Abstract:

'E-waste' (electronic waste) is a popular, informal name for electronic products to their "useful life". E-wastes are considered dangerous, as certain components of some electronic products contain materials that are hazardous, depending on their condition and density. The current practices of e-waste management in India suffer from a number of drawbacks like the unhealthy Conditions of informal recycling. E-waste contains both hazardous and non-hazardous in their components. Globally, the e-waste generation is estimated at 30 to 70 million tons annually. The presence of organic toxic and hazardous substances is to separates it from the normal municipal waste. These hazardous substances like plastic, lead, mercury and arsenic etc. The people engaged in the recycling and recovery from the e-waste is affected with chronic and acute diseases like cancer etc. E-waste includes computer, entertainment electronics, mobile phones and any other items that have been discarded by their original users. The key to success in terms of e-waste management is to develop eco-design devices, properly collect e-waste, recovery and recycle materials by safe methods, dispose of e-waste by suitable techniques and to raise awareness regarding impact of e-waste.

Keywords:

Hazardous, drawbacks, recycling, awareness, develop eco-design devices.

1. Introduction

In India, the quantity of "e-waste" or electronic waste has now become a major problem. Disposal of e-waste is an emerging global environmental and public health issue, as this waste has become the most rapidly growing segment of the formal municipal waste stream in the world. E-waste or Waste Electrical and Electronic Equipment (WEEE) are loosely discarded, surplus, obsolete, broken, electrical or electronic devices. In India most of the waste electronic items are stored at households as people do not know how to discard them. This ever-increasing waste is very complex in nature and is also a rich source of metals such as gold, silver, and copper, which can be recovered and brought back into the production cycle. So e-waste trade and recycling alliances provide employment to many groups of people in India. Around 25,000 workers including children are involved in crude dismantling units in Delhi alone where 10,000–20,000 tones of e-waste is handled every year by bare hands. Improper dismantling and processing of e-waste render it perilous to human health and our ecosystem

These days computer has become most common and widely used gadget in all kinds of activities ranging from schools, residences, offices to manufacturing industries. E-toxic components in computers could be summarized as circuit boards containing heavy metals like lead & cadmium; batteries containing cadmium; cathode ray tubes with lead oxide & barium; brominated used on printed circuit boards, cables and plastic casing; poly vinyl chloride (PVC) coated copper cables and plastic computer casings that release highly toxic dioxins & furans when burnt to recover valuable metals; mercury switches; mercury in flat screens. The average 14-inch monitor uses a tube that contains an estimated 2.5 to 4 kgs of lead. The lead can seep into the ground water from landfills thereby contaminating it. If the tube is crushed and burned, it emits toxic fumes into the air.

This term applies to consumer and business electronic equipment that is near or at the end of its useful life. There is no clear definition for electronic waste (e-waste) at this time, but if you can plug it in to an electrical outlet or it contains circuit boards or chips, it is most likely e-waste. These products can contain heavy metals like cadmium, lead, copper, and chromium that can contaminate the environment. Do not dispose of these items in the trash or your recycling bins.

2. Electronic Waste

- TVs, computer monitors, printers, scanners, keyboards, mice, cables, circuit boards, lamps, clocks, flashlight, calculators, phones, answering machines, digital/video cameras, radios, VCRs, DVD players, MP3 and CD players
- Kitchen equipment (toasters, coffee makers, microwave ovens)
- Laboratory equipment** (hot plates, microscopes, calorimeters)
- Broken computer monitors, television tubes (CRTs)

Table 1 & 2 illustrates the top ten e-waste producing states and cities in India respectively

State	**E waste MT**
Maharashtra	20270.59
Tamil Nadu	13486.24
Andhra Pradesh	12780.33
Uttar Pradesh	10381.11
West Bengal	10059.36
Delhi	9729.15
Karnataka	9118.74
Gujarat	8994.33
Madhya Pradesh	7800.62
Punjab	6958.46

Table 1. The top ten e-waste producing states in India

City	**E waste in tonnes**

Ahmadabad	3286.5
Bangalore	4648.4
Chennai	4132.2
Delhi	9730.3
Hyderabad	2833.5
Kolkata	4025.3
Mumbai	11017.1
Nagpur	1768.9
Pune	2584.2
Surat	**1836.5**

Table 2. The top ten e-waste producing states in India respectively

3. Health impacts by the components

Electronic equipments contain many hazardous metallic contaminants such as lead, cadmium, and beryllium and brominated flame-retardants. The fraction including iron, copper, aluminum, gold, and other metals in e-waste is over 60%, while plastics account for about 30% and the hazardous pollutants comprise only about 2.70% of many toxic heavy metals, lead is the most widely used in electronic devices for various purposes, resulting in a variety of health hazards due to environmental contamination. Lead enters biological systems via food, water, air, and soil. Table 3 illustrates the health hazards of various e waste components.

COMPONENTS	CONSTITUENTS	AFFECTED BODY PARTS
Printed circuit boards	Lead and cadmium	Nervous system and kidney
Mother boards	Beryllium	Lung and skin
CRT Cathode ray tubes	Lead oxide , barium & cadmium	Heart, liver and muscles
Switches and flat screen monitors	Mercury	Brain and skin
Computer	Cadmium	Kidney, liver
Cable insulating	PVC Polyvinyl chloride	Immune system
Plastic housing	Bromine	Endocrine system

Table 3. The components and health hazards caused various e waste components

4. Current Status of E-Waste Management

For the recycling of e-waste, India heavily depends on the unorganized sector as only a handful of organized e-waste recycling facilities are available. Over 95% of the e-waste is treated and processed in the majority of urban slums of the country, where untrained workers carry out the dangerous procedures without personal protective equipment, which are detrimental not only to their health but also to the environment.

Recycling and treatment facilities require a high initial investment, particularly those fitted with technologically advanced equipments and processes. For the dismantling of one computer piece, these workers only get Rs. 5 or 10. For such a small amount, workers ruin their lives. Such “backyard recyclers” do not have wastewater treatment facilities, exhaust-waste gas treatment, and personal health protection equipment. Williams observed that despite significant attention from the media and enactment of some national level trade bans (most notably, China and India), the problem is apparently worsening. Therefore, health risk assessments are also required for the analysis of the consequences and of inappropriate management of end-of-life electronic wastes in developing countries.

5. Problems of e-waste management

Volume of E-waste generated: India stands fifth in e-waste generation producing around 1.7 lakhs metric tonnes per annum.

Involvement of Child Labor: In India, about 4.5 lakh child laborers in the age group of 10-14 are observed to be engaged in various E-waste activities and that too without adequate protection and safeguards in various yards and recycling workshops. So, there is a urgent need to bring out effective legislation to prevent entry of child labor into E-waste market- its collection, segregation and distribution.

Ineffective Legislation: E-waste Rules and guidelines have not been uploaded. In absence of any information on their website, specially on details of recyclers and collectors of E-waste, citizens and institutional generators of E-waste are totally at a loss to deal with their waste and do not know how to fulfill their responsibility. So, there is failure in successful implementation of E-waste Management and Handling Rules

Lack of infrastructure: There is huge gap between present recycling and collection facilities and quantum of E-waste that is being generated. No collection and take back mechanisms are in place. There is lack of recycling facilities.

Health hazards: E-waste contains over 1,000 toxic materials, which contaminate soil and ground water. Exposure can cause headache, irritability, nausea, vomiting, and eye pain. Recyclers may suffer liver, kidney and neurological disorders. Due to lack of awareness, they are risking their health and the environment as well.

Lack of incentive schemes: No clear guidelines are there for the unorganized sector to handle E-waste. Also no incentives are mentioned to lure people engaged to adopt formal path for handling E-waste. Working conditions in the informal recycling sector are only slightly worse than in the formal sector. No incentive schemes for producers who are doing something to handle e-waste.

Poor awareness and sensitization: Limited reach out and awareness regarding disposal, after determining end of useful life. Also Only 2% of individuals think of the impact on environment while disposing off their old electrical and electronic equipment.

E-waste imports: Cross-border flow of waste equipment into India- 80 percent of E-waste in developed countries meant for recycling is sent to developing countries such as India, China, Ghana and Nigeria

Lack of research: Government must encourage research into the development and standards of hazardous waste management, environmental monitoring and the regulation

Security implications: End of life computers often contains sensitive personal information and bank account details which, if not deleted leave opportunity for fraud.

6. Solution to the e-waste management

Responsibilities of the Government:

- Collect basic information on the materials from manufacturers, processors and importers and to maintain an inventory of these materials. The information should include toxicity and potential harmful effects.
- Identify potentially harmful substances and require the industry to test them for adverse health and environmental effects.
- Control risks from manufacture, processing, distribution, use and disposal of electronic wastes.
- Encourage beneficial reuse of "e-waste" and encouraging business activities that use waste". Set up programs so as to promote recycling among citizens and businesses.
- Educate e-waste generators on reuse/recycling options

Responsibility and Role of industries:

- Use label materials to assist in recycling (particularly plastics).
- Standardize components for easy disassembly.
- Re-evaluate 'cheap products' use, make product cycle 'cheap' and so that it has no inherent value that would encourage a recycling infrastructure.
- Create computer components and peripherals of biodegradable materials.
- Utilize technology sharing particularly for manufacturing and de manufacturing.
- Encourage / promote / require green procurement for corporate buyers.
- Look at green packaging options.

Responsibilities of the Citizen:

While buying electronic products opt for those that:

- are made with fewer toxic constituents
- use recycled content
- are energy efficient
- are designed for easy upgrading or disassembly
- utilize minimal packaging
- offer leasing or take back options
- It has been certified by regulatory authorities. Customers should opt for upgrading their computers or other electronic items to the latest versions rather than buying new equipments.

NGOs should adopt a participatory approach in management of e-wastes.

7. Advantages and Disadvantages of e- waste

There are a lot of advantages for e-waste. It preserves natural resources and reduces greenhouse gas emission thereby reduces pollution. E- waste prevents wastage of non-renewable resources as well as creates jobs for recyclers/refurbishes. It saves landfill space and helps the community by donating to those who need the e-waste.

The disadvantages of e- waste are many. E-waste contains a lot of harmful chemicals such as lead in CRTs of computers and mercury in flat panel display screens. This can be absorbed by humans through contaminated drinking water. E-waste can affect the environment as well as humans. The process of recycling means burning wires to recover metals, melting circuits and also acid stripping. Just this causes so many problems to the environment. Long-term effects on our planet are still unknown.

8. Conclusions

The hazardous nature of e-waste is one of the rapidly growing environmental problems of the world. The ever-increasing amount of e-waste associated with the lack of awareness and appropriate skill is deepening the problem. A large number of workers are involved in crude dismantling of these electronic items for their livelihood and their health is at risk; therefore, there is an urgent need to plan a preventive strategy in relation to health hazards of e-waste handling among these workers in India. Required information should be provided to these workers regarding safe handling of e-waste and personal protection. For e-waste management many technical solutions are available, but to be adopted in the management system, prerequisite conditions such as legislation, collection system, logistics, and manpower should be prepared. This may require operational research and evaluation studies.

E-waste management has become one of the emerging Problem to the developed and developing countries both as it is a fast growing waste contains very hazardous and toxic Substances in their e-wasted components. It is generated more in developed countries than developing countries. The developed countries either dumped it land filling or dispatched it to the developing countries like china and India. The environmental laws for the recovery and recycling from e-waste are very stringent and money intensive in the developed countries

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THE EARTH WITHOUT LUNGS- THE AMAZON RAINFOREST

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Abstract

The paper reviews recent “Tens of thousands” of fires across the Amazon Rainforest. In this paper, we look back at how the fire and its underlying causes have been reported, as well as the drastic impacts of the Forest fire in climate change. The term Climate change often refers specifically to anthropogenic climate change (also known as global warming). Anthropogenic climate change is caused by human activity, as opposed to the changes in climate that may have resulted as part of Earth’s natural processes. The Amazon Rainforest produces more than 20% of the world’s oxygen. If the Amazon Rainforest vanishes totally the tropical trees (Amazon is home to an estimate of 390 billion tree and 16000 diverse tree species)-and the fauna, they support will disappear, releasing up to 140 billion tons of stored carbon and causing an uptick in already rising temperatures and causes Greenhouse Effect. When the tropical forest is replaced by Crops, there will be a significant increase in surface temperature and a decrease in evapotranspiration, precipitation and the length of the dry season will be increased over Amazonia. The paper deals with anthropogenic climate change, what would the earth be like without it, effects of Deforestation and suggestions of researchers.

Keywords: Anthropogenic climate change, Greenhouse Effect, Surface temperature, evapotranspiration, Precipitation

1. Introduction

The term Climate change often refers specifically to anthropogenic climate change (also known as global warming). Anthropogenic climate change is caused by human activity, as opposed to the changes in climate that may have resulted as part of Earth's natural processes. The Amazon Rainforest produces more than 20% of the world's oxygen. According to some scientists, the concentration of CO2 in the atmosphere has increased since the beginning of the industrial revolution, 1750, modifying the composition of the atmosphere and the natural greenhouse effect of Earth, increasing its temperature in a seemingly slow process, from the point in view of human chronometry, but almost instantaneous with respect to geological times. It is estimated that two thirds of this increase come from the burning of fossil fuels, such as oil, gas and coal, while the remaining third comes from the deforestation of large areas of forests and jungles. In the Amazon the destruction of the forests is already very advanced, especially to gain spaces for agriculture, livestock and urbanization, in addition trees are cut down to supply the timber markets. If these activities do not stop, it will irreversibly affect the lung of the world and its role in helping to curb climate change.

2. The Amazon rainforest and the greenhouse effect

Greenhouse gases are thought to be the main contributor to climate change (The Greenhouse Effect). They are very efficient in trapping heat into the atmosphere; therefore, it results in the greenhouse effect.

The solar energy is absorbed by the earth's surface and then reflected back to the atmosphere as heat. Then as the heat goes out to space, greenhouse gases absorb a part of the heat. After that, they radiate the heat back to the earth's surface, to another greenhouse gas molecule, or to space (The Greenhouse Effect). Daniela Birghila stated in "Climate Change Effects- Where to Next?" the biggest concern scientists have is about the emission ofCO_2 since it is about 75% of the total global emission of greenhouse gases. When the tropical forest is replaced by Crops, there will be a significant increase in surface temperature and a decrease in evapotranspiration, precipitation and the length of the dry season will be increased over Amazonia.

Figure 1 shows how much CO_2 increased in the last 50 years. By1998 India surpassed Germany and became the 5th largest CO_2 producing country. The greenhouse gases in the atmosphere that increased over the last 2000 years (Fig 2).

3. Effects of deforestation

Deforestation could have extreme effects on the weather all over the world. As Deborah Lawrence, an environmental scientist at the University of Virginia, found, the loss of the rainforest could change rainfall patterns around the globe, which — in turn — could have a devastating impact on agriculture. Most people know that climate change is a dangerous global problem, and that it's caused by pumping carbon into the atmosphere. But it turns out that removing forests alters moisture and airflow, leading to changes — from fluctuating rainfall patterns to rises in temperatures — that are just as hazardous, and happen right away. The impacts go beyond the tropics — the U.K. and Hawaii could see an increase in rainfall, while the U.S. Midwest and Southern France could see a decline. Like the forest itself, the water of the Amazon also impacts life all over the world; according to Conservation International, 20 percent of the world's freshwater comes from the Amazon River basin. Not only do the local communities (of more than 30 million people) rely on the water for everyday life, but it also provides hydropower for millions of people.

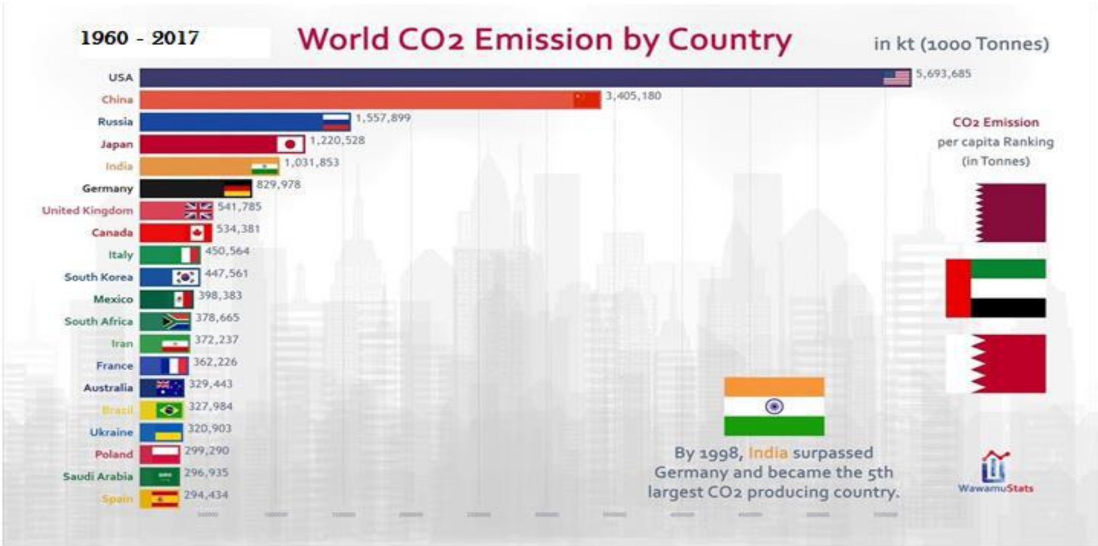

Figure 1. World CO_2 emission by country in last 50 years (https://www.youtube.com/watch?v=AL5Hjg30b_M)

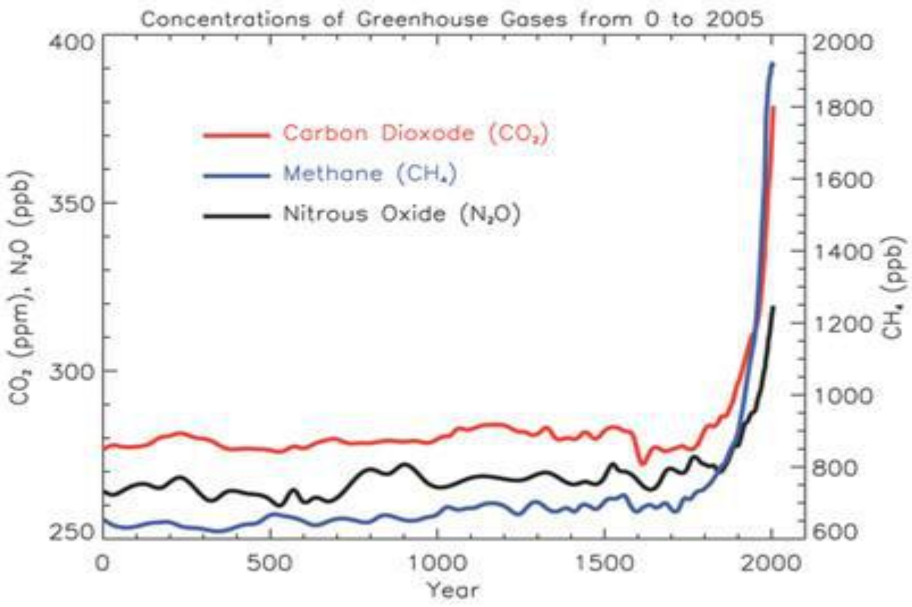

Figure 2. Concentration of greenhouse gases over 2000 years (Sciortino, 2011)

The World Wildlife Federation reports the Amazon River also makes up around 15 percent of the world's total river discharge into the oceans, and the river's streams and tributaries "contains the largest number of freshwater fish species in the world. 'If we lose the amazon we will lose the fight against climate change, as well as unique plants and animals found nowhere else on our planet' – WWF (MAYANMAR), 'The Amazon Rainforest will be gone by 2029, with catastrophic consequences for all life on Earth'-JOE HANSON (science writer, biologist, and YouTube educator.) and many more.

4. Solutions

Corporations: If Corporations have the ability to destroy the world's rain forest they also have the power to help save them. Corporations can implement anti-deforestation policies that require suppliers and other stakeholders to operate. Corporations are huge consumers of paper. Management can work towards a paper-free office by shifting towards email and soft-copies, and also copy their employees to recycle.

Governments: Governments are able to enact domestic and international forests policies that have wide ranging effects. The cutting down trees must be countered by replacing old ones that were cut with young ones. Trees are being planted every year, but they still don't match the number of trees that we lost. Support organisations that push for anti –deforestation. Governments have the resources to allow anti-deforestation organization to get their message across and increase their sphere of influence .this is a good way to indirectly solve deforestation.

Individuals: As individuals we contribute significantly to deforestations with our life-styles, hence we have the responsibility to keep ourselves in check. Everybody, even children, can be conscious of the need to recycle. Instead of throwing paper away, we can always Seek to recycle it or use it for the purposes. By purchasing recycled products, we are encouraging more and more companies to produce. Recycled products, which deal less damage to our forest, create less waste and decrease the need for new raw materials. For ecological deforestation to end, paper consumption must be drastically reduced. Opting for paperless bills, cheques and payment significantly contribute toward mending the harm effects of deforestation. Use renewable energy resources. Purchase renewable energy, such as Solar, geothermal and wind energy to help stop deforestation. Educate others of the need to fight deforestation, spread your knowledge and urge others to follow in your footsteps and fight against amazon deforestation.

5. Conclusions

The Amazon has been threatened after so long again and we must change our way to preserve the wild life, Respect and maintain critical ecosystem services and reduce Greenhouse gas emissions. We can avoid deforestation so that the future generations will still be able to see the beauty of Mother Nature. There are about 34 Million people who live in the Amazon and they all depend on its resources. We should really visit the Amazon due to its spectacular river, the biodiversity and the beautiful culture and activities that you can experience there, so that you will know the real meaning of Mother Nature. So get in the habit of keeping yourself from any activities that might threaten the Amazon rainforest and encourage your friend and family to do the same thing.

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CLIMATE CHANGE AND ITS IMPACTS

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Abstract

Climate change is defined as variations and shifts in weather conditions. One of the reasons is due to atmosphere instability. Climate of a region is not fixed and keeps on changing. This phenomenon is termed as Climatic Cycle. The levels of climate changes give the time period of a climate change. This change is caused by anthropogenic and natural factors. The indicators of climate changes give sufficient information about climate conditions. The impacts of climate changes give certain information about natural and human causes. Mitigation is one of the possible preventions which can be done to decrease the factors that contribute climate change or preventions can be done by enhancing the sinks of green house gases. This may be concluded that the eccentricity of the earth's orbit affects the receipt of insolation at earth's surface. The obliquity of the earth's rotational axis and precision of equinoxes determine the latitudinal distribution of temperature over earth's surface. Thus, all such variations and changes induce climate change.

Key words: Climatic Cycle, Mitigation, Insolation.

1. Introduction

The human society with present-day weather conditions is seized with the problems of possible climate changes in near future. Variability, in both time and space is an inherent feature of climate, as the atmosphere is always in the state of turmoil and instability leading to the variations in climatic conditions. Thus, atmosphere instability is one of the reasons for climate change.

Climate change is defined as variations and shifts in weather conditions over space and time of different scales and magnitude space resulting into change of climate type. For example, from warm and moist climate to warm and dry climate, from warm and moist climate to cool and moist climate.

2. Climatic Cycle

The change in climates is a reality because the climate of a region is neither fixed nor static rather it keeps on changing. Sometimes, the changes are cyclic and rhythmic, such changes are termed as climatic cycle. James Hutton, a Scottish geologist postulated the concept of cyclic nature of Earth's history.

3. Levels of Climate Changes:

Generally, climate changes are considered at two levels, namely Short-term changes and Long-term changes. Short-term climate changes involve the consideration of changes in the energy balance of the earth's atmosphere system leading to periodic changes in weather and climate. Short-term climate changes are either inter-annual or they may persist for many years and are generally caused by anthropogenic factors. On the other hand, long-term climate changes persist for thousands to millions of years and are exceedingly slow. These are always caused by natural factors.

4. Indicators of Climate Changes:

Biological Indicators:

Floral Indicators: The plant physiology gives sufficient information about climatic conditions. For example, the fossil remains of plants having long roots, thick barks, waxy leaves, thorns, little leaves etc. indicate warm and dry climate (warm desert climate), while plants having drip leaves are indicators of warm and very moist conditions (tropical rain forest climate).

Faunal Indicators: Identification and analysis of fossil invertebrate animal remains embedded in the sedimentary formations provides significant clues about the climatic conditions that existed during the period of their survivals. The mass deaths of certain species of micro-organisms take place when the temperature and moisture conditions change and become unfavourable to them.

Geological Indicators: Evaporate deposits, represented by salt deposits, occur when climate is characterized by high temperature and aridity wherein evaporation exceeds precipitations. In such circumstances water is evaporated and salt contents are left behind. It may be mentioned that this happens only when water on land is saline and thus salt is in solution form.

Lime stones ($Caco_3$) containing calcium carbonates are deposited in tropical warm oceanic water and hence the occurrence of lime stones in the regions having cold climate represents the fact that the concerned region was under tropical warm climate at the time of lime stone deposition.

Cryogenic Indicators: The shape of glaciated valleys, glacial drifts, erratic (glacial boulders), striations etc. provide important clues for climatic changes. The glaciers and ice layers provide evidences for temperature and precipitation conditions during different phases of ice ages. Advancing glaciers and ice sheets indicate cold phase and lowering of temperature much below freezing point, while retreat of ice sheets heralds increase in temperature and subsequent ablation of glaciers demonstrates onset of warmer climate.

Tectonic Indicators: The plate movements during cenozoic era displaced major continental blocks in the middle and high latitudes in the northern hemisphere and thus such northward displaced continental masses were subject to the dominance of cold climate resulting into widespread glaciations.

On the other hand, mountain ranges of Tertiary period, formed due to collision of convergent plates and consequent subduction of heavier plate and lateral compression, and high plateaus, became effective barriers in controlling the global atmospheric circulation and generating a few new climatic types such as monsoon climate of South Asia.

Geo-morphological Indicators: Duricrusts are indurated hardened surfaces of different kinds such as laterites, silcretes, calcretes, alcretes, ferricretes etc and are normally supposed to have been formed in hot and climate of tropical and subtropical areas and hence, they are indicative of warm and moist climate. The presence of lateritic crusts in certain parts of Europe (U.K., Germany, etc.) clearly demonstrates the fact that these are not the result of present climate.

Sea Level Fluctuations: Fluctuations in sea levels are considered as significant indicators of past climate changes. Sea level changes are of two types, namely, positive change marked by rise in sea level above datum line, and negative change denoting fall in sea level below datum line. Changes in sea level are effected by (i) tectonic movements because of rise in sea level when there is upward movement of sea floor or down warping leading to subsidence of sea floor or upwarping of coastal lands. (ii) Climatic changes in sea levels are rapid and are effected by glacial age and advancement of glaciers and ice sheets and deglaciation leading to retreat of glaciers and ice sheets.

5. Impacts of Climate Change:

Natural Causes:

There are a number of natural factors responsible for climate change. Some of the factors are continental drift and Volcanoes.

Continental Drift: The continents that are familiar were formed when the landmass gradually began to drift apart, millions of years back. This drift also had an impact on the climate because it changed the physical features of landmasses, their position and the position of water bodies. This drift continues even today, the Himalayan range in rising by about 1mm every year because the Indian land mass is moving towards the Asian land mass, slowly but steadily.

Volcanoes: When a volcano erupts, it throws out a long volume of Sulphur dioxide (SO_2), water vapour, dust, and ash into the atmosphere. Although the volcanic activity may last only a few days, yet the large volumes of gases and ash can influence climatic patterns for years. Millions of tonnes of SO_2 gas can reach the upper levels of the atmosphere (called the stratosphere) from a major eruption. The gases and dust particles partially block the incoming rays of the sun.

Human Causes: Electricity is the main source of power in urban areas. All the gadgets run on electricity generated mainly from thermal power plants. These thermal power plants run on fossil fuels (mostly coal) are responsible for the emission of huge amounts of green house gases and other pollutants.

Cars, buses and trucks are the principal ways by which goods and people are transported in most of our cities. These run mainly on petrol or diesel (fossil fuels).

Timber is used in large quantities for construction of houses, which means that large areas of forests have to be cut down.

6. Prevention of Climate Change:

Climate change significantly impact public health. In order to prevent these public health impacts, actions had to be taken to prevent climate change which is termed as mitigation.

Climate change mitigation is the act of decreasing the factors that contribute to climate change. One of the most significant contributors to climate change is in the rise in green house gases. The United Nation's France work convention on climate change defines climate change mitigation as a human intervention to reduce the sources or enhance the sinks of green house gases.

7. Conclusions

The paper may be concluded that the eccentricity of the earth's orbit affects the receipt of insolation at earth's surface while the obliquity of the earth's rotational axis and precision of equinoxes determine the horizontal (latitudinal) distribution of temperature over the earth's surface and length and intensity of summer and winter seasons in terms of temperature. All such changes and variations induce climate changes.

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ALTERNATE RESOURCES

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Abstract:

Alternative energy is any energy resources that are alternative to fossil fuel. We tend to search or go towards alternative resources because human have partially understood that fossil fuel or so called black gold is effecting the earth and its beings rapidly.Humans always try to find easy, cheap and quick energy which now has caused the massive damage. Fossil fuel cause environmentally unsafe compound to form in the atmosphere depleting ozone levels and thus creating a spike in skin cancer rates,Acid rain and Asthama. The global warming caused by the use of fossil fuel leads to rising sea levels, the melting of ice at the poles and in glaciers can caused oceans to rise which impact both ecosystem and human settlement in low lying areas. The benefits of fossil fuels all deviate many of the problems caused by fossil fuel use particularly when it comes to emissions. Our research in various countries websites gave us many ideas that they use to bring down pollution and waste in our country.

Key words: Alternate energy sources, fossil fuels,

Introduction

The rapid increase in the demand of energy has caused worry about its supply. The main souces of energy are conventional sources, they are non-renewable and exhaustible sources. The demand of energy has increased all over the world and the condition poses a threat on the sources of energy like petroleum and natural gas by the year 2030-35 if any alternative sources do not substitute or supplement them.

The government of india gives high priority to the use of alternative, non-conventional and renewable energy resources as supplement to the depleting conventional sources of energy. These alternative sources include – solar energy, wind energy, geo-thermal energy, tidal energy, biomass energy etc.

Solar energy: Solar energy is a wide source. Solar cells, solar cookers, solar ponds etc are the devices to trap solar energy. It can produce electricity, cook food, heat water and can be converted to other forms of energy. The solar photovoltic system which uses solar cells to converted the solar energy into electrical energy in the most promising and progressive sources of alternative energy.

Wind energy : Wind energy is in form of kinetic energy. A blade of windmill is moved by blowing winds and could be exploited for doing work. Theoretically about 60% of the wind energy can be converted into other forms of energy. Wind mill farms are being set up in the world to exploit this energy at suitable places.

Geo-thermal energy: Geo-thermal energy can be used to produce electricity. However, the inner heat of the earth is not available everywhere which can be commercially exploited. Such potential has been found in Pegu valley in Jammu and Kashmir in India.

Tidal energy : Tidal energy associated with the kinetic energy of tides can be converted into electricity by using turbine. In the coastal areas this posibility is available.

Bio-mass energy: Bio-mass energy is being used in villages but improvement in method and scientific equipment can increase utilization. It reduces waste materials and gives cheap energy. Jathropa is a plant that produces diesel and it is pollution free. Besides the railways lines, Jathropa planting is in implementation. Hydrogen is also proved to be great advantageous sources of energy.

Nowadays, nuclear energy is gaining utmost importance. These alternative sources of energy promise a new horizon in suitable manner.

Materials and methods

Survey of 200 people through google forms (167), personal (33).

Results and Discussions

By our simple google form research we could generate ideas that people use more of petrol and diesel engine rather than electrical cars as its always bin a traditional from past generations. And people have become lazy that even when going to a near by store they use vehicle and this causes little combustion every now and then which combines to from air pollution. Yet through our research some people would like to choose electrical cars over traditional petrol/diesel engine cars and would choose to take cycles or walks to near by places .Out of 200 people survey about 75 people take public transport that's about 42% of people taking the bus & metro everyday. About 70 people use personal bike & scooters to travel to their destination, so that is about 40% of people travelling individually every day. About 21 people walk to their destination daily so that is about 12.3% walk to their colleges and schools every day. About 5% of the 200 users take individual car's travel alone, which means people travel alone every day, and their family members as well would be using another car or scooter and so on other families will follow such pattern which leads to traffic jam and pollution.

The rest 2% take cycles which we can add up that people use cycles less as a mean of transport on a daily basis. People logic can never be understood, they spend 10,000 and above to get a membership in a gym while instead they could buy a cycle at a lesser price and use it daily basis if the destination is near by , this method could be used to reduce air pollution as well as daily exercise to the body. Our research in various countries websites gave us many ideas that they use to bring down pollution and waste in our country. The following can be adopted to better sustainable environment by (i) replacing petrol/diesel car engines with electrical car engines in their favourite or old car (ii) using daily dumped waste as a form of electrical energy and (iii) the use of e- vehicles.

Conclusions

The human tend to find easy accessible energy rather than thinking about safe reusable energy, but the time is arriving where they have to use re-usable safe energies which may not hurt the earth or the living beings, by the methods we have accessed we can assure you that the earth can be a better place with it.

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E – WASTE MANAGEMENT

MAJOR HAZARDOUS COMPONENT OF E-WASTE, MERCURY

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Abstract

Rapid growth combined with rapid product obsolescence resulted in discarded electronics which is now the fastest growing waste stream in the industrialized world . E –waste contains many hazardous constituents that may negatively impact the environment and affect human health is not properly managed .With respect to countries like India, the current methods of storage, processing, recycling, and disposal of E –waste have immense potential to harm human health and environment .Because of lack of adequate infrastructure to manage wastes safely, these wastes are buried, burnt in the open air or dumped into surface water bodies. Crude ‘backyard’ recycling practices, which are not efficient and are highly polluting are also used in material recovery activities .Basically this paper presents about major hazardous component mercury ,e-waste containing mercury, ecological impact of mercury, mercury’s harm to humans, issue of e-waste with mercury, solutions, international projects on mercury waste. Environmentally sound management for e-waste implies that developing countries should involve the informal re-cycling industry because the latter plays an important part in waste management .

Keywords:-Hazardous, Mercury, e-waste, Infrastructure

1.Introduction

E-waste is defined as electronic waste and includes computers, televisions, cell phones, printers, PDAs, calculators, fax machines, DVD players, VCRs, radios, answering machines and similar products. The term EEE (electric and electronic equipment) overlaps with e-waste and includes larger appliances as well. While lead in e-waste has been much more carefully studied and the average amount of mercury per unit of e-waste may be "low" (2-10mg), the staggering demand for electronics worldwide makes mercury from e-waste a significant problem. In 1999, a report to the European Parliament estimated that 22% of mercury consumption worldwide is used in electronics.

When e-waste ends up in landfills, its toxins can leach into the surrounding soil, ground water and, in the case of mercury, some can vaporize into the air. Higher temperatures will hasten this process. In order to classify an item as hazardous or non-hazardous, the EPA has established testing called the Toxicity Characteristic Leaching Procedure (TCLP) to simulate what might happen as the waste decomposes in a municipal solid waste landfill. In the TCLP, 100 grams of the pulverized and homogenized material (for example a laptop) is mixed with one of several liquids and rotated for 18 hours. The resulting leachate is tested for chemical concentrations. If the leachate concentration exceeds 5mg/l for lead or 0.2mg/l for mercury, the item is considered hazardous waste (Townsend et al. 2004). The only item of e-waste which is currently regulated at the federal level is cathode ray tubes (CRTs) which are found in older computer monitors and televisions. An average CRT contains about 4 pounds of lead in its glass.

2. Mercury in your home

The heavy metal mercury is found in a lot of appliances and products we have in our homes. Mercury can be found in make-up, lightbulbs, heating & ventilation equipment, freezers, dyes, and of course electronics. Though not used as much as it used to be, mercury is still used in the batteries, backlight of LCD screens, switches, and printed circuit boards of personal computers

One question that has not been addressed by research is the impact on e-waste of the switch from CRTs to flat-screen LCD monitors. LCD monitors contain less lead than CRTs, but significantly more mercury, as the earlier and cheaper models use fluorescent lighting for their screens. Manufacturers have been moving towards reduced-mercury LCDs and, in some cases, mercury-free LCDs that use LED backlights. As with the issue of lighting, however, the LED monitors are more expensive than their fluorescent LCD cousins. In general, any item that has an LCD, particularly if it is inexpensive, is likely to contain some mercury. For those looking for a television, plasma technology is also mercury-free.

3. E- waste and mercury input into the environment

Electronic waste (e-waste) contributes many harmful substances to the environment. Mercury is one of these. Mercury can enter the environment through the improper disposal of fluorescent tubes, tilt switches (switches in thermostats and other mechanical devices), older computers, batteries and even paint (epa.gov). Once in the environment, mercury can have very harmful effects, especially because it does not filter quickly.

Mercury is used as a metal and compound for numerous industrial and household-related applications, such as the following (for liquid mercury): electrodes in chlorine-alkali equipment; electrical switches; thermometers; barometers; manometers. Liquid mercury is also used in fluorescent light bulbs (elemental mercury adsorbed at the fluorescent powder) and amalgam, nearly half of which is composed of mercury.

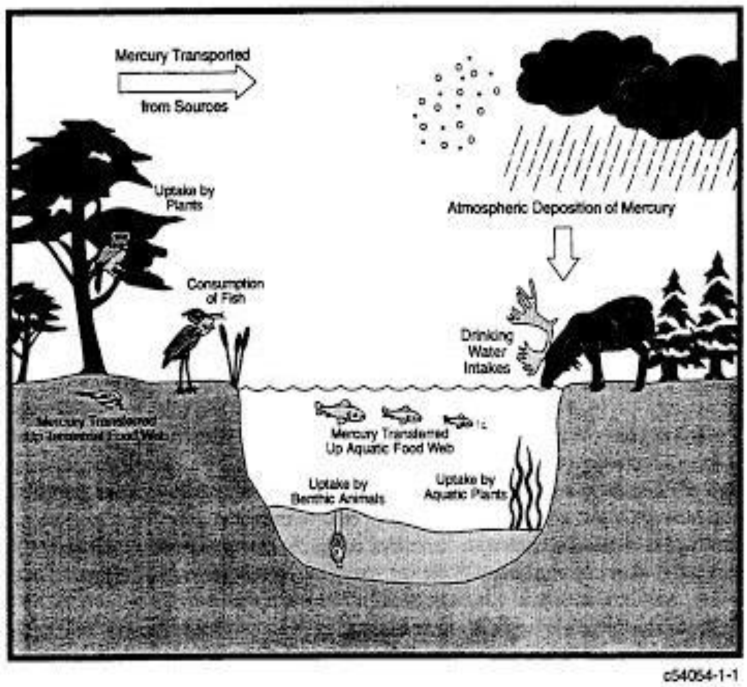

Figure 1. Possible routes of exposure to mercury

In many countries, elemental mercury is used for small scale gold mining operations. Mercury compounds are used for applications such as the following: chemical-industry catalysts; button cells; paint pigments; seed dressers; medical-product preservatives. These applications occasion a correspondingly large variety of waste. Many industrial processes such as coal combustion, natural-gas scrubbing, and metallurgy generate mercury that needs to be discharged and disposed.

4. Impacts of mercury

Mercury is a known toxic compound which has significantly increased its prevalence in natural ecosystems over the last 30 years (Mercury report to Congress, 1997).

Mercury can exist in the environment as either a gas, liquid or as solid particles. This enables mercury to enter ecosystems through multiple avenues. Mercury is most dangerous, however, when it reacts with other chemicals to form methyl mercury, an organic compound

- Data gathered by Watras et al. showed that "methyl-Hg is more efficiently transferred up aquatic food chains and less efficiently excreted that inorganic Hg" (Watras et al., 1992). This aspect of mercury means that it is able to "bioconcentrate, bioaccumulate and biomagnify. In fact, mercury is one of the few metals that is known to biomagnify in aquatic food webs" (Mercury report to congress, 1997).
- In addition, loading of mercury will not present itself as methyl mercury within an environment immediately (Orihel et al., 2006). Thus, the currently levels of methyl mercury measures are not reflective of the current levels of mercury loading, which are much higher now than they have been in the past. The implications of this are great and far reaching.

4.1 Bioaccumulation and biomagnification: Bioaccumulation refers to the uptake of a chemical in living organisms over time. Conversely, biomagnification is "the increase in chemical concentration in organisms at successively higher tropic levels in a food chain as a result of the ingestion of contaminated organisms at lowers trophic levels" (Mercury Reports to Congress, 1997). Initially, higher levels of mercury in larger organisms was thought to be a product of longer lifespan, however, studies have increasingly shown that higher concentrations are a result of biomagnification (Watras and Bloom, 1992; Morel et al. 1998). This effect is compounded by mercury's long retention time in soils; mercury can "continue to be released to surface waters for long periods of time, possibly hundreds of years" (Mercury report to congress; Johansson et al. 1991).

4.2 Ecological impacts: Organisms can be exposed to mercury through contact with exposed substances, such as earthworms in soil or fish in water, or through ingestion of already contaminated organisms or materials, such as grazers eating plants from contaminated soil (Mercury report to congress).

4.3 Mercury impact on plants: Mercury uptake by plants is extremely harmful. They show damage to structure and phytomass ,decreased amounts of chlorophyll, as well as plant death in some species (Mhatre, 1985; Sarkar and Jana, 1986).

4.4 Mercury impact on animals: The effects are dangerous to aquatic organisms as well. The effects of mercury on fish include death, reduced reproduction, impaired growth and development, behavioral abnormalities, altered blood chemistry, impaired osmoregulation, reduced feeding rates and predatory success, and effects on oxygen exchange;" mercury has can affect sensory processes as well, especially in humans (Mercury Report to Congress).

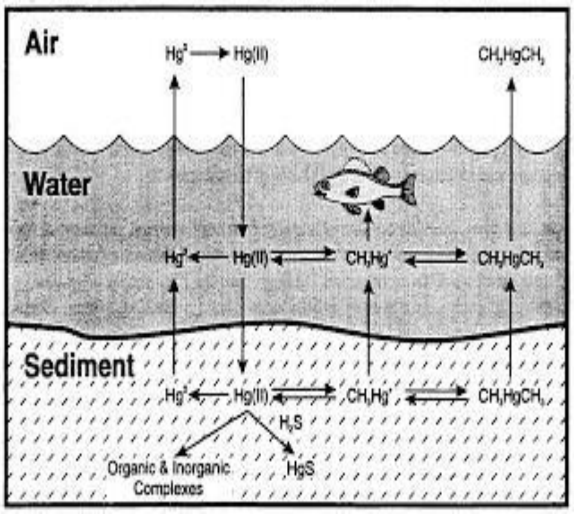

Figure 2: Cycling of mercury in fresh water lakes (adapted from Winfrey and Rudd, 1990)

4.5 Mercury's harm to humans: Mercury is a powerful toxic poison and is most harmful to humans when inhaled as mercury vapor or ingested as methylmercury through eating contaminated fish. Exposure to mercury can come with many side-effects, from minor to severe. Elemental mercury and all of its compounds are toxic, exposure to excessive levels can permanently damage or fatally injure the brain and kidneys. Mercury can also be absorbed through the skin and cause allergic reactions. Ingestion of the element can cause severe intestinal damage. Organic compounds of mercury (methyl mercury) are considered the most toxic forms of the element. Exposures to very small amounts of these compounds can result in very severe neurological damage and even death. For fetuses, infants and children, the health effects of mercury are on neurological development. Low levels of mercury exposure from a mother's diet can affect the brain and nervous system of the fetus. Impacts on memory, attention, language and other skills have been found in children exposed to moderate levels of the element.

4.6 Ecosystems at risk: At risk ecosystems for mercury absorption need to be particularly avoided when dealing with electronic waste. These ecosystems include areas with high concentrations of avian and aquatic organisms, as these are primary targets for mercury bioaccumulation. These areas particularly at risk due to the high levels of organismal exposure to the environmental system, and thus are more susceptible to the effects, even indirectly.

Electronics have proliferated in recent decades because they help us work more efficiently and live more conveniently. That in itself shouldn't be a problem. Indeed, daily efficiency and convenience are benefits of living in an industrialized society. The danger lies in how quickly we discard these items, whether because they've stopped working or because we just want something even more efficient and convenient. Throwing them away without regard to what happens to their toxic components is currently impacting the health of our neighbours, and if we don't change course soon, this careless disregard for harmful consequences will impact the health of our children and grandchildren as well.

5. Current relevance of mercury contamination

Scientists in North America are currently finding mercury substitutes to use in home appliances as well as electronics. Better waste management systems are also being proposed. In Sweden, the only acceptable disposal of mercury waste now consists of "final storage" of the treated waste deep underground, although some technical parts to this method are yet to be finished and other countries are questioning this method.

. Mercury is still used in a wide range of products and application, including fluorescent lamps, batteries, dental amalgam, scientific and medical instruments. All these products finally become wastes. Because mercury cannot be decomposed, it remains in the environment. Mercury waste should therefore be managed in an environmentally sound manner pursuant ot the Basel and Minamata conventions. You'll find mercury in many common items, from fluorescent lamps and batteries to blood pressure devices and thermometers. If inhaled, ingested, or contracted through an open wound, it can damage the nerves, liver and kidney, with symptoms such as muscle weakness, poor coordination, rashes, anxiety, memory problems, and difficulty seeing, hearing or speaking.

Recovered through a roasting process, mercury can be vaporized from the waste it is contained in. This roasting process involves hearting an object so much that its physical or chemical properties change. However, even at such high heats, it's important not to melt the substance. Nomura Kohsan roasts the mercury to a temperature between 600℃ and 800℃ to vaporize the mercury in waste. Then, the mercury vapor is recovered after it is encouraged to flow through a cooling tower and scrubber. There is a concern that small traces of mercury can get into the atmosphere, something that researchers have always been conscious of. However, to prevent this from happening, Nomura Kohsan uses a mercury adsorbent in the final process.

While northern India is not a leading generator, it happens to be the leading processing centres of e-waste in the country. Over 1 million poor people in India are involved in the manual recycling operations. Most of the people working in this recycling sector are the urban poor with very low literacy levels and hence very little awareness regarding the hazards of e-waste toxins. There are a sizeable number of women and children who are engaged in these activities and they are more vulnerable to the hazards of this waste.

6. Solutions

The most important factor, however, is awareness among people. Unfortunately, there is very little opportunity for the people working in the informal recycling industry to know that their environmentally unsound techniques might cause adverse effects to their health and environment. It is noted that access to education is very low for those people. This makes it more difficult to find educational opportunities or other jobs for family members. In addition, it is difficult for them to access social services, such as health care. Thus, on the one hand, people are susceptible to serious health problems caused by the environmentally unsound manner in which they deal with EEE; and, on the other, themselves cause various kinds of environmental pollution.

In addition, a public sector or other organization needs to regularly implement an environmental education programme or other related programmes, such as dissemination of publications and guidebooks, house-to-house visits, and so on, to people working in the informal recycling industry, and provide protective gear to them. Furthermore, the public sector and other organizations need to check the working environment of the informal recycling sector for occupational health concerns and direct the informal sectors to create better working environments. A public sector and/or other organization, such as international organizations and donors, have to invest in environmental infrastructure, such as wastewater treatment plants, landfill sites, and so on.

An informal recycling complex is generally not equipped with any wastewater treatment system and discharges wastewater containing hazardous chemicals directly into a river. It also disposes of wastes containing hazardous chemicals into a nearby environment, such as river banks. If wastewater treatment facilities and landfill sites are invested in and managed by the authorities concerned, such as a public sector, these would at least prevent any environmental contamination due to discharge of wastewater and solid wastes from the informal recycling complex into the environment. After this initial step it is time to consider how to develop a legally binding environmentally sound management of e-waste. The most important factor is to assist and support the informal recycling industry in order to utilize their recycling activities in an environmentally sound manner.

7. International projects on mercury waste

As an international activity on mercury waste, the Secretariat of the Basel Convention (SBC), in cooperation with United Nations Environment Programme (UNEP) Chemicals, initiated the project on mercury waste.27 In its first phase, it drafted technical guidelines on the environmentally sound management of mercury waste.28 In addition, UNEP Chemicals initiated a voluntary mercury management programme as one of the UNEP global mercury partnership programmes (UNEP 2008).29 The issue of mercury waste is recognized globally, and global activities for an environmentally sound management of mercury waste are undertaken by intergovernmental organizations. It might be possible to develop and implement a project or related plan to implement an environmentally sound management of mercury waste and ewaste with intergovernmental organizations and other donors. Further research or projects on mercury and ewaste would be implemented.

8. Conclusions

With the speculation that mercury contained in e-waste is being released into the environment, the following conclusions have been reached:

- It is highly possible that mercury contained in e-waste is released to the environment because of the current environmentally unsound e-waste management mechanisms in most developing countries;
- Recyclers in the informal recycling industry, dealing with e-waste containing mercury, seem to face a possibility of mercury vapour exposure due to their environmentally unsound techniques. For an environmentally sound management of e-waste in the informal recycling industry, the following are suggested:
- Awareness-raising activities should be undertaken before the introduction of environmentally sound management and technologies implemented in other countries;

- It is important to coordinate between the informal recycling industry and a public sector in charge of a legal waste management;
- A mechanism for waste management involving the informal recycling sector is that a public sector supports and assists the informal recycling industry towards an implementation of an environmentally sound manner, and minimizes various kinds of wastes discharged from the informal sector by the public sector.
- The more electronics we discard, the greater the environmental and health dangers for everyone.

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MATHEMATICS FOR ENVIRONMENTAL SCIENCE

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Abstract

To improve the quality of life and create an environment in which human beings live in harmony with nature, it is necessary to evaluate the effects of human activities and predict the results under various conditions. To do this, mathematical and statistical models along with computing techniques play essential roles. The main purpose of this is to provide the education of mathematical and statistical sciences, with an emphasis on their application to environmental problems. It provides students with fundamental knowledge of mathematics, statistics and computer science, and educates them to be mathematical scientists with special application to environmental analysis.

Keywords:

1. Introduction

Environmental Science is the basic purpose is to teach various types of mathematical structures and how they can be applied in a broad range of environmental science subfields. Derivatives and integrals, ordinary and partial differential equations, and linear and non-linear algebraic equations are the basic kinds of mathematical structures that can be implemented in environmental science.

Recently, applied mathematics has gained growing importance in order to analyze and estimate mathematical models and statistical models for environmental problems. Such fields as discrete optimization and combinatorics, mathematical modeling via algebras, topology and various equations, and the theory of mathematical systems, including linear and nonlinear programming and stochastic algorithm, provide effective theory for solving extensive problems involving traffic affairs, environmental pollution and destruction of ecological systems. It pursues education of applied discrete mathematics, mathematical modeling and system mathematical science, which are applicable to existing environmental problems.

2. Relationship between mathematics and the environment

Mathematics provides a number of ways to describe relationships among elements of the environment, such as the weather, the flow of water and nutrients in streams the volume of water in a flood, behaviour of wind and water currents in the atmosphere, and calculating a water balance between downward flows (rain), surface flows (runoff, soil penetration), and upward flows (evaporation from water bodies, transpiration from biomass). Maths can be used to describe the difference between current conditions and historical conditions, such as droughts and floods.

Maths are also used to describe and estimate complex interactions among components of the natural environment. These are often called models. A simple model is a thermometer: some colored liquid rises and drops within a very narrow glass tube based on temperature. The thermometer is not “the temperature” but rather a close estimate of the temperature based on physics and thermodynamics. Complex models for various aspects of the environment are described with computer programs.

Maths are really part of the foundations for all the natural sciences, including chemistry (mass balances and interactions of elements and molecules), physics (fundamental relationships between particles, forces and motion), thermodynamics, and electromagnetics, which includes properties and behaviour of visible light, radio waves, and other wave-based phenomena. Possibly the hardest aspects of natural science to model with maths are biology and ecosystems, because of their complexity.

Mathematics related to the environment is in the area of Geographic Information Systems (GIS), these computational tools can solve for spatial relationships such as intersection, containment, adjacency (geometric math), useful for computing and applying spatial, statistical, topological, and other measures to movements of animals, people, and business.

3. Mathematics for Environmental Studies

In order to solve our environmental problems, which cover a wide area including ecological systems, weather and ocean, it is effective to quantize and analyse these systems as mathematical models. Thus development of the technique to construct, apply and estimate the mathematical models is of great importance. It pursues researches as mathematical modelling of environmental problems, their analysis by using the theory of mathematical science and computer simulation, and evaluation of validity of the models. The educational policy is to foster specialists of environmental problems who are versed in theory of mathematical science, especially differential equations, and computer simulation.

4. Statistics for Environmental Studies

To evaluate quantitatively the effects of human activities on the environment, it is necessary to collect many kinds and large amounts of data and analyse them properly. Cause-effect relationships are not clear in environmental data because usually observed data contain random variations and there exist confounding factors. In order to find proper models under such conditions it is necessary to apply complex statistical models with careful diagnostic checking by using computers. It offers studies of theory and application of statistical analysis, environmental statistical modelling and statistical computing.

5. Solutions for environmental issues using mathematics

5.1 Designing better weather forecasts and climate models: Accurate weather forecasts predict when and where extreme weather may strike, whilst climate projections are key to identifying weather patterns changing on a longer time scale. Our ability to predict weather and climate has advanced in leaps and bounds in the last few decades, thanks to maths. Modern weather forecasts rely on computers to solve the complex equations that simulate the atmosphere's behaviour – from global processes that influence the flow of the jet stream down to local rain clouds. Mathematicians play an important role in this process, working with a set of equations that describe the atmosphere, taking into account temperature, pressure and humidity.

5.2 Supercomputers and their magic: We already know the gigantic potential supercomputers have bestowed in them. They can do nearly everything that can be possibly undertaken by computers. Year by year, supercomputers are advancing and becoming more apt in dealing with amultitude of problems, and all of this occurs because of mathematics. Technological improvements are made with the help of algorithms, quantum computing, etc. and clearly, it is a game of numbers. These benefits have been employed in ensuring optimum performance of computers, saving energy and putting less pressure on natural resources.

5.3 Making the most of renewable energy sources: Optimising the layout of wind turbines enables them to harvest more energy. Renewable energy sources lie at the heart of a low-carbon world. By choosing optimal locations for wind or solar farms and designing the most effective layouts for tidal and wind turbine arrays, mathematicians ensure that these technologies harvest the maximum energy as efficiently as possible. Mathematicians contribute to research into energy supply and demand that ensures networks incorporate higher proportions of weather-dependent energy sources such as wind or solar power, making sure that the lights stay on in years to come.

5.4 Developing new technologies: Mathematical modelling is key to the development of new technologies such as CCS. New technologies are key to a low carbon future. Carbon capture and storage (CCS), for instance, could safely lock away greenhouse gases emitted by fossil fuel-fired power stations, and is likely to play a key role in averting dangerous levels of global warming. Detailed mathematical models make this research possible by using sophisticated logistics methods, network analysis, statistical modelling and many other mathematical tools.

5.5 Making maths accessible to everyone: Crucially, maths can't save the planet on its own. Many of the global challenges we face are multi-disciplinary: overcoming them requires mathematicians to collaborate with scientists and engineers in different fields. For maths to have a real impact on our environment, mathematicians therefore need to communicate the importance of their work clearly and effectively, knowing when to swap complicated equations. Opening up maths up for the world to understand might just be the best way that we can come to our environment rescue.

6. Conclusions

Maths is very much essential for all engineering specializations in general. In environmental engineering, it is widely used for modelling which can explain and predict various biological, biochemical, and chemical phenomenon in water and waste water treatment, air pollution, solid waste management, etc. Extensive statistical analysis is used in environmental impact assessment. Mathematical sciences (Environmental sciences) gives opportunity to explore applications of mathematical, statistical and data science techniques for addressing important environmental challenges-from understanding the molecular biology of diseases to geophysical phenomena in climate change.

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ALTERNATE ENERGY RESOURCES

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Abstract:

The purpose of this study is to understand alternate energy resources and their advantages. Alternative energy sources can be described as energy that actually won't pollute as much as fossil fuel, lower in cost and comes from sources of which we won't run out of. It is quite different from renewable energy. Alternative energy is deemed "renewable", the reason being it comes from energy that is refillable by natural processes upon usage. Examples of alternative energy are nuclear, solar, wind and hydroelectric power. How can alternative energy sources be beneficial for the environment without being costly? Studies indicate that energy efficiency technologies cost substantially less than building or purchasing new energy supply. Also reducing usage lowers operating costs and can help make industry, farms, and merchants more economically competitive. Solar and wind technologies are emissions-free at the point of use, emissions from biomass are lower than comparable conventional fuels, and energy efficiency, by definition, reduces energy consumption, which results in fewer emissions. Finally, using these alternative sources will create fresher air, eliminate over half of the pollution caused by fossil fuels, and protect our earth a lot longer. This paper discusses types of alternate energy resources along with advantages and demerits if any.

Key words: Renewable, Refillable, Greenhouse gases, Fewer emissions, Bio Mass

1. Introduction

Within the next few years, one can expect to see a vast change in the way that mankind harnesses energy. Alternate energy resources will play a colossal role in what has become the generation's largest challenge - limited supplies of fossil fuels. Any energy other than fossil fuels is defined as alternative energy source. It is the alternative to what is being done for years. Scientists have been working for years to develop alternative methods to power the globe, given that materials such as coal and oil are not renewable resources. Once they are used up, they are gone forever. New forms of energy have to be developed. But what other sources are there and where will each work best? With fuel prices increasing every year and the theory that CO_2 emissions from coal and petroleum products are heating up the globe, the necessity of alternate energy sources becomes more crucial. There are many types of alternative energy sources. The different energy sources are hydro and solar power, wind, biomass and geothermal energy. Throughout the world people don't recognize that we use these energy sources every day for our own personal use. The energy sources are not only free but they are also renewable. It is a little more costly to use these energy sources, but going green is what's best for our environment. Using these alternative sources will create fresher air, eliminate over half of the pollution caused by fossil fuels, and protect our earth a lot longer. This paper deals with six forms of alternate energy sources – solar, wind, tidal/ wave, geothermal, biomass and hydrogen fuel. It presents how these energy resources are currently being used, scientific developments to improve their use, their future prospects, and their deployment.

2. Alternate Energy Resources

Within our three focus technologies - wind, solar and tidal/wave - there are a variety of subset technologies. Table 1 provides descriptions.

2.1 Solar energy: Solar energy is the energy obtained from the sun. It is the main source of energy on earth. Solar energy has been used by humans for thousands of years. People would use it to help start fires or to keep their houses warm. But it was not until 1839 that photovoltaic activity was first shown by Edmond Becquerel. He noticed that certain materials, when exposed to light, could increase their electrical current. In 1905 Albert Einstein clearly described the photoelectric effect, which is the principle on which photovoltaic is based. In 1954, scientists found that silicon found in sand created an electric charge when it was exposed to sunlight. The first long term practical use of solar cells was in that of a satellite called Vanguard 1 in 1958. This satellite was powered completely by the sun and proved just how efficient that solar electricity could become. After the energy crisis in the 1970's, people began to realize how dependent we were on non- renewable resources and solar energy as a result became much more popular. These days solar heating is used in homes and for the work places. Solar power doesn't create pollution. But the equipment used to produce solar energy does. The downside to solar power is that it only works during the day, while the sun is shining. So, when the sun isn't shining solar energy doesn't meet its full potential, and that's where fossil fuels come in. Although it does pollute our earth, it is way more convenient and is much more inexpensive.

2.2 Wind energy: Anything that moves has kinetic energy, and scientists and engineers are using the wind's kinetic energy to generate electricity. Wind energy, or wind power, is created using a wind turbine, a device that channels the power of the wind to generate electricity. Small, individual wind turbines can produce 100 kilowatts of power, enough to power a home. Small wind turbines are also used for places like water pumping stations. Slightly larger wind turbines sit on towers that are as tall as 80 meters (260 feet) and have rotor blades that extend approximately 40 meters (130 feet) long. These turbines can generate 1.8 megawatts of power. Even larger wind turbines can be found perched on towers that stand 240 meters (787 feet) tall have rotor blades more than 162 meters (531 feet) long. These large turbines can generate anywhere from 4.8 to 9.5 megawatts of power. Once the electricity is generated, it can be used, connected to the electrical grid, or stored for future use.

Alternative Energy Source	Technology Types	Technical Characteristics
Solar	Silicon Crystalline Photovoltaics (PV)	The most common PV panels on the market, made from mono or polycrystalline silicon, which converts sunlight directly into direct current (DC) electricity. Conversion efficiency of 16% - 17%.
	Thin Film Photovoltaics (PV)	A less common technology in the global market, but represents 30% of the US PV market. Panels use flexible materials like copper indium diselenide or cadmium telluride and some thin silicon designs, and can be mass produced at low cost. Lower efficiencies of around 8% - 11%.
	Concentrating Solar Power (CSP)	Straightforward technology requiring a concentrator (mirrors, for example, that concentrate the suns rays), a receiver (a pipe or other surface that comes in contact with some material that stores the suns heat), a heat transport mechanism (a material capable of storing the suns heat and transferring it through a heat exchanger to the water which will create steam) and a conversion system (a turbine) that drives the electrical generator.
Tidal/Wave	Tidal Barrage	An estuary or bay with a large natural tidal range is artificially enclosed with a barrage. Electrical energy is produced by allowing water to flow from one side of the barrage through low head turbines
	Tidal Current	Technologies are similar to those used for wind energy conversion, that is, turbines of horizontal or vertical axes ("cross-flow" turbines) capture energy in the tidal currents. The density of water is some 850 times higher than that of air, so the power intensity in water currents is significantly higher than that in airflows, therefore water current turbines can be built much smaller than an equivalent-powered wind turbine
	Wave	Wave energy technologies capture the undulations of the ocean caused by wind or ocean motion and turn them into electricity through various turbine functions.
Wind	Onshore	The more conventional and well understood wind turbines that range from a few hundred kW in power to 2-3 MW. Placed on land.
	Offshore	The newer and more expensive turbines built to be installed on the ocean and capable of up to 5MW of power. Must be engineered to withstand the increased forces of wind on the ocean and the rough seas.

Table 1. Technologies for electrical generation from solar, wind and tidal/wave energy

The United States Department of Energy is working with the National Laboratories to develop and improve technologies, such as batteries and pumped-storage hydropower so that they can be used to store excess wind energy. Companies like General Electric install batteries along with their wind turbines so that as the electricity is generated from wind energy, it can be stored right away.

According to the U.S. Geological Survey, there are 57,000 wind turbines in the United States, both on land and offshore. Wind turbines can be standalone structures, or they can be clustered together in what is known as a wind farm. While one turbine can generate enough electricity to support the energy needs of a single home, a wind farm can generate far more electricity, enough to power thousands of homes. Wind farms are usually located on top of a mountain or in an otherwise windy place in order to take advantage of natural winds.

2.3 Tidal /Wave energy: Tidal and wave technology are a subgroup of Ocean Technologies. The first bona-fide tidal energy plant was constructed in France, at La Rance in Brittany between 1961 and 1967. It consisted of a barrage across a tidal estuary that utilized the rise and fall in sea level induced by the tides to generate electricity from hydro turbines.

Tidal energy generators are mainly divided into two categories: underwater turbines and hydrokinetic generators. Underwater turbines are simply freestanding turbines / propellers that can be grounded to the bottom of the ocean or the bottom of a tidal inlet. Hydrokinetic generators are more similar to existing hydroelectric power generation systems that are used in rivers throughout the world. However, rather than using a dam system or tidal barrage, which would create a structural barrier across a tidal inlet, hydrokinetic generators can be freestanding like the underwater turbines, and thereby are proven to have far fewer deleterious environmental impacts on marine ecosystems.

There are many different established tidal and wave technology designs in use or in various phases of testing. It is believed that the world could cover a significant portion of its electricity demand from tidal and wave energy sources. The potential global energy contribution to the electricity market from wave technology is estimated to be approximately 2000 TW/year, which is equal to 10% of world electricity consumption. The global tidal range energy potential is estimated at approximately 3000 GW, with around 1000 GW (~3800 TW/year) available in shallow waters. Tidal energy conversion technologies are predicted to supply up to 48 TW/year from sites around Europe. While research and development on ocean energy exploitation is being conducted in several countries around the world, the technologies for energy conversion have not yet progressed to the point of large scale electricity generation. This is partially due to the rough and unpredictable ocean conditions where these technologies have to operate. Meanwhile though, advances in ocean engineering have improved the technology for ocean energy conversion. Advances in some areas of the technology could achieve the goal of commercial power production before 2010.

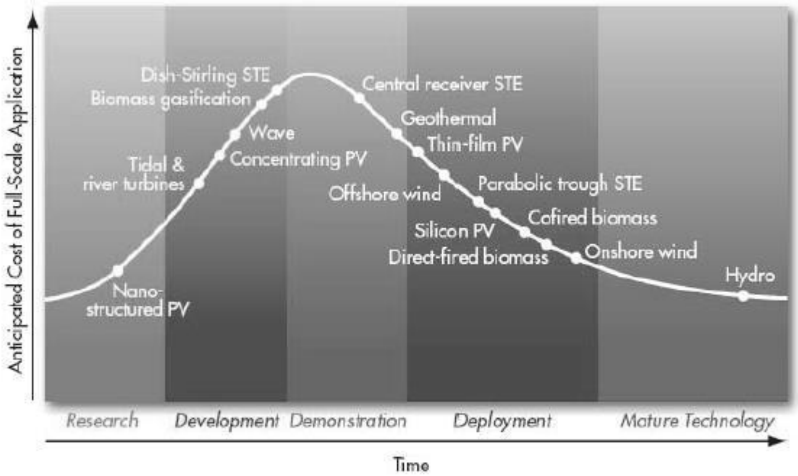

Figure. 1 Developmental stages of tidal and wave technologies

The graph (Fig. 1) demonstrates that tidal and wave technologies are still in the development stages, signaling both a high cost and a rising cost as they follow the curve towards demonstration. Further along the cost curve in the demonstration phase, central receiver STE, a version of concentrating solar power that uses tracking mirrors to concentrate the sun's rays on a central heating tower, is at the highest cost point and just beginning move towards the deployment stage. Silicon PV is the furthest along in terms of affordable price, but in real terms it is still very expensive and requires generous subsidies to compete in the technology market. The final technology we are focusing our research on, wind, shows two vastly different costs for offshore and onshore deployed technology. Offshore wind is experiencing a growing market, but still suffers from high costs due to the sheer size of the turbines - they are designed to produce up to 5MW per turbine and tend to be several hundred feet tall - the cost of designing turbines that can resist the increased pressures of high winds, rough water, and salt corrosion, and the difficult and costly underwater electrical transmission infrastructure - not to mention environmental permitting costs of offshore development.

2.4 Geothermal energy: Geothermal energy is thermal energy generated and stored in the Earth. Thermal energy is the energy that determines the temperature of matter. The geothermal energy of the Earth's crust originates from the original formation of the planet and from radioactive decay of materials (in currently uncertain but possibly roughly equal proportions). The geothermal gradient, which is the difference in temperature between the core of the planet and its surface, drives a continuous conduction of thermal energy in the form of heat from the core to the surface. The adjective geothermal originates from the Greek roots (ge), meaning earth, and (thermos), meaning hot.

Earth's internal heat is thermal energy generated from radioactive decay and continual heat loss from Earth's formation. Temperatures at the core–mantle boundary may reach over 4000 °C (7,200 °F). The high temperature and pressure in Earth's interior cause some rock to melt and solid mantle to behave plastically, resulting in portions of the mantle convicting upward since it is lighter than the surrounding rock. Rock and water is heated in the crust, sometimes up to 370 °C **(700 °F).**

With water from hot springs, geothermal energy has been used for bathing since Paleolithic times and for space heating since ancient Roman times, but it is now better known for electricity generation. Worldwide, 11,700 megawatts (MW) of geothermal power was available in 2013.[6] An additional 28 gigawatts of direct geothermal heating capacity is installed for district heating, space heating, spas, industrial processes, desalination and agricultural applications as of 2010.

Geothermal power is cost-effective, reliable, sustainable, and environmentally friendly,[8] but has historically been limited to areas near tectonic plate boundaries. Recent technological advances have dramatically expanded the range and size of viable resources, especially for applications such as home heating, opening a potential for widespread exploitation. Geothermal wells release greenhouse gases trapped deep within the earth, but these emissions are much lower per energy unit than those of fossil fuels.

2.5 Bioenergy: The weight or total quantity of living organisms of one animal or plant species (species biomass) or of all the species in a community (community biomass), commonly referred to a unit area or volume of habitat. The weight or quantity of organisms in an area at a given moment is the standing crop. The total amount of organic material produced by living organisms in a particular area within a set period of time, called the primary or secondary productivity (the former for plants, the latter for animals), is usually measured in units of energy, such as gram calories or kilojoules per square metre per year. Measures of weight—e.g., tons of carbon per square kilometre per year or gigatons of carbon per year—are also commonly recorded.In a different though related sense, the term biomass refers to plant materials and animal waste used especially as a source of fuel. Biomass contains stored energy from the sun. Plants absorb the sun's energy in a process called photosynthesis. When biomass is burned, the chemical energy in biomass is released as heat. Biomass can be burned directly or converted to liquid biofuels or biogas that can be burned as fuels.

2.6 Hydrogen the fuel for 21st century: Hydrogen gas is now considered to be the most promising fuel of the future.. In the last one decade hydrogen has attracted worldwide interest as a secondary energy carrier. This has generated comprehensive investigations on the technology involved and how to solve the problems of production, storage and transportation of hydrogen. The interest in hydrogen as energy of the future is due to it being a clean energy, most abundant element in the universe, the lightest fuel, richest in energy per unit mass and unlike electricity, it can be easily stored. In future it will be used in various applications, e.g. it can generate electricity, useful in cooking food, fuel for automobiles, hydrogen powered industries, jet planes, Hydrogen Village and for all our domestic energy requirements.

Hydrogen as a fuel has already found applications in experimental cars and all the major car companies are in competition to build a commercial car and most probably they may market hydrogen fuel automobiles in near future but at a higher cost compared to gasoline cars but it is expected that with time the cost of hydrogen run cars will decrease with time. Long lasting, light and clean metal hydride batteries are already commercial for lap top computers. Larger capacity batteries are being developed for electrical cars. Hydrogen is already being used as the fuel of choice for space programs around the world. It will be used to power aerospace transports to build the international space station, as well as to provide electricity and portable water for its inhabitants.

3. Indian scenario

India is the fifth largest primary energy consumer and fourth largest petroleum consumer after USA, China, and Japan. Despite the global economic crisis, India's economy is expected to grow at 6 to 8 %/year. There is an extreme dependence on petroleum products with considerable risks and environmental issues. Petroleum-derived transport fuels are of limited availability and contribute to global warming, making renewable biofuel as the best alternative. The focus on biogas and biomass-based energy, such as bioethanol and biohydrogen, will enhance cost-effectiveness and provide an opportunity for the rural community. Among all energy sources, microalgae have received, so far, more attention due to their facile adaptability to grow in the photobioreactors or open ponds, high yields, and multiple applications. Microalgae can produce a substantial amount of triacylglycerols as a storage lipid under photooxidative stress or other adverse environmental conditions. In addition to renewable biofuels, they can provide different types of high-value bioproducts added to their advantages, such as higher photosynthetic efficiency, higher biomass production, and faster growth compared to any other energy crops. The viability of first-generation biofuels production is, however, questionable because of the conflict with food supply. In the future, biofuels should ideally create the environmental, economic, and social benefits to the communities and reflect energy efficiency so as to plan a road map for the industry to produce third-generation biofuels.

4. Conclusions

As the issues that result from the use of traditional fossil fuels become more prominent, alternative fuel sources like the ones mentioned here are likely to gain further importance. Thus, in the recent years search for alternative sources of energy has given good results. Their benefits alleviate many of the problems caused by fossil fuel use, particularly when it comes to emissions If they are properly put into use, we can be self-sufficient and can look towards sustainable development. Alternative energy sources are throughout the world and it is safer and cheaper than fossil fuels. . However, the advancement of some of these technologies has been slowed down due to the amount of investment needed to make them viable. Through combining them all we may be able to positively affect issues like climate change, pollution and many others. Polluting the world isn't good thing so people should care for their home seriously.

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A STUDY ON WASTE MANAGEMENT WITH REFERENCE TO BBMP IN BENGALURU

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Abstract:

Waste management is one of the major environmental problems and one of the most neglected aspects of Indian cities. Improper management of waste causes hazards to all the living creatures on the earth. At present about 90% of waste is disposed of unscientifically in open dumps and landfill, creating problems to public health and the environment.

Most wastes are generated in urban areas; hence this is a study on how Bengaluru (a famous metropolitan city) operates with its waste management process. As a citizen of India it's all our duty to focus on this problem. In this

study an attempt has been made to provide the whole picture of generation, collection, transportation, disposal and treatment of the waste by BBMP. This includes an evaluation of the current status, identification of major problems of BBMP and future estimation of waste.

Here are some fruitful suggestions, which may be useful for the improvement of the present system and some solutions to overcome from the harmful effects of unhealthy, unscientific way of present waste management. This study is concluded by giving an idea for the best management of the waste to rebuild our nation.

Keywords: BBMP, Waste management, biodegradable, domestic, hazardous

1. Introduction

The Bruhat Bengaluru Mahanagara Palike(BBMP), is the administration body responsible for civic amenities and some infrastructural assets of the grater Bangalore metropolitan area.it is the 4th largest municipal corporation in India responsible for a population of 6.8 million in area of 741 km^2. Bengaluru city was famous as garden city but gradually the name has changed to garbage city. The current city reviews how the city of Bengaluru, which is typical fast expanding city in India, manages its solid waste through BBMP entrusted with responsibility.

The waste generation rates are increasing and the characteristics are changing with increase in population explosion, industrial development, and living standards, particularly in growing cities such as Bengaluru. Due to financial constraints proper waste management is not in place .For long, municipal solid waste management has not been recognised as a major attribute for pollution of air, water etc.

For evaluation of proper management of solid waste its necessary to review the status of the current scenario of its collection and disposal methods.

The main objectives of the present study are:

- The main objective of this study is to know the whole process of waste management , generation ,collection, transportation, disposal and treatment of waste by BBMP in Bengaluru city.
- To evaluate the current status of waste management system and suggest some idea to improve or reduce the waste generation in Bengaluru.
- To provide future estimation of waste according to BBMP
- To give some fruitful suggestion for better waste management.

The present study is thus can be used (i) to study control measures on different types of pollution, (ii)to learn the process of recycling of hazardous wastes for future production and (iii)to study on how to stop the spread of infectious diseases.

2. Materials and Methods

This study is based on secondary data which has been collected through websites, magazines, government reports, books, research papers etc. This is a conceptual paper developed on the basis of review from literature and other e-references.

Limitations:

- This paper is based on conceptual study from various books, newspaper articles websites and other secondary resources.
- Our study is only restricted to limited area that is only on Bengaluru city.

3. Results and discussion

According to BBMP data, at present the city currently produces 5757 tonnes of garbage per day. BBMP is spending nearly Rs.1000 Crore on solid waste management annually.The new action plan of waste management targets 90% segregation by September and 100% by December 2019. At present about 90% of waste is disposed unscientifically in open dumps and landfill, creating problems to public health and the environment.

3.1 Process of waste Management by BBMP:

3.1.1 Waste generation: Generation of waste includes quantity of materials or products that enter a waste stream before composting, incineration, landfilling or recycling.

According to BBMP figures, at present the city currently produces 5757 tonnes of garbage per day. In 2014-15, Bengaluru produced 2500-3000 tonnes per day, indicating that the production of solid waste in city has doubled. The major reason might the increase in population (accounting for 46.68% growth in a decade from 5.7 million in 2001 to 9.6 million in 201.

3.1.2 Waste collection and segregation: BBMP aims for 100% door to door collection levels of waste, wet waste will be picked up during door to door collection everyday while dry waste will be collected twice a week. Mixed waste will not be accepted, and fines will be levied on households that fail to abide by the rules. A total of Rs.12 lakh has been imposed as fine on apartment complexes. In the first stage Auto tipper/autos and pushcarts are used for primary collection of waste from houses, slums, shops in the door to door collection and street sweeping. BBMP is spending nearly Rs.1000Crore on solid waste management annually. BBMP collects the waste from different sources:

1. House to House collection
2. Vegetable/ fruit market place
3. Construction and demolition place
4. Collection from public places like park, hotels, marriage and others
5. Point to point collection

(i) **House to house collection**: auto tippers/ autos and push carts are used for primary collection of waste from house, slums, shops etc. For every 1000 households auto tipper will be provided. The house hold should segregate the waste as dry and wet waste .only wet waste will be picked up during door to door collection everyday while dry waste will be collected twice a week. Mixed waste will not be accepted, and fines will be levied on house-holds that fails to follow rules.

(ii) **Vegetable/fruit market place**; separate system has been put in place to collect waste from large vegetable and fruit markets .vendors are directed to store the waste in their premises and will be collected by pourakarmikas.

(iii) **Construction/demolition place;** sand, earth, bricks, building, materials etc. will be collected in order to eliminate dumping on roads and footpaths causing hazards to traffic and public.

(iv) **Collection from hotels etc.;** a separate system has been put to collect waste from waste producers, restaurants, marriage halls

(v) **Collection from public places:** some wastes will be dumped near parks, free places ,near bus stops etc. those mixed waste will be collected separately and it's a punishable offence to dump in free areas

(vi) **Point to point collection**- for the areas which are inaccessible for daily collection vehicles/pushcart, BBMP will designate collection point /location where segregated solid waste will be deposited by the waste generator. From these notified point to point collection place BBMP will carry the waste for processing and disposal.

Waste segregation refers to the separation of wet waste and dry waste, the purpose is to recycle dry waste easily and to use wet waste as compact. Segregation of waste has been done at the initial stage of waste collection i.e. the households are required to segregate their wastes into different categories. Segregation is done at source. The new action plan of waste management targets 90% segregation by September and 100% by December

BBMP's draft bye-law says that the waste generators have to segregate solid waste at source of generation into following categories,

1. Wet waste (bio degradable).
2. Dry waste(non- biodegradable)
3. Domestic hazardous waste(including sanitary napkins ,diapers, tampons)
4. Construction and demolition waste
5. garden and horticulture waste
6. e waste

Colours of bins should be;

1. Green - bio-degradable/wet waste
2. Blue- non bio-degradable/dry waste
3. Red-domestic hazardous and sanitary waste.

3.1.3 Transportation of waste: BBMP has different suitable vehicles for collection of segregated solid wastes including auto tippers or vehicles having separate compartment s for segregated waste.to the place where motorised vehicle cannot operate, BBMP assigned manually driven well designed push carts with separate bins for collection.

The waste collected from various sources highly from households will be transported to larger secondary transport vehicle such as compactors at secondary transfer points and secondary storage points. Each primary vehicle will be assigned a secondary storage point where the segregated solid waste shall be transferred without manual waste handling, directly into secondary transportation vehicle. Such storage point will be identified in the ward micro plan and located at shortest distance from primary collection area.

Each secondary vehicle will have a destination of a processing facility, material recovery facility, disposal based on category of the solid waste that it received , hence transfer of segregated solid waste will be bin to bin and vehicle to vehicle.

BBMP also enabled live GPS tracking for all these vehicles including primary collection vehicle and secondary transportation vehicle to ensure monitoring of collection and transportation of solid waste.

(i) Processing: BBMP had set up dry waste collection centres or materials recovery facilities in its wards. Dry waste collection centres (DWCC) facilitates the stream lining process of waste management in the city, by concentrating exclusively on dry waste. They are equipped with appropriate infrastructure capable of purchasing , collecting, aggregating and processing both high value and low value dry waste such as plastics, paper, glass, tetra packs, etc.

The city planned for 1 DWCC per ward of which it has built 189 centres. It’s a destination for the dry waste. A portion in DWCC will be earmarked and developed as a deposit centre for domestic hazardous waste.

(i) Processing of the bio- degradable waste(wet waste):

Decentralised and centralised processing such as composting, vermin-composting, microbial composting, aerobic composting, anaerobic digestion, bio methanation is followed for processing of bio degradable waste.it will be also used as animal feed, manure, gobar gas, electricity.

(ii) Processing of recyclable non- bio degradable waste(dry waste):

The recyclable and non- bio degradable waste will be sent to-

a. Dry waste collection centres, materials recovery facilities for sorting and bailing of dry waste and thereafter to authorised recycling units
b. Directly to authorised recycling units to turn into raw materials for producing new products.

(iii) Processing of domestic hazardous waste(including sanitary):

It will be processed through TSDF (treatment storage disposal facility) or any other. Sanitary waste will be processed at nearest common bio medical treatment facility along with other bio medical waste generated. Only process rejects from these processing methods will be transported to sanitary landfills for final disposal.

(iv) Processing of non- bio degradable ,non- recyclable waste:

These will be used for waste to energy processes, solid waste power based plants or cement kilns.

(v) Processing of construction and demolition waste:

It will be processed and transported to appropriate processing plans, landfills and other designated locations.

3.1.4 Disposal : The residual solid waste and inert which cannot be processed in any method will be disposed in a sanitary landfill in a scientific manner .all rejects ,residues and surplus unprocessed waste will be temporarily stored at a place convenient for delivery to the notified collection system.

Biomedical waste, E waste, hazardous waste and industrial waste will be collected processed and disposed of according to relevant rules framed under environment protection act

Disposal by burning of any type of solid waste at any premises, roadside, any private or public places including vacant sites is strictly prohibited and will attract penalty.

3.1.5 Treatment of waste:

Table1 explains the segregation and disposal of different types of wastes

Types of waste	How to dispose	Collection process	Where to keep
Wet waste	To be unloaded directly into collection bin.	Will not collect if mixed with other types of waste	To be collected from home
Dry waste(paper)	Food packets, paper plates to be rinsed before disposal	To be delivered to the local municipal authority's dry waste collection centre	To be disposed at containers placed in lobby area
dry waste (house hold hazards)	Dispose in sealed or closed manner to avoid harm to handling people	To be delivered to the local municipals authorities waste collection centre	To be disposed at the containers placed in lobby areas
Dry waste (others)	To be disposed in compressed form. Large quantity to be	To be delivered to local municipals	To be disposed at the containers places in lobby areas

	bundled in disposable black bags	authority waste centre	
Sanitary waste	To be handled over daily along with wet waste suitably wrapped in paper	Will not collect if not covered in paper	To be collected from home
Garden waste	To be accumulated to dispose on designated day	To be delivered to local municipals authority waste centre	To be collected by house keeping
Inert waste	To be preserved till the collection day	To be delivered to local municipals authority waste centre on payment	Resident/association

Table 1: Segregation and disposal of different types of waste

4. Current Problems of BBMP:

- Less expertise and expose to the urban city MSW adopting the modern techniques and best practices.
- Lack of technical and trained manpower.
- Lack of community involvement.
- Partial awareness creation in MSW.
- Low budgetary provision in BBMP

5. Future estimation of waste: Bengaluru master plan 2031, points to uphill challenge when it comes to handling solid waste. Going by the plan in the next 14 years, the amount of waste generated per day will go up to 13,911 tonnes. Of this, a mega share of 10,597 tonnes per day will be generated from BBMP limits.

The plan also estimates a big jump in dry generation in the city, along with organic waste. Of the total waste estimated to be generated, 64% will be wet waste, 27% dry and the remaining will be domestic hazardous and inert waste.

The present study thus put forward the following suggestion for effective waste management

(i) 'Edible water bottle' must be used to replace the millions of plastic bottle.

(ii) As how BBMP collects the waste from door to door daily, in the same manner they have to measure and take the recyclable waste like plastic, metal etc. and give the scrap value to them so that the public will take more initiative for proper segregation.

(iii) At home or at the source of generation of wet waste ,like vegetable peels, fruits ,leaves etc. should be used as a manure .knowledge or training should be given to public to convert bio waste to manure and use that as a best nutrition for plants

(iv) Educate public and urban areas to utilise gobar gas (a method to convert wet waste into fuel energy)

(v) Educate public to convert waste into electric energy(generation of electricity by using the methane gas)

(vi) Provide more dustbins in public roads.(dustbins can be prepared by using the old used plastic bottles)

(vii) Banning of plastic covers in all the bakeries, provision store, malls is not enough ,more initiative should be taken to ban the plastic package in the packaging process itself(example chips manufacture industries should minimise plastic paper packages for their products and find new eco- friendly way).

(viii) Instead of using plastic package for ice creams banana leaf can be used.

6. Conclusions

Now every public should take the responsibility for proper waste management. Still if we delay to manage the waste, nature will consider us as 'waste'. The process of BBMP should be still more scientifically planned for effective waste management. Government should still take more initiative and educate public to decrease the use of non-biodegradable waste. Every public should take necessary step to proper waste management.

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E- WASTE SCENARIO IN INDIA- ENVIRONMENTAL PROBLEMS AND CURRENT MANAGEMENT

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Abstract:

The global e-waste production is assessed at 20-50 Mt/year , equal to 1-3% of the estimated global urban waste production (1636 Mt) . the majority of e-waste are not recycled, because several electronic and electrical items are discarded along with household waste and are subject to no further treatment. Approximately 80% of the quantity collected for recycling is exported to other countries which results in their treatment in very loose environmental frameworks having increased impact on the environment and the employees in the specific operations. In this paper all possible e-waste routes and flows and their potential environmental impact are summarized and considering the prevailing scenario, some of the short-term and long-term recommendations have been proposed.

Keywords: e- waste, environmental impact, recycling

1. Introduction

Electronics industry is the world's largest and fastest growing manufacturing industry. Rapid growth combined with rapid product obsolescence resulted in discarded electronics which is now the fastest growing waste stream in the industrialized world. The growing quantity of E-waste from electronic industry is beginning to reach disastrous proportions. Electronic Waste or E-waste is the term used to describe old, end-of-life electronic appliances such as computers, laptops, TVs ,DVD players, refrigerators and freezers, mobile phones, MP3 players, etc. which have been disposed of by their original users. Thus, E-waste is generated out of relatively expensive and essentially durable products used for data processing, telecommunications, or entertainment in private households and business.

Technically, electronic waste is only a subset of Waste Electrical and Electronic Equipment (WEEE). According to the Organization for Economic Cooperation and Development (OECD), any appliance using an electric power supply that has reached its end-of-life would come under WEEE (EU 2002). Composition of the E-waste is very diverse and complex. E-waste contains more than 1,000 substances, which can be classified as hazardous and non-hazardous substances. The electrical and electronic equipment can be broadly categorized into following categories (EU 2002):

- Large household appliances (refrigerator, freezer, washing machine, cooking appliances, etc.)
- Small household appliances (vacuum cleaners, watches, grinders, etc.)
- IT and telecommunication equipment (PCs, printers, telephones, telephones, etc.)

- Consumer equipment (TV, radio, video camera, amplifiers, etc.)
- Lighting equipment (CFL, high intensity sodium lamp, etc.)
- Electrical and electronic tools (drills, saws, sewing machine, etc.)
- Toys, leisure, and sport equipment(computer/ video games, electric trains, etc.)
- Medical devices (with the exception of all implanted and infected products radiotherapy equipment, cardiology, dialysis, nuclear medicine, etc.)

- Monitoring and control instruments (smoke detector, heating regulators, thermostat, etc.)
- Automatic dispensers (for hot drinks, money, hot and cold bottles, etc.)

The waste electrical or electronic equipment include all components, subassemblies, and consumables, which are either a part or whole of such products at the time of discarding. The main materials found in electric and electronic waste are ferrous material (38%), non-ferrous material (28%), plastic (19%), glass (4%), other including wood, rubber, ceramic, etc. (11%).

2. E-waste Production

The global e-waste production is assessed at 20-50 Mt/year , equal to 1-3% of the estimated global urban waste production (1636 Mt) . PCs, cell phones and TVs will contribute 5.5 Mt in 2010 and will amount to 9.8 Mt in 2015. In wealthier countries, e-waste will stand for 8% of the urban waste volume . Each electronic item's participation in the annual e-waste production, E

(kg/year), depends on each electronic item's mass, M (kg), its quantity

(number) in the market and consumption, N, and its average life cycle, L (year).

$$E = MN/L \quad (1)$$

Electronic computers with an average 3-year life cycle contribute to a greater extent to the total e-waste flow compared to refrigerators and electrical cookstoves, having an average life cycle of 10-12 years. Certain e-waste types along with their mass and estimated life cycle are summarized in Table 3. Particularly for the European Union, the e-waste quantities increase by 3-5% per year , a rate three times faster than the urban solid waste. During the 1990-1999 period the quantities produced in EU-15 were approximately 3.3-3.6

kg/resident, while estimated quantities for the 2000-2010 period vary between 3.9-4.3 kg/resident . Using the equation (1), Swiss is estimated to produce 9 kg/person/year , the European population 14 kg/person/ year , with the total EU-15 production amounting to 5.5 Mt/ year and, in case of EU-27, 8.3-9.1 Mt/year . USA produced approximately 2.6 Mt , while China produced 2.5 Mt in 2005 . There are no available data for poorer countries, but it was assessed that India and Thailand produced 0.3 and 0.1 Mt of e-waste in 2007 . According to another calculation based on the equation (1), Tab.3 and available data for the total number of PCs (0.78 billion units), cell phones (3.4 billion units), stationary phones (1.2 billion units), TVs (1.4 billion units), and radios (2.5 billion units), the total production amounts to 11.7 Mt/year . Moreover, considering the constantly increasing production of e-waste and the fact that the relatively large-mass electrical appliances (refrigerators ,air-conditioners etc.) are not included in the aforementioned calculation, it is estimated that the total e-waste quantities will be rather larger. If the global increase of GDP by approximately 20% in the last 6 years is also considered, then the aforementioned estimate of 20-50 Mt/year is justified.

3. Environmental Impacts

Potential environmental problems related to e-waste: All possible e-waste routes and flows and their potential environmental impact are summarized. The chemical composition of e-wastes depends on the type and the age of the electronic object discarded. It is usually predominated by several metal alloys, especially Cu, Al and Fe attached to, covered with or mixed with several plastics or ceramics. The different substances-elements-pollutants related to ewaste are presented in Table 4. Some of them, such as heavy metals, are used in the production of electronic items, while others, such as Polycyclic Aromatic Hydrocarbons (PAHs) are produced by e-waste burning at low temperature. Burning the isolating plastic cover of cables in open barrels produces 100 times more dioxins than domestic waste burning. Considering that the annual e-waste production approximates 20Mt, the total quantities of the several pollutants contained in the e-waste flow result, to a great extent, in landfills or recycling centres affecting the environment and/or public health. Therefore, despite significant recycling, e-waste is liable for 5000 t Cu annually released to the environment. PBDEs (Polybrominated diphenyl ethers) are combustion retardants that finally result in the environment and, given that they are lipophilic compounds, are bioaccumulated in living organisms , while the refrigerators and air-conditioners discarded contain CFCs (Chlorofluorocarbons) that will eventually destroy the ozone layer when, in the future , CFCs escape from the e-waste dumping site . The aforementioned problems grow bigger considering the fact that the majority of e-waste are not recycled, because several electronic and electrical items are discarded along with household waste and are subject to no further treatment. Approximately 80% of the quantity collected for recycling is exported to many countries which results in their treatment in very loose environmental frameworks having increased impact on the environment and the employees in the specific operations.

4. Environmental pollution caused by e-waste disposal and recycling

The majority of e-waste is led to (sanitary) landfill sites. The implementation of the appropriate, in this case, TCLP (Toxicity Characteristic Leaching Procedure) test has showed that e-waste discarded at urban waste dumping sites do not produce leachates with heavy metals concentrations exceeding the environmental limits. Nevertheless, this chemical cocktail generated as leachate following the TCLP test from several electronic items was toxic for aquatic organisms. Moreover, the usual management practice of e-waste compression before or during discarding in landfills may increase the leachate volumes due to the disturbance of the several electronic circuit parts and, for that reason, it is proposed to perform cement solidification on e-waste that increases pH and decreases the aqueous solutions' flow in the waste discarded . Burning before discard at landfill sites increases heavy metals mobility contained in circuits covered with a plastic grid and, for that reason, while not being bioavailable following wash-out, they are released to the atmosphere during burning. On the other hand, e-waste recycling includes disassembling and destroying the individual parts to retrieve several materials. Through recycling, 95% of a computer's useful materials and 45% of a cathode ray tube's materials can be retrieved. Recycling methods have minimum environmental impact when combined with the application of appropriate technology, such as in Japan , while, on the contrary, when using the practices followed in developing countries (e.g. child labour, e-waste burning and emission of several pollutants to the air, leachate seepage in underground and surface aquifers etc.) the final environmental benefit-impact balance is not always positive. It must be also stressed out that any environmental benefit from recycling vanishes when the waste to be recycled is transported to great distance due to the adverse environmental impact of the energy consumed for its transportation , while, recycling, in any case, has smaller ecological footprint than e-waste dumping and burning.

5. Present e-waste management system in India

Most of the activities right from the collection, transportation, segregation, dismantling, etc., are done by unorganized sectors manually. Being a rich source of reusable and precious material, E waste is also a good source of revenue generation for many people in India. The big portion (rag pickers) of the Indian population earned their livelihood by collecting and selling the inorganic waste-like plastics, polythene bags, glass bottles, cardboards, paper, other ferrous metals, etc. In India, most of the operations related to E-waste such as collections, segregation, dismantling, recycling, and disposals are performed manually. In absence of the adequate technologies and equipment, most of the techniques used for the recycling/treatments of E-waste are very raw and dangerous. Improper recycling and disposal operations found in different cities of India often involve the open burning of plastic waste, exposure to toxic solders, dumping of acids, and widespread general dumping. As a result, pollutants are dumped into the land, air, and water, which are the cause of serious environmental problems in India. Also, the labours and workers employed in the dismantling and recycling units are poorly literate and uneducated, lacking the basic knowledge about the serious occupational and health risks associated with the operations. Most of the time, dismantling and recycling operations are performed by the workers without proper Personnel Protection Equipment. Mostly hammers, chisels, drills, cutters, electric torch / burners, and sometime electric drills were used for dismantling the WEEE (. These operations are carried out in very congested places in the center of cities and slums. Mostly, the dismantling and recycling areas are without any proper lighting and ventilation. In absence of suitable techniques and infrastructure, the workers and laborers working in such areas are prone to serious occupational health hazards thus, there is no organized or formal E-waste management system in India.

The problems associated with E-waste in India started surfacing after the first phase of economic liberalization, after 1990. Due to the stiff competition in the market of brand, quality, price, and services offered between the various Indian and Foreign companies, the electronic and consumer durable industry grew in India. Also, during the post-liberalization era, due to cheaper rate and increase in the purchasing capacity of the individuals, there was a big boom for the electronic goods industry in India, especially for the home appliances (TV, refrigerator, washing machine, AC, ovens, etc.),telecommunication, IT, and computers . Further, due to infrastructure reforms and e-governance, IT revolution in India is marked by the application of information technology in a big way in all areas. Figure 1 indicates the increase in the sales of PCs in last 8 years during 2001–2009 (MAIT 2008–2009).

According to TRAI, India added 113.26 million new cellular customers in 2008, with an average 9.5million customers added every month.Cellular market grew from 168.11 million in 2003–2004 to 261.97 million in 2007–2008 (TRAI 2008– 09). In 2006, microwave ovens and air conditioners registered a growth of about 25%. Refrigerator sales amounted to 4.2 millions in 2006–2007, and itsproductionwentupby17%ascomparedtothe preceding year. Washing machines, which have always seen poor growth, have seen reasonable growth in 2006. The penetration level of coloured televisions (CTVs) is increased three times by 2007 (NCAER 2007). These developments, along with indigenous technological advancement, have led to an addition of wide gamut of E-waste churned out from Indian households, commercial establishments, industries, and public sectors into the waste stream .Solid waste management, which is already a mammoth task in India, has become more complicated by the invasion of E-waste, particularly computer waste to India, from different parts of the world (IRGSSA 2007). So far, the preliminary estimates suggest that total WEEE generation in India is approximately 1, 46,180 tonnes/year which is expected to exceed 800,000 tonnes by 2012. The top states, in order of highest contribution to WEEE, include Maharashtra, Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh, and Punjab. The city-wise ranking of largest WEEE generators is Mumbai, Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat, and Nagpur.

6. E-waste recycling

Recycling of hazardous products by moving hazards into secondary products should be beneficial to the environment when discarded. Environmentally sound management requires the establishment of collection centers , transportation, treatment, storage, recovery and disposal of e-waste, at national and/or regional levels. Regulatory authorities should have to provide these facilities and for the better performance there should be incentives. The government has to encourage the NGO's and manufacturers for establishing ewaste collection, exchange , recycling facilities at district, state and national levels .

To achieve environmentally sound recycling of e-waste particular skill and training of operations should be required. Expert personnel are prerequisite for recycling step to screen the toxic and desirable substances from a complex e-waste then different environment friendly recycling processes have to be adopted for toxic and desired substances separately. To minimize the adverse environmental impacts on the recycling personnel, obsolete gadgets have to provide by maintaining stringent environmental standards. The recycling facilities need to have proper air pollution control plans for the escape and point source emissions. Nowadays a private sector and various research organizations are coming forward for the research purposes as this is the source of money for the private organization because of the presence of precious metals present in it.

7. Future recommendations for E-waste management in Indian scenario

Considering the prevailing scenario, some of the short-term and long-term recommendations have been proposed to the government systems to manage the e-waste efficiently. There commendations have been summarized as follows: Short-term recommendations include building of consumer awareness about and define their roles e-waste disposal through a regulatory framework and bringing bulk consumers under the legal framework through e-waste filing records, recognizing end life range for all EEE with industry consultation. Long-term recommendations are shifting from EPR to PRO and Introduction of Advanced Recycling Fee – ARF.

8. Conclusions

E-waste is a faster growing waste, initially appeared in developed countries and now extends to other developing countries like India. Overwhelming innovation technologies in electronic equipment development result in a rapid obsolescence which results in massive generation of e-waste .To develop an economical and environmentally friendly recycling system for e-waste, classification and quantification of valuable and hazardous components is a pre-requisite. Several tools including e-waste management and recycling tools such as EPR and PRO approaches, legislative polices coupled with recommendations for e-waste management could ultimately ameliorate most e-waste problems. Future efforts of reducing illegitimate discarding will certainly include a combination of hostile legislation, new technological solutions, and increased communal responsiveness through more education on e-waste . Eco-friendly procedures such as biotechnological approaches seem to be a value tools for recovery of precise metals.

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E-WASTE MANAGEMENT

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Abstract

In an approach to bridge the digital dividea it is necessary to get an affordable, equitable and quality access to ICT. It is estimated that two third of world's population is still offline so there is a need to provide affordable access to internet for all. For developing countries, it has become a priority area to alleviate poverty by promoting access to ICT. At the same time, tremendous growth in use of ICT devices and services, faster change of technology and frequent innovations in ICT sector, had left the world with a threat of deterioration in environmental conditions and human health as the-waste of electronic and electrical equipment, which contains hazardous components, is still handled in an environmentally unfriendly manner mainly in developing nations. It is huge challenge for the nations to handle e-waste in responsible manner and protect the environment. In this paper an approach is made towards assessing the present situation of e-waste management globally as well as in India, considering the present regulations and guidelines. It is also a fact that major part of recycling of e-waste is being handled by informal sector who have little/no knowledge about the consequences of exposure to hazardous substances. To address the issue of e-waste management in a sustainable method, the concept of EPR (extended producer responsibility) will be helpful if the regulations incorporate monitoring and penalty clauses. The reuse of EEE has greater environmental and social benefits than recycling as it increases the useful life time of the ICT equipment and enables greater resource efficiency and energy efficiency. In addition to the technical, social and organizational aspects of the EEE-waste management system, it is also crucial to consider the economic aspects, if the system has to be made financially viable and sustainable along with being socially acceptable.

Keywords: EPR, ICT, e- waste

1. Introduction

It is a hard fact that with the voluminous increase in use of ICT devices to bridge the digital divide, there is also an alarming growth of e-waste world wide. e-waste is defined as "waste electrical and electronic equipment, whole or in part or rejects from their manufacturing and repair process, which are intended to be discarded" whereas electrical and electronic equipment has been defined as 'equipment which is dependent on electrical currents or electro-magnetic fields to be fully functional'. There is a need for e-waste management as e-waste components may cause severe health risks and environmental damage, when crude, unscientific methods are applied for recovery of useful components. There is a need to encourage recycling of all useful and valuable material from e-wastes to preserve the natural resources. Most of the developing countries are suffering with the rapidly growing problems of e-waste and have to have sound e-waste management systems for end of life ICT products to avoid the threat on environment and mankind.

The rapid growth of ICT, frequent innovations and technological changes are resulting in shorter life span of ICT equipment. Moreover in developing countries the quantity of imported disused Electrical and Electronic equipment (EEE) is uncontrolled .So the volume of e-waste has also increased drastically in developing and developed nations. At the same time, it is encouraging that every nation, along with going for the development in the ICT sector, is also working for 'going green' by taking care of issues like efficient use of natural resources, minimization of e-waste, sustainable recycling of e-waste and development of products with minimum use of hazardous substances.

Electrical and electronic equipment (EEE) contain valuable as well as hazardous materials and if at end of life of EEE, the hazardous materials are not disposed of scientifically it may cause serious damage to the environment and public health. The presence of heavy metals (like Arsenic, Cadmium, Barium, Lead, Lithium, Mercury, Nickel, Zinc Sulphide) and other toxic substances like PCB (Polychlorinated biphenyls) etc. may cause extreme harm, if not disposed of in environment friendly manner. ITU has accepted the fact that the regulations in many developing countries to cover the areas of WEEE (Waste Electrical and Electronic Equipment) are in adequate as they exclude key topics and key stake holders like the informal sector. The collection, recycling, recovery and associated activities of e-waste management by the informal sector having little/no knowledge about techniques, precautions etc, cause more damage to their health and environment. So going in line with the definition of environmental sustainability i.e." the ability to maintain the qualities that are valued in the physical environment by the use of design for environment principles, efficient use of non -renewable resources, efficient and environmentally sound recycling and use of renewable resources as much as possible", in order to have a sustainable policy to handle e-waste in an environment friendly manner, it is thus extremely important that policy of e-waste disposal and regulatory aspects should be stringent as well as rational.

2. An estimation of e-waste:

The exponential growth of internet users from 501 million in 2006 to over 1.3 billion at in 2011 in developing countries clearly indicates that the sale of computers and other terminals has grown at a lightning pace. In 2006, 44% of internet users were in developing countries whereas in 2011, 62%, were present in developing countries. Personal computer sales has significantly increased from 2000 to 2010, from about 170 million units sold globally in 2000 to about 370 million units sold in 2010. It is projected that sales in 2014 will reach an estimated 470 million units which is more than double in the last 10 years. In India, it is estimated that approximately 1.42 million PCs are getting obsolete every year.

ITU data release of June 2012 indicates that total number of mobile cellular subscriptions reached almost 6 billion by the end of 2011, and in the developing countries, about 80% of the 660 million new mobile cellular subscriptions added in 2011were generated. The report "Recycling - from E-Waste to Resources" issued at a meeting of the Basel Convention estimated that, by 2020 in China and South Africa, the e-waste from computers would increase between 200 and 400% over 2007 figures and 500% in India. It was also estimated that by 2020 in India the amount of e-waste from mobile phones would be 18 times higher than the 2007 figures and 7 times higher in China. Basel Action Network stated that 50- 80% of e-waste generated in USA is exported to India, China, Pakistan, Taiwan and African countries. UNEP estimates that e-waste is increasing by 40% per year worldwide and e-waste is the fastest-growing type of waste. Between 20 to 50 million metric tons of e-waste are generated worldwide every year, representing more than 5% of urban solid waste, particularly in some developing countries where the volume is expected to grow up to 500 percent over the next decade. In India, volume of e-waste is estimated to be 0.8 million tons in 2012. According to the Controller and Auditor General's (CAG) report, over 7.2 MT of industrial hazardous waste, 4 lakh tonnes of electronic waste, 1.5 MT of plastic waste, 1.7 MT of medical waste, 48 MT of municipal waste are generated in the country annually.

3. Effects of e-waste on human health and environment

e-waste is highly complex to handle because of its composition. It is made up of multiple components some of which contain toxic substances that have an adverse impact on human health and environment if not handled properly that is if improper recycling and disposal methods are deployed. So there is a need for appropriate technology for handling and disposal of these chemicals.

Basel Convention characterizes e-waste as hazardous when they contain and are contaminated with mercury, lead, cadmium, polychlorinated biphenyl etc. Wastes containing insulation or metal cables coated with plastics contaminated with or containing lead, coal tar, cadmium, Polychlorinated Biphenyl (PCB) etc are also characterized as hazardous wastes. Also precious metal ash from printed circuit boards, glass waste from cathode-ray tubes, LCD screens and other activated glasses are classified as hazardous wastes.

4. Management of e-waste

There is no unique or ideal model for e-waste management in developing countries, each of which has its own specific environmental, social, technological, economic and cultural conditions. Environmentally sound management of WEEE recognizes three Rs i.e. reduce, reuse and recycle. The aim would be to **reduce** the generation of e-waste through smart manufacturing and maintenance, **reuse** till functioning of electronic equipment by someone else and **recycle** those components that cannot be repaired.

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A smart e-waste management system for developing countries have to assess the e-waste situation, recognize that e-wastes are a complex mixture of hazardous and non- hazardous substances and materials and need to define the integral e-waste management system taking into consideration the EEE market penetration , life cycle of ICT equipment, financing mechanisms etc.

The main aspects to be taken into account when framing ICT waste management guidelines for developing countries are:

- Policy and regulations covering import and export of EEE and WEEE in accordance with the rules of each country and with international legislation
- Defining responsibilities of prime stake holders at the level of government, supply chain, consumers of ICT equipment and entities for disposal of waste
- Extended producer responsibility (EPR) where the manufacturer's responsibility for its ICT equipment extends throughout the various stages of that equipment's life cycle with internalizing the cost of managing the equipment at end of life
- Responsible information system to have data on ICT equipment in market, disused EEE management and WEEE management and to have control on the monitoring and future planning
- Promoting employment and training for the informal sector engaged in recycling and recovery of the materials.

ITU – Technical guidelines:

The technical guidelines along with environmental standards as recommended by ITU have been put forward to ensure that best practices are followed in handling ICT wastes. The studies made by ITU –T study group 5 in the area of e-waste reduction, recycling methods and reuse of materials had been addressed by the recommendations as mentioned below :

S.No.	ITU-T specification Number	ITU-T specifications
1	**ITU-T L.1000**	"Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices"- aims to reduce number of adapters and volume of e-waste.

2	**ITU-T L.1001**	Aims to reduce types of power adapters by widening the range of compatible devices, facilitating an adapter reuse and recycling. Describes the basic configurations and general requirements for universal power adapters and their interfaces: cables, connectors, current, voltage, resistibility, energy efficiency, electromagnetic compatibility.
3	**ITU-T L.1100**	A method to provide recycling information of rare metals in ICT goods
4	**ITU-T L.1200**	Direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment.
5	**ITU-T L.1300**	Describes best practices aimed at reducing the negative impact of data centers on the climate.
6	**ITU-T L.1310**	Defines energy efficiency metrics test procedures, methodologies and measurement profiles required to assess the energy efficiency of telecommunication equipment
7	**ITU-T L.1400**	Describes general principles on assessing the environmental impact of ICT and outlines the different methodologies that are being developed.
8	**ITU-T L. 1410**	Deals with the assessment of the environmental impact of ICT goods, networks and services
9	**ITU-T L.1420**	Provides specific guidance on energy and greenhouse gas (GHG) impacts

ITU has also come out with recommendation (L.1002) for environmentally friendly universal charger for laptops as well as other portable devices and of green batteries for smart phones and other handheld ICT devices (L.1010).

A standardized methodology for manufacturers to report the quantity of rare metals contained in their ICT devices, has been agreed by experts in Recommendation ITU-T L 1101.

A study carried out in 2012 by the University of Genoa, ITU and the Global sustainability Initiative (Ge SI), estimates that the adoption of an energy-efficient universal power adapter will eliminate an estimated 300,000 tons of e-waste annually.

The study also shows that it could reduce the energy consumption and greenhouse gas emissions of external power supplies by between 25 and 50 per cent.

ITU has prescribed for installation of technical infrastructure for proper handling of e-waste, while considering the job opportunities for the informal sector. Use of technology for recovery, reuse, disposal of WEEE in an environment friendly manner will be effective when the concerns of the national economy and society are also taken care of . Collection of information at different stages of e-waste management is also important for having control on adverse effects on population and environment.

ITU- Present activities:

The concept of environmental sustainability is having enormous importance these days as the activities towards bridging the digital divide in developing regions have resulted in an alarming deterioration of the environmental condition.

To ensure the safety of mankind and environment, handling of e-waste has been assigned priority by nations based on international regulations and guidelines. ITU-T has already published a toolkit on the environmental sustainability for the ICT sector that provides technical guidelines on design for the environment principles and best practices. It also aims to build 'sustainable products' and 'sustainable buildings' through environmentally conscious design principles. The document covers issues of 'end of life management' and explores development of sustainability framework through various standards and guidelines.

ITU has joined PACE (Partnership for Action on Computing Equipment), a multi stake holder partnership which intends to increase the environmentally sound management of used and end-of-life computer equipment taking into account social responsibility and the concept of sustainable development.

ITU has also joined the **StEP (**Solving the e-waste Problem) initiative for scientific assessment and incorporation of a comprehensive view of the social, environmental and economic aspects of e-waste. It conducts research on the entire life cycle of EEE and fosters eco- friendly and energy-efficient re-use and recycling practices in a socially responsible manner.

Further, the MPPI (Mobile Phone Partnership Initiative) guidelines provide information relating to the environmentally sound management of used and end-of-life mobile phones. ITU has organized workshops for capacity building on environmentally responsible management of WEEE aiming to develop standards and policies to be incorporated in national and regional e- waste management strategies.

Problems in the implementation of a strategy on ICT-waste:

Countries mainly developing countries face different problems in framing or implementing regulations on e-waste:

- There is no proper data about the consumption of ICT equipment, e-waste generated and managed through existing channels

- There is lack of proper policy that considers all aspects related to e-waste management including assignment of responsibilities for all stakeholders.
- Many developing countries have regulations but inadequate, as the practical socio - economic situations are not taken care of.
- Moreover, some stakeholders like the informal sector are not considered when in developing countries, they form a substantive part of the recycling process.
- In developing countries the import of used ICT goods impose again a threat on the volume of e-waste generated.
- Lack of knowledge and absence of technology in different stages of e-waste management may lead to loss of valued material and further imposing threat to health and environment.
- There is a lack of standard infrastructure in developing to deal with ICT waste
- Lack of awareness among stake holders and public in general about the responsible use of ICT goods.
- Lack of co-ordination among different stake holders in different stages of the e- waste management process.
- The policies sometimes lack practical and rational issues and so the sustainability issue is perhaps not well addressed.

5.0 Indian scenario for e-waste management:

Last few years India has emerged as one major IT hub and the consumer electronic market has grown in an exponential rate. According to Manufacturers Association of Information Technology (MAIT) the Indian PC industry is growing by 25% compound annual growth rate. Study reports that in 2007, 2.2 million computers were made obsolete and 14 million mobile handsets replaced .The e-waste generated was estimated to be 3,32,979, tons out of which 144,000 tons was recyclable and actually e-waste recycled was 19,000, tons.

The e-waste processed contained 12000 tons of computers and 7000 tons of TV. It was also estimated that around 50,000 tons of e-waste was generated through import besides 3,32,000 tons generated domestically. Developed countries find it profitable to send e-waste for reuse/ recycling to developing nations because of economic disparities e.g. cost of recycling of a computer in US is $ 20 whereas in India it is $2. So the import of e-waste to India has got enough chance to jump high. There are 10 States that contribute to 70 per cent of the total e-waste generated in the country, while 65 cities generate morethan 60 per cent of the total e-waste in India(reference: Effective electronic waste management and recycling process involving formal and non formal sectors by S. Chatterjee and Krishna Kumar, Department of IT, CGO complex, New Delhi).

In India, Ministry of Environment and forests (MoEF) is responsible for environmental legislation and its control. The main bodies active in e-waste management in India are CPCB, SPCBs, Gtz and industry associations such as MAIT. These organizations are working under the guidance of MoEF. CPCB (Central Pollution Control Board) had set up a task force in 2007 to analyze the different aspects of e-waste covered in various environmental legislations in India and had drafted guidelines for environmentally sound management of e-waste.

In the beginning of 2008, the CPCB released guidelines for environmentally sound management of e-waste, which apply to all those who handle e-waste. These guidelines are first policy framework dealing specifically with prevention, management, treatment, recycling, and disposal of e-waste in India. The policies framed, provide guidelines for manufacturers, customers, generators, collectors, recyclers, transporters, dismantlers, and enforcement agencies and prescribe procedures for handling e-waste in an environmentally efficient manner. Apart from adoption of environmentally sound technologies, they include international standards and practices like restriction on hazardous substances (RoHS) in EEE(reference: e-waste assessment in Kolkatta Metropolitan Area – A report by IMRB international April2010 to West Bengal Pollution control Board GTZ and ICC Kolkatta)

5.1. Existing Regulations: Ministry of Environment and Forests' E-Waste management and handling rule 2011(notified on -12th May 2011 and effective from 01-05- 2012):

The E-waste (Management & Handling) Rules, 2011 by MoEF was notified with a primary objective to channelize the e-waste generated in the country for environmentally sound recycling. For implementation of the provisions of the rules, a guidance document was framed to help producers, consumers, collection centres, dismantlers, recyclers and regulatory agencies for effective compliance. The rules also placed responsibility of e-waste management on the producers of the electrical and electronic equipment by introducing the concept of "extended producer responsibility"(EPR) by e-waste collection , recycling and raising awareness. EPR is one main feature of the rules, where the producers manage EEE after its 'end of life' by financing and organizing a system to comply with EPR (Fig.1). Thus the producers are also motivated for reducing use of virgin materials, designing changes to reduce-waste generation, increasing resource efficiency and thus leading to sustainable development.

Scope of implementing the EPR by the producer is explained in the schematic diagram as fig.1 (CPCB).

Scientific collection of e-waste is important for environmentally sound e-waste management system. There comes the concept of collection centre that can be individual or jointly organized. In the collection centre, the collected e-waste is received and stored for dismantling or recycling.

The environmentally sound recycling of e-waste will start by decontamination/ dismantling of e-waste where the concentration of hazardous material/chemical is reduced, then valued materials are recovered and residual components are disposed in TSDF (Treatment, Storage & Disposal) facility.

There is a compliance mechanism set for producers, collection centres, consumers, dismantlers, recyclers and the regulatory bodies.

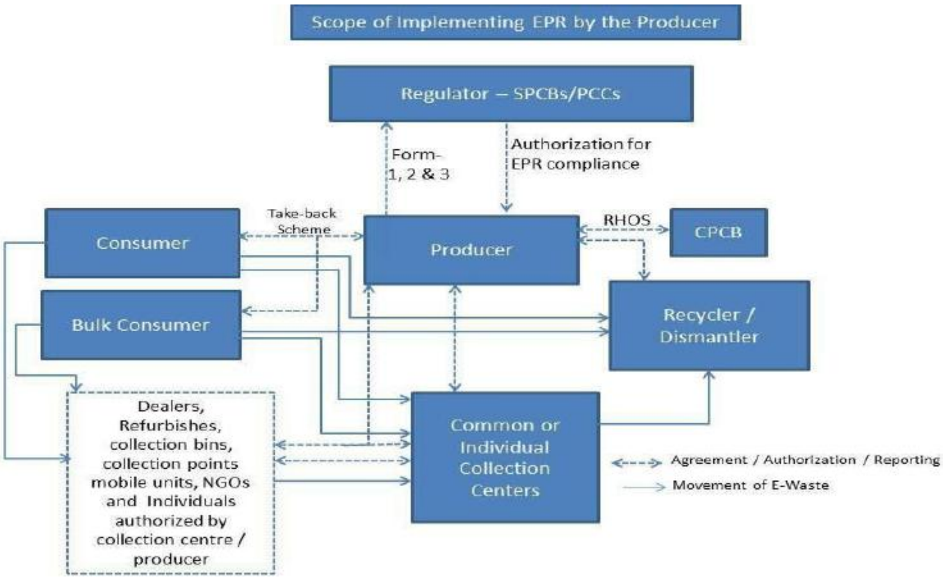

Fig 1: Scope of implementing EPR by the producer ((Ref : CPCB)

The mechanism sets the responsibilities for the producers in line with the extended producer responsibility guidelines. The e-waste (Management & Handling) Rules, 2011 have been notified in May 2011 and is effective from 01-05-2012. Central Pollution Control Board and State Pollution Control Boards are the implementing authorities .

Guidelines on Implementation of E-Waste Rules 2011 issued by Central Pollution Control Board, Delhi Ministry of Environment & Forest Government of India Central Pollution Control Board

Department of Telecommunication notification date 25th January 2012,to the manufacturers of mobile phone/telephone instrument to follow E-waste management and handling rule 2011 notified by Ministry of environment and Forests on-12th May 2011 while manufacturing/distributing phones as per TRAI recommendation.

Environment/climate change-2012.(January to December 2012) Human Rights Documentation India Social Institute , Lodhi road, New Delhi, India as a collection of previously published news and views from the print as well as the electronic media, whose reference marked at the end of each news items. Department of Documentation and Library (DDL) of the India Social Institute, New Delhi.

e-waste in India: research unit (LARRDIS), RajyaSabha Secretariat, New Delhi June 2011:

This publication is the next in the series of ‘Occasional Paper’ being brought out by the Rajya Sabha secretariat on topical issues, from time to time, for the benefit of Members of Parliament. The augmentation of human capabilities due to industrial revolution is well documented. The revolutionary changes experienced in societies across the world due to the application of electronics are far more deep and widespread than the impact of industrial revolution.

The electronics age made unprecedented impact on human society and spectacularly enhanced our connectivity across the globe. The widespread use of electronic items has made communication easier, boosted business activities and created employment opportunities. However, along with the benefits, it has brought into focus many challenges, like the rising problem of e waste that have to be boldly dealt with by society. In the current scenario, it is always possible that human health and environment would be drastically endangered if concerted legislations and actions were not taken efficient management and disposal of e-waste.

Ministry of Environment & Forests, Govt. Of India implementation of National Clean Energy Fund project on remediation of hazardous waste contaminated sites in the country: The project has been envisaged for remediation of 12 priority contaminated sites across the country and has been designed to provide a detailed site investigated, design of appropriate engineering solution for remediation and also to implement actual remediation of those contaminated sites.

To realize the objective, the project has been envisaged in two phase i.e. preparation of detailed project report (DPR) for remediation of each contaminated area in the first phase and subsequently undertaking environmentally sound remediation of these sites in the second phase of the project.

5.2. TRAI Guidelines :

TRAI has endorsed the key provisions of the regulations issued by MoEF in their recommendations on Approach towards Green Telecom in 2012, where it is specifically clarified that the producer will be responsible for -

- Ensuring that, new electrical and electronic equipment does not contain Lead, Mercury, Cadmium, Hexavalent Chromium, polybrominated biphenyls (PBB) or polybrominateddiphenyl ethers (PBDE).
- Collection of e-waste generated during the manufacture of EEE and channelizing the same for recycling or disposal
- Collection of e-waste generated from the 'end of life' of their products in line with the principle of 'Extended Producer Responsibility' (EPR) and to ensure that such e-wastes are channelized to registered refurbisher or dismantler or recycler
- Setting up collection centres or take back system either individually or collectively for all EEE at the end of their life.
- Creating awareness with regard to information on hazardous components in e- waste electrical and electronic equipment
- Maintaining records of the e-waste and filing annual returns to the concerned State Pollution Control Board or Pollution Control Committee

TRAI recommended that " by 2015, all mobile phones should be free of brominates and chlorinated compounds and antimony trioxide in accordance with the e-waste (Management and Handling) Rules of the Ministry of Environment and Forests to be followed by all telecom manufacturers, as and when notified. It has also recommended that all mobile manufacturers/ distributors should be required to place collection bins atappropriate places for collection of e-waste – mobile phones,batteries, chargers etc. The e-waste should be safely disposed orrecycled as per the prevailing standards. The collection, storage,transportation, segregation, refurbishment, dismantling recycling and disposal of all e-waste shall be in accordance with the procedures prescribed in the guidelines by the Pollution Control Board."

5.3. DoT's action towards greening the environment:

For handling e waste in an environment friendly manner following are some of the salient features DOT has included in NTP 2012 which need specific attention by the stake holders:

- **NTP 2012 reference** : To reposition the mobile device as an instrument of socio- economic empowerment of citizens –

The concept of reuse of ICT equipment in the direction of empowering the under privileged can be strongly adopted to following the concept of Brazil's Computer for Connection project which is one very successful application towards bridging the digital divide and towards reducing e waste.

Brazil's "Computers for Connection" Project is an initiative to tackle digital divide and promote reuse of ICT waste. The PPP model works on joint effort to offer fully operational refurbished computers in order to support the spread of community telecenters and computerization of public schools and libraries.

- **NTP 2012 reference**: To promote Research and Development, Design in cutting edge ICTE technologies, products and services for meeting the infrastructure needs of domestic and global markets with focus on security and green technologies – this will be beneficial in the direction of manufacturing of universal accessories and reduction of RoHS in the products .
- **NTP 2012 reference**: To make India a global hub for telecom equipment manufacturing and a centre for converged communication services- To chase the goal there will definitely be reduction in import of e waste from the developed countries and the accumulation of e waste can be controlled with the help of stringent import rules.
- **NTP 2012 reference**: To promote creation of jobs – The handling of e waste in an environment friendly manner, also considering the socio economic aspect with respect to managing the informal sector, can create number of jobs for the poor unemployed people engaged in recycling and recovery of the material. E waste management is one of the area where creation of jobs for the poor can be explored in a larger scale.

DoT's vision "to provide secure, reliable, affordable and high quality converged telecommunication services anytime, anywhere for an accelerated inclusive socio- economic development" definitely urges for socio economic development in line with UNDP's MDGs (Millenium Development Goals) / SDGs (sustainable Development Goals).

5.4. Works of the Research unit of Rajya Sabha Secretariat

The Research unit of RajyaSabha Secretariat in June 2011, has also suggested following for proper management of e-waste in India :

Need for stringent health safeguards and environmental protection laws in India specifically prioritizing and properly monitoring the following areas of concern-

- Extended Producers Responsibility (EPR)
- Import of e-waste under license
- Producer-public-government cooperation
- Awareness programs
- Choice of safer technologies and cleaner Substitutes
- Monitoring of Compliance of Rules by the authorized Government bodies
- Efficiency in regulatory mechanism strengthened by manpower and technical expertise
- Reduction of e -waste at source
- Investment Opportunities - Clean technologies today offer big investment opportunities covering areas such as LED lighting, water purification, recycling of e-waste, food processing, wind power, solar power etc.
- Recognizing the Unorganized Sector in India – considering the social and economic condition of Indian labour force this issue is extremely important for handling e waste in an environment friendly way, keeping in mind the interest of the poor labourers.

. Stakeholders:

(i) **Government:** The central and state Government authorities are the policy makers on management of e-waste and the regulations there of .The policies define the responsibilities of different stake holders in e-waste management.The government is also to take care of the informal sector engaged in the chain of e-waste management. They should have monitoring mechanism for compliance of the regulations.

(ii) **Supply chain:** Comprising of producers (manufacturers, importers and assemblers), distributors, traders who have to maintain proper data for information of the regulators and consumers. They have to research and developenvironment friendly techniques for cleaner production and maintenance of EEE. In line with EPR, they have to install collection centres for the disused/ end of life ICT products.

(iii) **Consumers of ICT equipment:**They have to act for responsible use of ICTequipmentsand properly handle the disused items. Bulk consumers who are bulk users, have to keep record of e-waste generated and dismantled/ recycled.

(iv) **Entitiesfor disposal of wastes:** The recyclers, dismantlers, re-conditioners, collectors and companies handling disposal of e- waste have to comply with the regulations of government, and have to manage e-waste in an environmentally sound system in line with international standards. They have to take care of the informal sector carrying out major part ofdisposal of wastes.

(v) **NGOs/local authorities:**They have to work on protection of environment and health.They have to work for the interest of consumers and the informal sector engaged in the chain of e-waste management.

(vi) **Media/Education sector**: Has a fundamental role in creation of environmental awareness among consumers focusing to children and young people, to ensure that disused ICT equipment is taken to collection points and consumers behave in a responsible manner.

. Extended producer responsibilities (EPR) and few good practices in India:

Though not enough, the take back policies by the MNCs in line with the EPR (extended producer responsibilities) aim towards reduction in the accumulation of e-waste and protection of environment. Some of the initiatives taken in India are mentioned below:

.1. Lenovo initiatives:

- All Lenovo products sold in India comply with RoHS (Restriction of Hazardous Substance)requirements as per India's E-waste management and handling rules 2011.
- Lenovo has partnered with Sims Recycling Solutions India Pvt Ltd to comply with the new India E-Waste management and Handling Rules in providing drop- off centres and environmentally sound management of end of life equipment
- Sims India provides 1491 points of presence throughout India.
- Lenovo India offered a voluntary PC Recycling Service for collecting and recycling end of life Lenovo branded products from private households (consumers) and business customers.
- During the calendar year 2011, this program collected and recycled 2.12 metric tons of customer returned equipment. Lenovo India also recycled 143 metric tons of Lenovo owned equipment (e.g., employee replaced equipment, channel returns) during calendar year 2010 and 30 metric tons in 2011(Letter on Lenovo's progress of ROHS dated 2.9.2014 by Robert J. Taylor Director of Environmental Affairs, Corporate Quality programs, Safety and Standards, 1009 Think Place, Morrisville, NC 27560).

.2. Dell Activities:

Diverted over 68 million kg (150 million lbs.) of end-of-life electronics globally from landfills in fiscal year 2011, a 16% increase over fiscal 2010.

Since it launched its recycling program globally in 2006, the company has recycled more than 125 million kilograms of electronic equipment and is on track to recycle more than one billion pounds of e-waste by 2014. Piloted a battery recycling program where a customer gets a discount on their new purchase of a li-ion laptop battery upon the return of an identical non-working one.

3. NOKIA activities:

Nokia began its e-waste management campaign in 2008 when e-waste disposal was given little attention. Nokia set up drop boxes across the country to take back used phones, chargers and accessories, irrespective of the brand, at Nokia Care Centres or Priority Dealers. It had a number of campaigns involving public. The total quantity of mobile phones and accessories collected from the campaigns since its launch in 2009 is 160 tons. The e-waste collection has grown from three tons in 2009 to 65 tons in 2012. Nokia has sound recycling system and almost 100% of the materials in a phone are recovered and reused. Besides this, a number of innovative campaigns started by Nokia to collect discarded sets.

All Nokia phones and accessories sold worldwide are RoHS (Reduction of Hazardous Substances) compliant since 2006. It is claimed that since 2006 Nokia devices, chargers and headsets have been free of PVC (polyvinyl chloride), and since 2009 brominated, chlorinated compounds and antimony trioxide are fading out. Since the beginning of 2010 all new Nokia devices are said to be free of these substances.

.4. ITC IT e-waste Policy:

IT e-waste is a subset of e-waste and covers IT equipments like computers, printers and accessories, Network equipment, IT accessories and associated cables. ITC has a sound policy for handling the IT waste and salient features are mentioned. The lifecycle of all IT assets from acquisition to disposal is to be managed in a manner which conforms to sound environmental norms.

- Preferential dealing with IT vendors having sound E-Waste management processes
- Extending the useful life of IT assets to postpone / minimize generation of E-Waste
- Responsible disposal processes conforming to regulatory requirements and best practices
- Apart from internal re-use, option to extend use outside ITC through donation to bonafide philanthropic institutions extending the useful life of IT assets.
- Only such IT assets which are non-operational and can not be reused for any other alternate purpose should be considered as IT E-waste for disposal.

. Concerns/ Challenges in e -waste management:

Following are the some of the major issues that need attention while handling e-waste:

- The data for information on e-waste is estimation and there is a problem in finding information on imports of e-waste. Most studies have concentrated on devices like mobile, computer and TVs while the domestic appliances also contribute to a considerable proportion of e-waste. There is a need to have credible data covering wide range of products across sectors

- Waste collection, transportation, processing and recycling is dominated by theinformal sector. The sector is well networked and unregulated. There are serious issues regarding leakage of toxins into the environment hampering workers' safety/ health.
- There is a need for establishment of collection channels for e-waste from thegenerator to the recycler. Presently as the standards are not followed by the collectors (mainly the informal sector), the environmental, health and safety norms are hampered. The formal sector having large infrastructure and high operational cost finds difficulty in competing with the informal sector.
- The informal sector needs specific attention to be handled properly considering the socio economic condition so that the solutions for environment friendly management of e-waste are found to be rational for the stake holders
- Awareness regarding the hazards of e-waste is low because of structural deficiency in implementation of policies, poor literacy and poverty of an important major stake holder (informal sector)
- The e-waste management system is mostly manual and low tech and the 'take back' by producers is limited to few IT equipment and few formal collection centres. There is lack of effort from producers that results in limited implementation of EPR. In absence of accountability and penalty criteria in the regulation, it is difficult to monitor the EPR activities.

Conclusions

ITU has agreed to the fact that there is no unique or ideal model for e-waste management in developing countries, each of which is characterized by its own specific environmental, social, technological, economic and cultural conditions.

With a view to bridge the digital divide, there is exponential growth in the use of **Electrical and electronic equipment**(EEE) and so there is alarming effect on environment and human health when the ICT wastes are not disposed of scientifically. There is an emergent need to implement the existing policies and guidelines in line with the international standards and practices for an healthy e-waste management system.

Government policies should encourage the reuse of EEE aiming to minimize and recycle **Waste Electrical and Electronic Equipment** (WEEE). The **Extended Producer Responsibility(**EPR)do need to have clear regulations to mandate the 'take back' activity of companies strictly.

There is a clear need to have proper information system through standardized mechanisms. Eco-design can have a positive impact in reducing the rate of WEEE generation, facilitating the management of e- waste and recovery of materials, achieving cost reductions.

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TECHNICAL SESSION 4

HUMAN BEINGS AND THE CONSUMER GLOBE

SUSTAINABLE AGRICULTURE: A PATHWAY TO SUSTAINABILITY

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Abstract

The Agriculture in India dates back to Indus Valley Civilization and even before that in some places of Southern India. India ranks second worldwide in farm outputs. As per 2018, agriculture employed 50% of the Indian work force and contributed 17-18% to country's GDP. Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depends. The desired result is a state of society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development is that, meets the needs of the present without compromising the ability of future generations. With the operational view, the study was conceptualized with the objectives to develop sustainability index for measuring sustainability of farming systems, sustainability level of irrigated and rained farming systems. In this context, the aim of this paper is to analyse sustainable agricultural methods for sufficiency economy and lifestyles along with smallholder farmer's attitudes, objectives and barriers

towards production of Agriculture and its allied activities of farming systems practiced in the selected agro-climatic zones.

Keywords: Sustainable development, Sustainable agriculture, “triple bottom line” (TBL), agro-climatic zones, Organic farming, Sustainability production Environment.

1. Introduction

Agriculture is the one of the most important sector in India and also it is a pillar of Indian economy.

Indian Agriculture production in most part of the country is close related to the optimum use of available natural and human resources of the country. Therefore, riding on the back of agro climatic condition and rich natural resource base, India today has become the world’s largest producer of numerous commodities. The country is a leading producer of coconuts, mangoes, milk, bananas, dairy products, ginger, turmeric, cashew nut, pulses and black pepper. It is also the second largest producer of rice, wheat, sugar, cotton, fruit and vegetables. Indian agriculture production is closely related to sufficient and wise water management practices. Most of the agriculture practices in India confined to a few monsoon months. During the monsoon season, India is usually endowed with generous rainfall; although not infrequently, this bountiful monsoon turns into terror, causing uncontrollable floods in different parts of the country and ultimately affecting agriculture production. Agricultural Sector, world over, has experienced a phenomenal growth since the mid-twentieth century. The growth, driven by Green Revolution technology, has made a significant dent on aggregate supply of food grains, ensuring food security to the growing population. The next stage of growth however, faces a serious challenge in terms of sustainability.

India can safely be characterized as an agricultural country despite the recent spurt in manufacturing and services and the declining share of agriculture in the national income, since majority of its workforce (65%) are still engaged in agriculture and allied activities. No country has ever achieved significant poverty reduction without first raising productivity in agriculture. Agriculture is not only the way the vast majority of Indians make their living but with its high multiplier affect across the wider economy, it is also the sector most capable of growing the continent’s economy in the medium term. Sustainable agriculture development integrates three main goals. Environmental, health, economic prosperity and livelihood sustainability. In other words, sustainability rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs. Therefore, stewardship of both natural and human resources is of prime importance.

Stewardship of human resources includes consideration of social responsibilities such as working and living conditions of farm families, the needs of rural communities, and consumer health and safety both in the present and the future. Stewardship of land and natural resources involves maintaining and enhancing this vital resource base for the long term. The role of agricultural sector in Indian economy can be seen through its contribution to GDP (Gross domestic Product) and employment. This sector also contributes significantly to sustainable economic development of the country. The sustainable agriculture development of any country depends upon the judicious mix of their available natural resources. In fact agriculture determine the fate of a country like India where about two-thirds of the population still lives in rural India with agriculture as its livelihood, in spite of the increasing urbanization that has been taking place since many decades.

The larger objective for the improvement of agriculture sector can be realized through rapid growth of agriculture, which depends upon increasing the area of cultivation, cropping intensity, and productivity. But for a country like India, increasing productivity is more important than the rest of the two. This is simply because of increasing urbanization, industrialization and the limited land size of the country. The productivity can be increased by two ways. First, increasing output by efficient utilization of available resources. Second, increasing output by variation of input. The first method is better with respect to productivity and sustainability. But due to increasing population, this method cannot provide a permanent solution.

Thus, we can go for the second method, which may potentially cause environmental degradation in the economy and affect its sustainability. Therefore there is need to tackle the issues related to sustainable agriculture development. Sustainability of agriculture in the context of development efforts has to meet production efficiency, resilience of ecosystems, appropriate technology, and maintenance of the environment, cultural diversity, and satisfaction of the basic needs.

Indian agriculture sector is one of the most prominent sectors of the Indian economy. It is the source of livelihood for almost two third of the population workforce in the country. Indian agriculture provides employment to 65% of the labor force, accounts for about 27% of GDP, contributes 21% of total exports and raw material to several industries. The livestock sector contributes an estimated 8.4% to the country GDP and 35.85% of the agriculture output. In India about 75% people are living in rural areas and are still dependent on agriculture, about 43% of India's geographical area is used for agriculture activities. The estimated food grain p In the present paper the need for sustainable agriculture has been emphasized. Policies for sustainable agriculture and organic farming and possible actions in India are discussed. The desire for a sustainable agriculture is universal, yet agreement on how to progress towards it remains elusive. The extent to which the concept of sustainable agriculture has any operational meaning is discussed. Sustainability is considered in relation to organic farming — a sector growing rapidly in many countries. The role of regulation and the use of synthetic agrochemicals, the desired degree of self- reliance of agricultural systems, and the scale of production and trade in agricultural goods are all considered in the context of this discussion of sustainability.

Sustainable agriculture is an "integrated system of plant and animal production practices having a site specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality;

- Make efficient use of non-renewable resources and on-farm resources and integrate appropriate natural biological cycles and controls;
- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole.

1990 Indian Farm Bill. “For a farm to be sustainable, it must produce adequate amounts of high-quality food, protect its resources and be both environmentally safe and profitable. Instead of depending on purchased materials such as fertilizers, a sustainable farm relies as much as possible on beneficial natural processes and renewable resources drawn from the farm itself.” Sustainable Agriculture comprises “management procedures that work with natural processes to conserve all resources, minimize waste and environmental impact, prevent problems and promote agro ecosystem resilience, self-regulation, evolution and sustained production for the nourishment and fulfillment of all.”

The key principles for sustainability are to:

i. Integrate biological and ecological processes such as nutrient cycling, nitrogen fixation, soil regeneration, allelopathy, competition, predation and parasitism into food production processes,
ii. Minimize the use of those non-renewable inputs that cause harm to the environment or to the health of farmers and consumers,
iii. Make productive use of the knowledge and skills of farmers, thus improving their self-reliance and substituting human capital for costly external inputs, and
iv. Make productive use of people's collective capacities to work together to solve common agricultural and natural resource problems, such as for pest, watershed, irrigation, forest and credit management.

The concept of ‘sustainable agriculture’ has evolved since the early 1980s in response to an array of ecological and equity problems posed by the adoption of modern industrial agriculture. From the inception, the concept has been inseparably tied to the critique of conventional agricultural paradigm. Broadly, the critique focuses on equity and environmental dimensions. The most commonly cited critique with regard to the equity dimension is the fact that the adopted technologies are not scale neutral but favors resource rich farmers at the expense of poor farmers who could be displaced without adequate safety nets. Another critique is related to the labor saving characteristics of Green Revolution innovations. An increased intensification of capital through the introduction of high-input agricultural technology (such as heavy machinery, irrigation, high-yielding varieties, and agrochemicals) liberates affluent farmers from a hired labor force while forcing the displaced landless cohorts into urban slums and shanty towns. In addition, sustainable agriculture supporters are critical of the conventional agricultural extension strategies. The adopted ‘transfer-of-technology’ (TOT) model, which promotes a top-down transmission of agricultural knowledge from extension officers to farmers, bolsters conventional agriculture by converting component research into easily transmittable production recommendations , while bypassing small-scale farmers’ own needs and insights and ignoring holistic ecological approaches. Further, sustainability proponents ‘cry out’ 2 against indiscriminate use and ineffective regulation of pesticides, particularly in the developing countries where many pesticides banned in industrialized countries are still being used. Poor farmers and farm workers are the most affected victims of pesticide intoxication due to their low educational backgrounds and the lack of protection measures. On the ecological dimension, the concept of sustainable agriculture reflects a critical view of mono- cultural production, because intensive mono- cropping in pursuit of economies of scale is prone to a significant biodiversity loss. Intensive mono-cropping is also susceptible to various unintended ecological outcomes such as pest outbreaks that arise from reduced environmental opportunities for natural enemies and transformation of pest genetics to resist frequently used pesticides. Crop failures due to such ecological chaos may lead to a severe economic loss and serious debt problems for less affluent farmers

Moreover, the concept highlights the ecological unsustainability that a heavy application of Green Revolution technologies may bring on. The use of synthetic pesticides and fertilizers, improved seeds generated through plant breeding and genetic engineering, and associated irrigation systems may result in high costs and environmental externalities, such as soil erosion, salinization, chemical pollution, and loss of native crop genetic diversity and reduction in overall biodiversity. In many developing countries, agriculture is a main source of livelihoods for a majority of the population, but making it sustainable is still a challenge. Poverty, lack of access to adequate farm inputs, information, training and markets, as well as policy failures, infrastructural and institutional shortcomings are among the major items that threaten farming sustainably. While the worldwide adoption of Green Revolution technologies has led to remarkable improvements in agricultural productivity, these achievements have been offset by unintended side effects such as inequitable access to and control of resources between rich and poor, and damage to human health and the biophysical environment. Sustainable Livelihoods Sustainable agriculture in developing countries emphasizes food security and sustainability of smallholder farmer livelihoods, as opposed to food safety and convenience for consumer livelihoods and environmental protection in developed countries.

Based on this broad delineation, this paper proposes a conceptual intersection of agroecology and development studies through incorporation of the ‘sustainable livelihoods (SL) approach’ into an extended domain of agroecology. This intersection is aimed at contributing to the view that sustainability of smallholder producers’ livelihoods is integral to advancing the agenda of agro ecological research.

Sustainability is the ability to exist constantly. In the 21st century, it refers generally to the capacity for the biosphere and human civilization to coexist. It is also defined as the process of people maintaining change in a balanced environment, in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. Sustainability can also be defined as a socio-ecological process characterized by the pursuit of a common ideal. An ideal is by definition unattainable in a given time and space. However, by persistently and dynamically approaching it, the process results in a sustainable system. The study of ecology believes that sustainability is achieved through the balance of species and the resources within their environment. In order to maintain this equilibrium, available resources must not be depleted faster than resources are naturally generated.

Sustainable agriculture is farming in sustainable ways (meeting society's food and textile needs in the present without compromising the ability of future generations to meet their own needs based on an understanding of ecosystem services, the study of relationships between organisms and their environment. It is a long-term methodological structure that incorporates profit, environmental stewardship, fairness, health, business and familial aspects on a farm setting. It is defined by 3 integral aspects which are: economic profit, environmental stewardship and social responsibility. Sustainability focuses on the business process and practice of a farm in general, rather than a specific agricultural product. The integrated economic, environmental, and social principles are incorporated into a "triple bottom line" (TBL); when the general impacts of the farm are assessed. Unlike a traditional approach where the profit-margin is the single major factor; Agriculture sustainability is also involved with the social and environmental factors.

2. Review of Literature

2.1 Hart [1994], who organized the INFORUM E-mail conference, felt that we do not have a very good idea of how to develop and use indicators of sustainability, but indicators of resource degradation, farm-system ecological and socioeconomic viability, community system viability and macro market systems all can be identified. One problem is that we are not sure what intergenerational equity is, or if sustainability means more or less than that. The electronic conference included a lively discussion of this and other topics by a large number of participants on several continents.

2.2 The *SANREM CRSP Indicators of Sustainability Workshop* proceedings edited by Bellows [1994] contains a variety of articles. Section headings (and numbers of papers) include: frameworks of indicator development (5), community level indicators of sustainability (4), community and research interactions in the assessment of indicators of sustainability (4), indicators of sustainability from the SANREM CRSP project sites (3), indicator assessment constraints and opportunities (2), indicators of sustainability and policy development (3), the workshop and conference summaries; and poster abstracts (21). A lot of field experience was brought into this workshop.

2.3 *Defining Soil Quality for a Sustainable Environment* [Doran et al. 1994] was published by the Soil Science Society of America. These papers were presented at the 1992 American Society of Agronomy meetings with the objectives of identifying the major components of soil that define soil quality and to quantify soil-derived indicators of soil quality with major emphasis on soil biology. Themes addressed include approaches to defining and assessing relationships among various soil properties and soil quality and land-use sustainability and models for effects of management practices on soil quality. Several papers also relate to measurement of specific soil quality components.

2.4 *Defining and Measuring Sustainability: the Bio geophysical Foundations* edited by M. Munasinghe and W. Shearer [1995] consisted of 27 papers presented at a conference of the same name. They present a global framework of indicators of sustainability. They say that bio geophysical, economic, social, cultural, and political interactions exist, but that sustaining the global life-support system (bio geophysical) is a prerequisite for sustaining human society. As a conference, they defined level two of a three-level monitoring system that included a matrix of eight ecosystems and eight parameters to measure. Level one includes actual points to measure and level three is a way of aggregating the measurements to give global trends.

2.5 Papers and visits during the training workshop *Soil Quality, A Guide to Conservation* [NWAF, 1996] held in Ames, Iowa were intended for hands-on learning. Using soil quality as an indicator of management success may help farmers meet their productivity and conservation goals. These papers describe the documentation of field-level indicators of soil quality across the United States.

2.6 Kuik and Verbruggen [1997] edited a book that contains nine papers pertaining to options for 'measuring' sustainable development, with particular relevance to the Netherlands. Following the overview, topics covered include sustainable development indicators, the correction of national income for environmental losses, gross national product and sustainable-income measures, natural resource accounting, the predictive meaning of sustainability indicators, a useful tool for establishing sustainable development, indicators of environmental quality, and an environmental index for application in land-use planning.

2.7 Hamblin [1998] edited the output of a workshop aimed at defining indicators of sustainability of Australian agricultural systems acceptable to the scientific and technical community. Subjects covered include the Australian experience to date, agricultural ecosystems and a regional approach, definitions, biodiversity, and summaries of papers contributed as background materials.

2.8 Trzyna [1999] edited a book with 14 papers by authors from a wide range of backgrounds concerning the question of sustainability. Most papers were presented at the 19th General Assembly of the IUCN (International Union for the Conservation of Nature), held in Buenos Aries, Argentina, in January 1994. Four papers attempt to identify the misconceptions surrounding the term sustainability. Four papers consider the measuring processes required to identify any improvement in the movement towards a sustainable world. Six papers try to identify the indicators of sustainability (ecological, economic, and social) and assesses how indicators can be linked to performance goals. International examples are used.

2.9 *Grassroots Indicators for Desertification,* edited by Hambly and Angura [2000] uses examples from East and South Africa in a book containing nine chapters divided into three sections; 1) context and concepts, 2) methods and approaches, and 3) implications and impact. Several real- life examples dealing with issues such as food security in a semi-arid climate make this book more than simply an academic exercise. This book in some senses illustrates the flip side of indicators of sustainability, describing instead indicators of resource degradation.

2.10 To enable a transition to sustainable production, various tools have been developed to provide insights into the sustainability of agricultural systems (Binder et al., 2010; Schader et al., 2014;

3. Need of the Study

Agriculture plays an important role in the economic growth and development and has therefore remained the largest platform. Agricultural performance in the 90s has erratically fluctuated widely with a declining trend over the period. The close relationship between the performances of agriculture and that of the economy obviously imply that agriculture must grow at a high rate for it to spur economic growth. However, for agriculture to grow at the expected rate, it is imperative that quality investments are done in key areas that have potential for growth. In the last three decades the government has realized that non-targeted investments in agriculture could be disappointing. Any future investments in agriculture must therefore be focused to avoid such disappointments and achieve the intended objectives. For example, even with the general poor performance of agriculture, few sub sectors such as horticulture and dairy have performed well. Thus investments in agriculture should be targeted to areas that are likely to attain high productivity aiming for sustainable agriculture enhancing sufficiency of sustainability.

4. Objective

4.1 To study the issues and challenges with status of the agricultural sector and trends.

4.2 To identify the impact of economic reform on Indian agriculture and key factors those encourage the growth of agriculture sector.

4.3 To identify areas of intervention that could achieve sustainable agricultural growth.

4.4 To find the future prospects and solution for India.

4.5 To consider the wider social and ecological impact of the organic production and processing system.

4.6 To process organic products using renewable resources.
4.7 To produce fully biodegradable organic products.
4.8 To promote the healthy use and proper care of water, water resources and all life therein.
4.9 To understand the nature and importance of sustainable agriculture;

4.10 Determine the level of interest by farmers about learning sustainable agriculture practices associated with sustainability.

5. Hypothesis

Null Hypothesis (in a statistical test) the hypothesis that there is no significant difference between specified populations.

6. Research Methodology

6.1 Qualitative method Primary Data collection using Interview method

6.2 Instrument used- Questionnaire by Interview

6.3 Secondary data for literature review

7. Scope of the Study

7.1 In a broad sense, sustainability is the capacity to endure. The concept is applied to ecosystems and human development efforts and its meaning is to a considerable extent contextual. Ecosystems are sustainable when they maintain ecological processes, functions, biodiversity and productivity into the future. For humans, sustainability is the potential for long-term maintenance of wellbeing, which will in turn depend on the responsible use of natural resources.

7.2 Sustainability is often defined as resting on three pillars or having three dimensions: environmental, social and economic sustainability. While some have argued the need to integrate these dimensions or redress the balance between them, others have pointed out the vagueness of the concept. Sustainable development in the agriculture sector aims to increase the productivity, efficiency and level of employment and further aims to protect and preserve the natural resources by the over utilization. It also provides mechanism to reduce the soil degradation through multiple cropping systems and through the deforestation and much other reason.

7.3 So the scope of "continuing indefinitely" is broad and wide-ranging. You need to communicate your sustainability efforts, in order to differentiate yourself from mere "organic" farmers, and to leverage that resource-sustainability into economic sustainability. If you are not a good communicator, then make friends with one, and exchange food for their services. The obvious scope is resource usage. But economic sustainability and social sustainability are also important!

7.4 A sustainable agriculture is ecologically sound, economically viable, socially just and humane. Sustainability rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs.

7.5 Therefore, making the transition to sustainable agriculture is a process. For farmers, the transition to sustainable agriculture normally requires a series of small, realistic steps. Family economics and personal goals influence how fast or how far participants can go in the transition. It is important to realize that each small decision can make a difference and contribute to advancing the entire system further on the "sustainable agriculture continuum." The key to moving forward is the will to take the next step. Finally, it is important to point out that, to attain the goal of sustainable agriculture is the responsibility of all participants in the system, including farmers, laborers, policymakers, researchers, retailers, and consumers. Each group has its own part to play, its own unique contribution to make to strengthen the sustainable agriculture community. To meet the requirements of this age, we must concentrate on sustainable ways to develop our agriculture.

7.6 The contribution of organic agriculture, sustainable forest management as well as agriculture-based ecotourism meets this challenge head-on by:

7.6.1 Replacing polluting agricultural practices with approaches that can reverse the dramatic trends in biodiversity loss;

7.6.2 Promoting market-based incentives that compensate farmers for their stewardship efforts, thus maintaining their economic viability;

7.6.3 Thriving on community participation in land conservation.

7.7 Evidence suggests that organic agriculture and sustainable forest management not only produce commodities but build self-generating food systems and connectedness between protected areas. The widespread expansion of these approaches, along with their integration in landscape planning, would be a cost efficient policy option for biodiversity.

8. Research Design

8.1 This study is undertaken to determine the sustainability of agriculture for enhancement of sufficiency for Sustainability for Emerging trends of Knowledge integration in the field of Agriculture in India. The Study was conducted using Questionnaire by Interview method (field visit) and Random Purposeful Sampling in Place of Research:

8.1.1 University of Agriculture Sciences. Gandhi Krishi Vignan Kendra, Bellary Road, Bangalore65 (GKVK)

8.1.2 Bangalore Veterinary, Animal and Fisheries Sciences university, Hebbal, Bangalore-560024.

8.1.3 Varlkonda village, chikkabalapura District (VC) Bellary road NH-7.

9. Data Collection and Analysis

The Data is collected to undertake the sustainability of agriculture for enhancement of sufficiency for Sustainability for Emerging trends of Knowledge integration in the field of Agriculture in India. The Study was conducted using Questionnaire by Interview method (field visit to Farmers land) in Varlkonda village , chikkabalapura District (VC) Bellary Road NH-7 & Departments like Sericulture, Agriculture Farm Machinery, Soil and Water Engineering, Food Processing Units, Solar energy, Horticulture, Biotechnology of University of Agriculture Sciences. Gandhi Krishi Vignan Kendra, Bellary Road, Bangalore-65 (GKVK) and Various Departments in Veterinary Science University Bangalore … with Sample Size – 80 Farmers in Varalakonda Village.

9.1 Do the farmers have knowledge about organic farming?

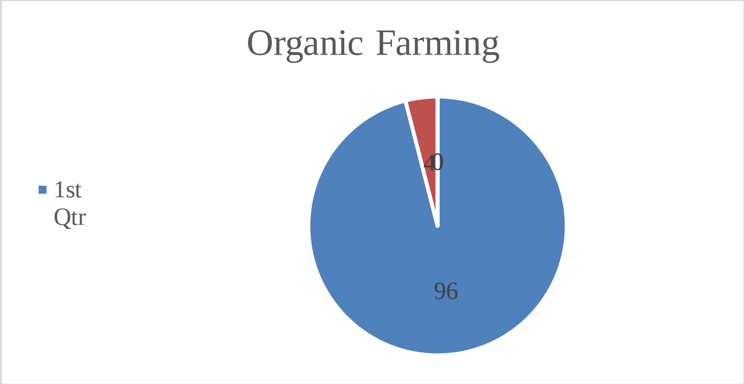

Figure 1. The knowledge of farmers about organic farming

Fig 1 shows that 96% of the farmers have knowledge on organic farming and only 4% of the farmers are not aware of this form of farming.

Organic farming refers to it as a holistic view of agriculture that aims to reflect the profound interrelationship that exists between farm biota, its production and the overall environment.

FAO suggested that "Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs".

9.1.1 What are the efforts towards Organic Farming?

- Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention
- Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms
- Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures
- Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention
- The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioral needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats.

9.1.2 What are the changes in their Yielding Levels of Farming Pattern?

Increase in their yielding patterns which accounts profitability according to the survey done of past 5 years due to conventional and organic farming.

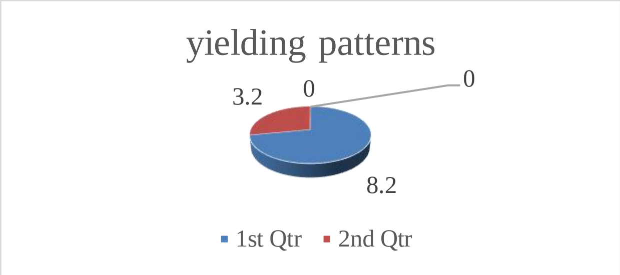

Figure 2. Yielding Levels of Farming Pattern

Fig 2 shows the yielding patterns of farmers and it is clearly seen that majority of the farmers have access to organic farming than the conventional patterns. 8.2% of the farmers prefer to choose organic farming than the conventional method.

9.2 Do the farmers have trained towards organic farming for sustainability?

YES. The reasons and the aspects are mentioned below:

9.2.1 Indian Council of Agricultural Research

- Training Programme on Organic Farming organized
- Inaugurated the 30-day Training Programme on "Organic Farming" at the ICAR-National Organic Farming Research Institute He also emphasized on identifying the right person for transferring the right technologies for bridging the 25-55% yield gap in varlakonda village .
- The main aim of the programme is to update them with the latest organic production technologies.

9.2.2 Organic Farming Training All India Organic Famers Society organizes three types of Trainings of different Duration. In this training (Batch of 30 trainee) they cover all aspects of Organic Agriculture. Training is both theoretical and practical.

- Introduction to Organic Farming.
- Principle of Organic Farming.
- Organic Farming v/s Chemical Farming.
- Basic Concept of Organic Farming.
- On Farm Input production (Jaivik Chabutra, Fortified Compost).
- Minerals /elements essential for Plants.
- Testing the quality of soil and its management.

- Proper handling of farm waste and household waste.
- Harvesting and storage of Organic products.
- Making of Project Reports, Lectures from Banks Officers on criteria for loans and its repayment.
- Training on Cluster Making.
- Marketing of Organic Products.
- Economic viability of Organic Farming.
- Individual Certification and Group Certification processes.
- Package of practices on Organic Farming.
- Achievement Motivation.
- Visit to organic farmer's fields & Vermin-compost unit.
- Explanation and practical training on: a. INM (Integrated Nutrition Management). B. ETL (Economic Threshold Level).

9.3 What are the efforts for sustainability of Programme for Agriculture & Organic Farming?

Sustainable Agriculture Program, Legal Definition of Sustainable Agriculture. ..., Farm and Ranch Practices. ..., Integrated Pest Management (IPM) ..., Rotational Grazing. ..., Soil Conservation. ..., Water Quality/Wetlands. ..., Cover Crops. ..., Crop/Landscape Diversity.

Farm and ranch practices

Farmers and ranchers can choose many ways to improve their sustainability, and these vary from region to region, state to state and farm to farm. However, some common sets of practices have emerged, many of them aimed at greater use of on-farm or local resources. Some of those practices are described here, each contributing in some way to long-term farm profitability, environmental stewardship and improved quality of life.

Integrated Pest Management (IPM)

IPM is an approach to managing pests by combining biological, cultural, physical, and chemical tools in ways that minimize economic, health and environmental risks.

Rotational grazing

Management-intensive grazing systems take animals out of the barn and into the pasture to provide high-quality forage and reduced feed costs while avoiding manure buildup.

Soil conservation

Many soil conservation methods, including strip cropping, reduced tillage, and no-till, help prevent loss of soil caused by wind and water erosion.

Water quality/wetlands

Water conservation and protection have become important parts of agricultural stewardship. Practices such as planting riparian buffer strips can improve the quality of drinking and surface water, as well as protect wetlands.

Cover crops

Growing plants such as rye, clover, or vetch after harvesting a grain or vegetable crop or intercropping them can provide several benefits, including weed suppression, erosion control, and improved soil nutrients and soil quality.

Crop/landscape diversity

Growing a greater variety of crops and livestock on a farm can help reduce risks from extremes in weather, market conditions, or pests. Increased diversity of crops and other plants, such as trees and shrubs, also can contribute to soil conservation, wildlife habitat, and increased populations of beneficial insects.

Nutrient management

Proper management of manure, nitrogen, and other plant nutrients can improve the soil and protect the environment. Increased use of on-farm nutrient sources, such as manure and leguminous cover crops, also reduces purchased fertilizer costs.

Agroforestry

Agroforestry covers a range of tree uses on farms, including inter-planting trees (such as walnuts) with crops or pasture, growing shade-loving specialty crops in forests, better managing woodlots and windbreaks, and using trees and shrubs along streams as buffer strips.

Alternative marketing

Farmers and ranchers across the country are finding that innovative marketing strategies can improve profits. Direct marketing of agricultural goods may include selling at farmers markets, roadside stands, or through the World Wide Web; delivering to restaurants and small grocers; and running community-supported agriculture (CSA) enterprises.

9.4 Are the farmers making efforts to replace petroleum/ diesel vehicles into edible oil oriented vehicles to achieve Sustainability?

Cars to run on cooking oil? Govt works on new program for fuel ……To reduce India's dependence on energy imports, the Ministry of Petroleum and Natural Gas, along with the state-run fuel retailers (IOC, HPCL and BPCL), launched a programme to procure biodiesel made from used cooking oil (UCO) from 100 cities across the country.

To reduce India's dependence on energy imports, the Ministry of Petroleum and Natural Gas, along with the state-run fuel retailers (IOC, HPCL and BPCL), launched a programme to procure biodiesel made from used cooking oil (UCO) from 100 cities across the country. This will also help India meet its fuel demand in the near future.

9.5 What are the Alternatives for achieving sustainability of Agriculture / Are they using it?

The alternatives for achieving sustainability of agriculture are Alternative agriculture and Sustainable Agriculture. And farmers are using the alternative methods for achieving sustainability of agriculture (Fig 3).

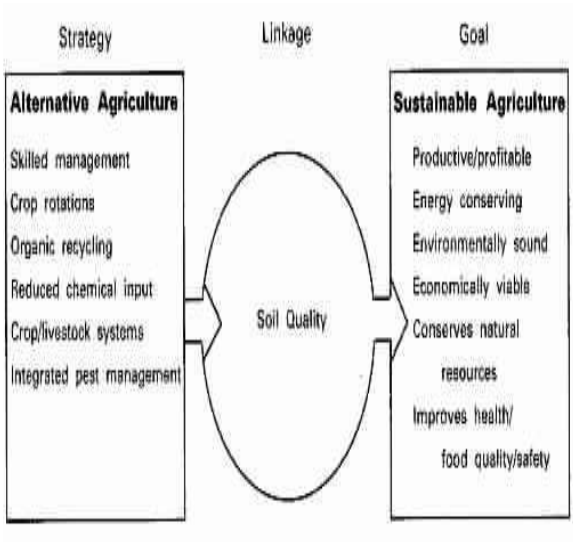

Figure 3. The alternative agriculture for achieving sustainability of agriculture

9.6 Sustainability lies in continuation too, hence do the farmers are willing their kids to continue farming?

YES – 95%

Fig 4 shows the statistics of farmers who are willing continue the profession through their children, and it's shown that the 95% of the farmers are willing their kids to continue the profession and only around 5% of the farmers are not willing of the profession.

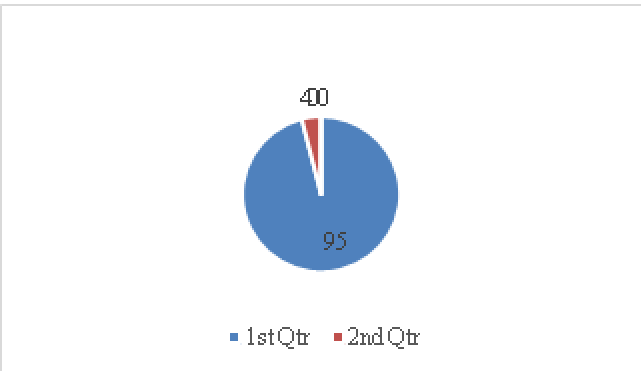

Figure 4. Continuation of the profession

9.7 An Average area of farming land towards Sustainability?

11 hectares of land where the survey has been conducted

9.8 Do they have knowledge about genetically modified seed technology For Sustainability?

Yes they are aware of the modified seed technology for sustainability.

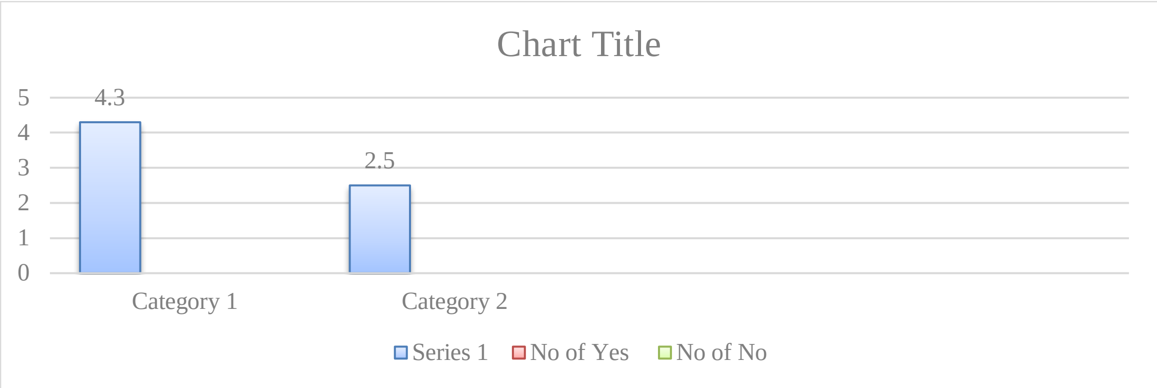

Figure 5. The graphical representation of both organic farming being category one and conventional category being 2.

9.9 Do they have Milking machines for dairy farmers which contributes towards sustainability?

YES they have milking machines for dairy farmers which contributes towards sustainability.

9.10 Any instructions from soil testing & irrigation leading to sustainable economy?

Fig. 6 explains the various instructions for sol testing and irrigation that leads to sustainable economy such as plot level temperatures, Water management, soil quality management and Ground cover management.

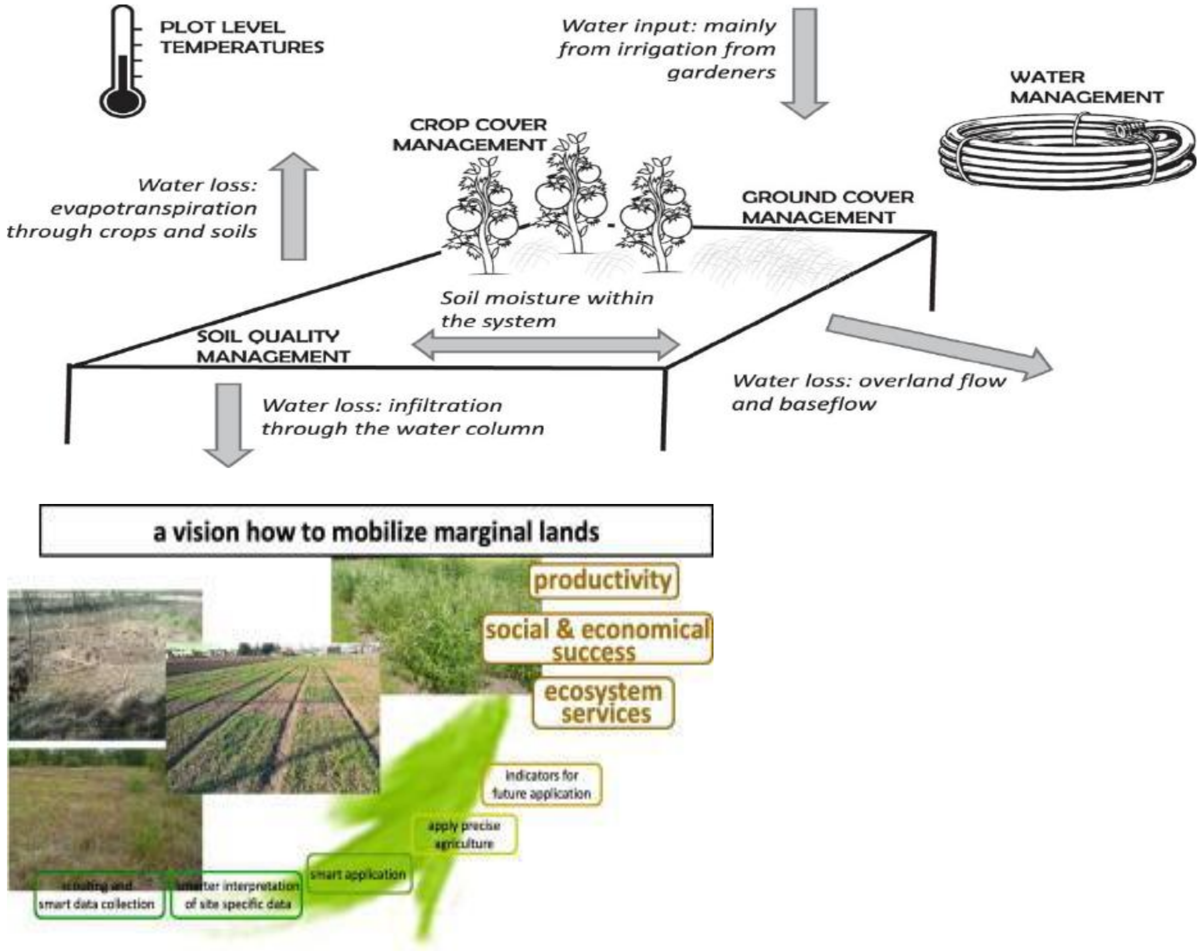

Figure 6. Instructions for soil testing and irrigation that leads to sustainable economy.

9.11 What are the characters of environmental friendly foods?

The characteristics of environment friendly food are detailed in Fig. 7 & 8.

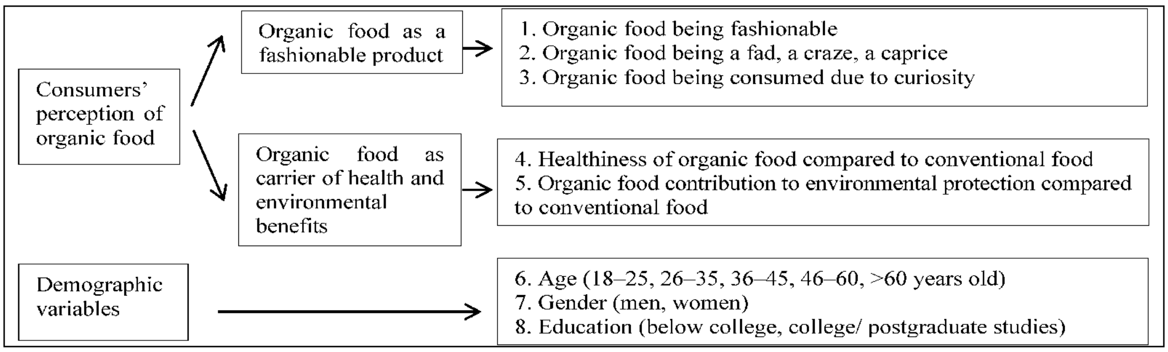

Figure 7. Consumer perception of organic food

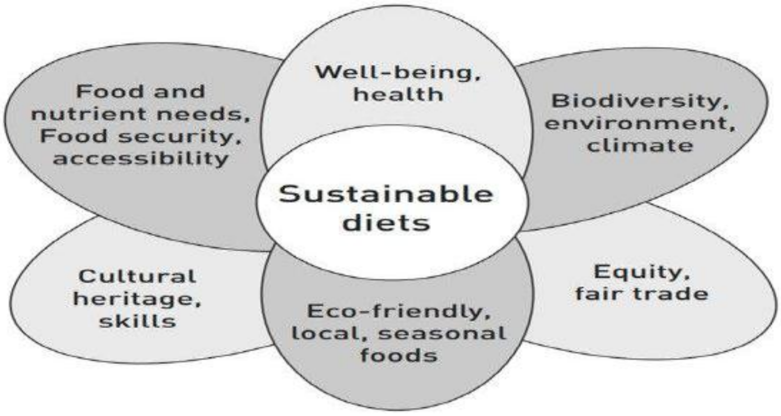

Figure 8. Sustainable diets

9.12 **Does the Sustainable marketing is important for the Sustainability?**

YES, sustainable marketing is important for sustainability.

9.13 Are they Using of polythene bags for plant growth experimentation?

YES they are using polythene bags for plant growth experimentation.

Plants may benefit from plastic bag

- Plastic bags are an essential tool for today's indoor gardeners. They are not only terrific plant sitters when you skip off for a winter weekend, they also help when your plant is not doing well.
- You can keep houseplants without water for several weeks in a polyethylene plastic bag. That's the common type most of us use as freezer or storage bags.
- The day before you leave, or the hour before if you are not well-organized, water your plant thoroughly and allow any excess water to drain off. Then, put your plant, pot and all, into a clean, clear bag with no holes and close the top. Do not return your plant to full sunlight. Instead find a temporary location with indirect or artificial light because sunlight hitting the plastic will create high temperatures in the bag and may injure your plant.
- The plastic bag works because air goes through the plastic but water won't. As the water evaporates, it condenses in the plastic, runs down, and is reabsorbed by the plant. What you have is a miniature greenhouse!

9.14 Do you encourage farmers to focus on organic and biological control in their farming in your place?

YES, I do encourage farmers to focus on organic and biological control in their farming.

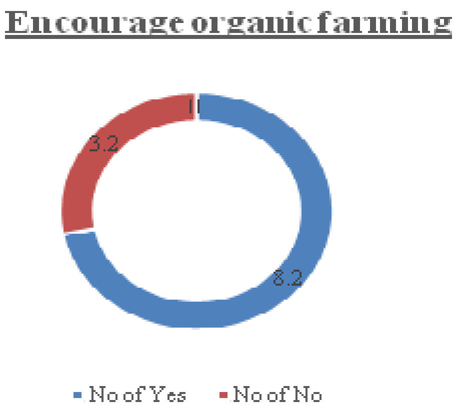

Figure 9. The percentage of farmers who encourage organic farming.

10. Statistical Representation of Data

Analysis undertaken to determine the sustainability of agriculture for enhancement of Sustainability for Emerging trends of Knowledge integration in the field of Agriculture in India. The Study was conducted using Questionnaire by Interview method (field visit) and Random Purposeful Sampling in Place of Research

No of YES = 28/30*100= 93.3%

No of NO= 2/30*100=6%

Both YES & NO= 6.66%

Fig 10 shows the sustainability of agriculture and it can be seen that 93.3% of framers agree to the organic farming method, 6% of farmers are not willing for organic farming and 6.66% farmers are neither for organic nor organic farming method.

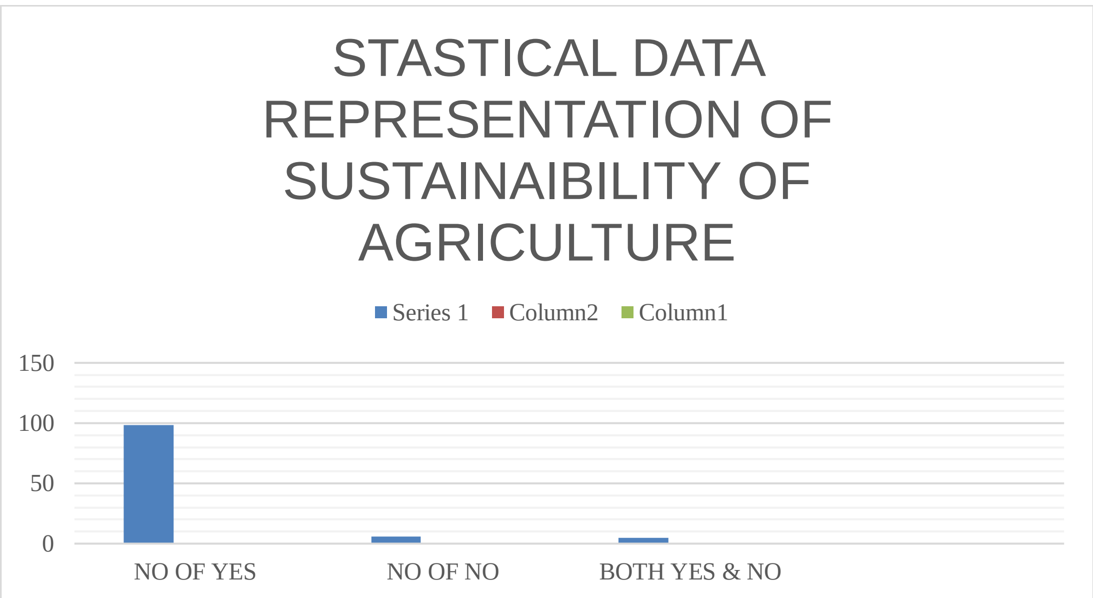

Figure 10. The sustainability of agriculture

10. Findings

10.1 Sustainable agriculture for a better world

- Growing a sustainable, healthy and resilient agricultural sector while creating strong and secure supply chains
- Farm Sustainability Assessment
- The contribution to scaling and accelerating sustainable agriculture that feeds the world, protects the planet and improves farming lives.
- Pioneering sustainable agriculture to protect the environment, farmers, employees and communities and safeguard farmed species.
- Learning journeys, high quality targeted training and a wide range of online webinars to help food and drink companies implement sustainability throughout their supply chains**.**
- A sustainable, thriving and resilient agricultural sector that protects the earth's resources, human rights and animal welfare and delivers value to our members and across our whole supply chains.
- Harness the collaborative power of the people to accelerate widespread adoption of sustainable agricultural practices.

10.2 Sustainable agriculture aimed to :

Produce safe and healthy food Farms produce high quality, safe and healthy food. Conserve natural resources What is taken out of the environment is put back in, so that resources such as water, soil and air are kept in good condition for future generations. Chemical inputs such as fertilizers and pesticides are used judiciously. Sustainable agriculture also has a role to play in mitigating climate change and adapting to it. Ensure economic viability Farms generate enough income to keep going. Sustainable farms help to strengthen the economy and contribute to balanced territorial development.

The Karnataka budget for 2018-19 on Thursday allocated Rs 550-crore for progressive and sustainable farming after waiving a whopping Rs 34,000 crore loans of 17-lakh farmer families across the state. Presenting a pro-farmer budget in the assembly, Chief Minister H.D. Kumaraswamy, who holds the Finance portfolio, told lawmakers that Israeli model of sustainable irrigation could suit the state's farmers in improving their lives.

The budget allocated Rs 150 crore for creating Israeli model of irrigation, which makes use of drip irrigation methods to conserve water, in 5,000 hectares of dry land in each of the districts of Kolar, Chitradurga, Koppal and Gadag. Zero Budget Natural Farming (ZBNF) is a set of farming methods, and also a grassroots peasant movement, which has spread to various states in India. It has attained wide success in southern India, especially the southern Indian state of Karnataka where it first evolved.

Sustainable agriculture frequently encompasses a wide range of production practices, including conventional and organic. A regionally integrated system of plant and animal production practices are designed to produce long-term results such as:

- Production of sufficient human food, feed, fiber, and fuel to meet the needs of a sharply rising population.
- Protection of the environment and expansion of the natural resources supply
- Sustainment of the economic viability of agriculture systems.

11. Conclusions

Agriculture is still the mainstay of livelihood in all the developing countries like India where more than 70% of population is engaged in it. It has a large potential of employment.

Agriculture is perceived differently by different groups of its practitioners like someone it is the main source of livelihood which sustain them but for others its treated as a weapon to sabotage the course of humanity

In this age of space development and computer revolution, agriculture has also got transformation to a great extent

The world has witnessed rapid economic growth over the past decade. This growth has put enormous pressure on the environment in the form of water shortage, air and water pollution, depletion of natural resources, biodiversity loss, and land degradation. Traditional environment management pursues reactive policies with monitoring, legal regimes to reduce pollution, which is not sustainable

In order to achieve sustainable development, a paradigm shift is needed from reactive policies towards more preventive policies.

Sustainable development means attaining a balance between environmental protection and human economic development and between the present and future needs. It requires an integration of economic, social and environmental approaches towards development

Sustainable agricultural production is the key to ensure food and livelihood security and would require a multi-functional/multi-tier institutional mechanism for ensuring convergence and establishing linkage at all levels.

Sustainable agricultural practices have to balance environmental health and Economic profitability in order to promote social and economic equity.

Therefore, stewardship of both natural and human resources is of prime importance. In simple terminology, „sustainable agriculture‟ involves the processes that would enable us to meet the current and long term societal needs for food, fibre and other resources, while maximizing benefits through the conservation of natural resources and maintenance of ecosystem functions.

The priority of exalting human capabilities at the individual (farmer) level and ensuring food security at the national level, through efficient and equitable use of resources are compatible with the concept of „sustainable agriculture‟.

Indian agriculture now faces the challenge of ensuring food security amidst constraints such as stagnating net sown area, deterioration of land quality, reduction in per capita land availability etc.

As a result, agricultural productivity has been witnessing stagnation in recent years. Besides, issues such as competing demand for water in the context of changing demographics and its various end uses, further aggravates the degree of risks in the agriculture sector.

These have considerable implications for food and livelihood security for the growing population because agriculture is the backbone of Indian economy contributing to the sustainability as emerging trends for knowledge integration.

12. Suggestions and Recommendations

To promote sustainable foods production, the government should limit the consumption of meat products. We should purchase local agriculture products, particularly fruits, vegetables, and crops. **R**esearch on agriculture should take climate and the nutrition plants have into consideration. More subsidy and research funding should be provided for organic and eco-friendly agriculture. Agriculture in the city should be encouraged and promoted.

It is suggested that meat consumption should be limited, and people should have meat-free diets at least once a week. Maintenance or enhancement of farm productivity in the long term; Amelioration, minimization or avoidance of adverse impacts on natural resource base for agriculture and associated ecosystem; Minimization of residues from chemicals in agriculture or of adverse effects of practices;

Maximization of the net social benefit derived from farming, which involves considering net social benefits of agriculture when positive and negative effects are considered and making such choices among alternatives as to maximize benefits by using certain production systems and practices; and rendering farming systems sufficiently flexible to manage risks associated with vagaries of climate and markets.

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THE EFFECT OF ADVERTISEMENTS ON CONSUMER BUYING BEHAVIOR AND THE INFLUENCE OF GENDER

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Abstract

Advertising is an important communication tool in marketing and modern life. It is regarded as an economic and social phenomenon that stimulates societal activities, and affects even personal value and behaviour (Pollay & Mittal, 1993). The aim of the study was to find the relationship between effect of advertisement on consumer-buying behaviour and the influence of gender. The sample included 70 working professionals from Bangalore Urban. The tool used for this research was Public Opinion toward Advertising by Pollay and Mittal (1993). Descriptive statistics and Pearson Correlation was used to find out the relationship between effect of advertisement on consumer-buying behaviour and the influence of gender. The findings revealed that women were more influenced by advertisement

when compared to men. The results also revealed there is a positive relationship between advertisement and consumer-buying behaviour. The implications of Advertisement are an integral component of marketing and should be used effectively for targeting customers to buy the product.

Keywords: Advertisement, Consumer-Buying Behaviour

1. Introduction

We are at an age where we cannot imagine our lives without advertisements. It is an important communication tool in marketing a product. It is regarded as an economic and social phenomenon that stimulates societal activities, and affects even personal value and behaviour (Pollay & Mittal, 1993). Advertising can stimulate amusement, sadness, laughter and pathos. Advertising has become an important component with people it sometimes reflects how people see themselves. People identify with advertisement as in who they are and who they identify with. It has the great power of even penetrating within people and reflecting our status, economically and socially. Images shown in advertising reflect expectations about consumption patterns, characteristics of humans be it young or old, male or female or any profession (Hirschman & Thompson, 1997). Advertising is able to promote positive values, behaviours and attitudes such as sociability, affection, generosity, patriotism, ecumenism, personal enrichment, and security (Holbrook, 1987). Munusamy and Wong (2007) say that advertising has become one of the important elements in our modern life. Advertising has evolved from ancient Egyptian times to current day scenario. Advertising is transmitted through various forms of mass media, which includes traditional media such as newspapers, magazines, television, radio, outdoor advertising or direct mail; and new age media such as social media, websites, pop ups, search results, blogs, telephonic calls, text messages, etc.

Advertisement is a tool which is being used by companies from several decades with each decade showcasing new trends in advertisement to influence consumers to immediately grab their products. This can be through catchy taglines to heartfelt advertisements, all having a hidden agenda to make the customers aware of their product and make their product the most talked about product in the locality. Every year a considerable amount is spend on advertisements just to make the company in a different league. The study of how individuals, groups or an organization select , buy and reject services, goods and ideas to satisfy their needs and wants is called Consumer-buying behaviour. Consumer-buying behaviour is affected by some factors which include culture, family and brand image. On the other hand, brand awareness also helps the customer to buy a certain product.

Researchers have come to a conclusion that in order to serve their customers better, companies need to understand four things which are as follows. Firstly, customers make their final call only after a lot of brain storming and comparison so that they can get the best product available in the market. Secondly, consumers are very irrational and impulsive as they can be attracted towards the promotional activities in an advertisement campaign. Thirdly, customers are also emotional and tend to purchase things, if they have an emotional association with it. This can also develop if the companies try to influence the mind of customers. Lastly, customers also buy things which act as a problem solver either immediately or over a period of time (Gupta, 2013).

Advertisements help mold and motivate consumers to try or purchase a product again. This is an essence of advertisement effects on customer behaviour. Studies have found out that if an advertisement has a catchy tagline and if it is repeated very often on the various platforms of media, it is very likely that customers will remember such product and purchase repeatedly (Pope, 2009). How an advertisement is portrayed all depends on the creativity of the production team, as it is helpful to create awareness, perception and to keep the product alive in the minds of the customers. The perceived values and benefits of an advertisement is central to the success of the sales of a product; therefore it is very important for the advertisers to know about the opinion, beliefs and perception of targeted consumers (Ducoffe, 1996). Advertisements are used to build up a strong image of the product in the consumer's mind. The attention and exposure the target audience has towards an advertisement is likely to be influenced by their personal attitudes. The attitude and perception of the consumer plays an essential role towards the success of any advertisement campaign (Bond & Griggs, 1996).

Attitude is defined as a learned predisposition of human beings (Fishbein, 1967). Attitude reflects ones thinking, choices and lifestyle. Attitude is an emotional feeling attached and action tendency toward some objects or ideas (Kotler, 2000). In 1968 Bauer and Greyser said attitude towards advertising is the audience behaviour and reaction towards the advertisement. Audience attitude towards advertising can be either viewed as favourable or unfavourable (MacKenzie & Lutz, 1989). According to Mehta (2000), an effectiveness of an advertisement can be seen by the consumers' attitude. If an advertiser can influence the customer cognitively, then it will subsequently influence their attitude (Mackenzie & Lutz, 1989). Gender refers to the socially constructed activities, roles, behaviours, and attributes that a given society considers appropriate for women and men. Gender is one of the major factors that affects consumer purchasing behaviour. When gender differs, the perception of consuming the product is different as well. Due to differences in genetics, upbringing and socialization, men and women tend to have different choices while shopping. The main objective of this research is to find the impact of advertising on consumer-buying behaviour and how gender has a pivotal role in moulding such beliefs.

3. Methodology

The aim of the research was to study the effect of advertisement on consumer buying behavior and the influence of gender. The problem of the study was to understand the role of advertisement on consumer-buying behavior among working professionals in Bangalore urban.

A questionnaire research design was used for this particular study. The sample was working professionals from both the sexes from various parts of Bangalore urban area. The samples were between the ages of 22 to 40 years. The hypotheses of the study are as follows:

The first hypothesis states there will be a positive correlation between advertising and consumer-buying behavior. The second hypothesis states there will be no difference in influence of advertising on gender.

The tool used for this research was Public Opinion toward Advertising by Pollay and Mittal (1993). Public Opinion toward Advertising is a 33-item questionnaire. The answers for the questionnaire ranges from strongly agree to strongly disagree. It is used to evaluate seven factors which are as follows Product Information (3), Social Image Information (3), Hedonic amusement (3), Good for economy (3), Fostering Materialism (4), Corrupting Values (2), Falsity/ No sense (3) and other items measure Distal Constructs. The coefficient alpha for this questionnaire is estimates for those factors with three or more items ranged across the two large samples from 0.47 to 0.78 (Pollay and Mittal 1993, pp 112 – 113).

The Public Opinion toward Advertising questionnaire was administered to 70 Bangalore Urban employees who agreed to participate in the study. The questionnaire was distributed in hard copy or links of the questionnaire was sent and were filled out in Google forms. After which 65 questionnaires were marked correctly, the sample consisted of 34 women and 31 men. The questionnaire was then scored and results were interpreted.

4. Results

The aim of the research was to study the effect of advertisement on consumer-buying behaviour and the influence of gender. The objectives were analysed using Pearson Correlation and Descriptive statistics. The tables 1 & 2 and findings are given below.

Table 1 shows the findings of the survey conducted. The hypothesis one states there will be a positive correlation between advertising and consumer-buying behaviour. The above table shows the Pearson r value is much greater than p value, that is 0.00, and parallel side the sigma (2 tailed) "p" value is less than 0.05. So, it is clearly indicating that the positive correlation is existing between the advertisement and consumer's buying behaviour. Thus, we accept the first hypothesis.

Factors	**r value**	**p value**
Product Information	0.90	0.00
Social Image Information	0.67	0.00
Hedonic amusement	0.76	0.00
Good for economy	0.88	0.00
Fostering Materialism	0.70	0.00
Corrupting Values	0.72	0.00
Falsity/ No sense	0.68	0.00

Table 1. The correlation between advertisement and consumer buying behaviour that effect due to these factors

Variable	Item	Women		Men	
		Mean	SD	Mean	SD
Product Information	3	2.39	1.03	2.9	1.09
Social Image Information	3	2.91	0.96	2.5	1.04
Hedonic amusement	3	2.81	1.06	1.9	0.61
Good for economy	3	2.74	1.23	1.8	1.07
Fostering Materialism	4	1.71	0.88	2.8	0.96
Corrupting Values	2	2.66	0.96	2.06	0.78
Falsity/ No sense	3	2.32	0.91	2.25	0.84
Distal Constructs	12	2	0.65	1.61	0.5

Table 2. Findings of the survey conducted

Table 2 shows the findings of the survey conducted. The hypothesis two states there will be no difference in influence of advertising on gender. The above table shows the mean values of each variable with respect to gender. It can be seen that both women and men are affected by different factors. Thus, we accept the second hypothesis.

5. Discussion

The present research provides a general picture of public attitude towards advertising and how it has an impact on consumer-buying behaviour. This research is in confirmation with other studies who have taken an overall picture of advertising rather than focusing on one form of advertising. (Shavitt, Pamela, & James, 1998)

As part of the efforts to create favourable consumers' attitude, some suggested strategies to include:

(1) Ensuring the sources of advertisement are credible, trustworthy and believable;

(2) Keeping the advertising message informative, customer oriented and up to date and lastly

(3) Incorporating the elements of fun, excitement, surprises and pleasure in the advertisement messages. (Alfa, & Johan, 2016)

Both men and women are concerned about social image information, corrupting values and falsity/ no sense information. It can be seen there is a significant difference in other areas. This can be due to gender differences and what importance each gender gives to. (Vijayalakshmi, Aparanjini, & Niharika, 2017).

6. Conclusions

Advertisement does have an impact on working professional's consumer-buying behaviour. Gender has a huge role to play in consumer-buying behaviour and in advertisement. The makers of advertisement needs to be specific as to whom they are targeting and which media to use to produce maximum impact. Advertisers also need to keep in mind that gender will have a huge role in decision making and in priority of goods.

7. Limitations

Data could be collected from some more participants. Only few variables were taken into consideration – few more could have been added such as employment and age. The findings of the study cannot be generalized as it is specific to Bangalore Urban area.

8. Implications

Advertisement is an integral component of marketing and should be used effectively for targeting customers to buy the product.

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PSYCHOLOGY IN THE SUCCESS OF CONSUMER GLOBE

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Abstract

Every consumer has a keen eye on the product they buy. The place, the seller, and most importantly, the product should attract and appeal the consumer. The interest of any consumer is drawn with the price module. Many studies talk about the success rate of Psychology in consumer behaviour. Consumer behaviour is calculated based on many models proposed by famous psychologists. Value Attitude and Lifestyle (VALs) is such a model which was founded by social scientist and consumer futurist Arnold Mitchell. This model is used in psychographic market segmentation and helps in improving the marketing strategies to appeal the consumers more.

The following points are the types of the horizontal dimension of VAL's model

- Consumers driven by knowledge and principles are motivated primarily by *ideals*. These consumers include groups called Thinkers and Believers.
- Consumers driven by demonstrating success to their peers are motivated primarily by *achievement*. These consumers include groups referred to as Achievers and Strivers.
- Consumers are driven by a desire for social or physical activity, variety, and risk-taking are motivated primarily by *self-expression*. These consumers include groups known as Experiencers and Makers.

The research paper revolves around the horizontal dimension of VAL's model. The main objective is to determine the horizontal dimension of consumers in the market and how will it impact the realm of Consumer Psychology.The methodology used is a quantitative or primary form of research. A sample size of 50 people in the age group of 20-30 is given questionnaire and assessed on the type of horizontal dimension in terms of behavior and thoughts of the consumer while buying a product.

From the study we conclude that majority of the population of the sample size agrees with the hypothesis which states that, the consumer is open to socialize as well as create a self -opinion while buying any product. This calls for an *ideal* situation. The consumer strives and achieves to buy a product and in turn motivate others to buy them by making them understand the pros and cons of any product. The consumer balances between the duties and responsibilities of one's own self and the family as well as experiencing new brands. Although the subcategory strivers of achievement, under horizontal dimension showed an exceptional number which might have resulted from the subject's variation in thoughts.

Key words: Consumer Psychology, VALs segmentation, Vertical segmentation, Horizontal segmentation, Hypothesis.

1. Introduction

Every seller is a consumer. To understand the behaviour of the seller or the vendor and the customer or the consumer, it is essential to delve into the field called, Consumer Psychology. Consumer Psychology is the thought pattern, decision-making ability, and reasoning effectively while buying any product. According to the preferences or the changes made by the consumer, it is helpful for the designing industry to enhance their existing quality of the product.

"**Consumer Psychology**, a branch of social psychology[1] concerned with the market behaviour of consumers. Consumer psychologists examine the preferences, customs, and habits of various consumer groups; their research on consumer attitudes is often used to help design advertising campaigns and to formulate new products," by Jeannette L. Nolen.

Any realm in Psychology is more functional when it is accompanied by models. One such model given in Consumer Psychology is VALs. It is proposed in the year 1978 by social scientist and consumer futurist Arnold Mitchell and his colleagues at SRI International. "**VALS** ("Values and Lifestyles") is a proprietary research methodology used for psychographic market segmentation. The two main criteria under VALs segmentation are Vertical and Horizontal dimensions. These two determine the marketing segment (Vertical) and the behavioral segment (Horizontal) of a resource.

The vertical dimension segments people based on the degree to which they are innovative and have resources such as income, education, self-confidence, intelligence, leadership skills, and energy.

The horizontal dimension represents the primary motivations and includes three distinct types:

- Consumers driven by knowledge and principles are motivated primarily by ideals. These consumers include groups called Thinkers and Believers.
- Consumers driven by demonstrating success to their peers are motivated primarily by achievement. These consumers include groups referred to as Achievers and Strivers.
- Consumers driven by a desire for social or physical activity, variety, and risk taking are motivated primarily by self-expression. These consumers include the groups known as Experiencers and Makers.

These are the aspects which helps an industry grow according to the psychology of the consumer. In VALs, to understand the psychological behavior of the consumer, there needs to go a deep research on the horizontal aspect which includes ideals, achievements, and self-expression.

1.1 Thinkers – A well-educated professional is an excellent example of Thinkers in the vals framework. These are the people who have high resources and are motivated by their knowledge. These are the rational decision making consumers and are well informed about their surroundings. These consumers are likely to accept any social change because of their knowledge level.

1.2 Believers – The subtle difference between thinkers and believers is that thinkers make their own decisions whereas believers are more social in nature and hence also believe other consumers. They are characterized by lower resources and are less likely to accept innovation on their own. They are the best class of word of mouth consumers.

1.3 Achievers – The achievers are mainly motivated by – guess what – Achievements. These individuals want to excel at their job as well in their family. Thus they are more likely to purchase a brand which has shown its success over time. The achievers are said to be high resource consumers but at the same time, if any brand is rising, they are more likely to adopt that brand faster.

1.3.1 Strivers – Low resource consumer group which wants to reach some achievement are known as strivers. These customers do not have the resources to be an achiever. But as they have values similar to an achiever, they fall under the striver category. If a striver can gain the necessary resources such as a high income or social status then he can move on to becoming an achiever.

1.3.2 Experiencers – The group of consumers who have high resources but also need a mode of self-expression are known as Experiencers. Mostly characterized by young adults, it consists of people who want to experience being different. This class of consumers is filled up with early adopters who spend heavily on food, clothing and other youthful products and services.

1.3.3 Makers – These are consumers who also want self -expression but they are limited by the number of resources they have. Thus they would be more focused towards building a better family rather than going out and actually spending a higher amount of money. Making themselves into better individuals and families becomes a form of self -expression for the Makers.

2. Review of Literature

2.1 A study was conducted by Peggy J Liu, Steven K Dallas, and Gavan J Fitzsimons on consumers' choices, and resulting insights to assess why should marketers, consumers, and policy makers' care when choices are made for others, and what should they do differently? A 2 × 2 framework of consumers' choices for others addresses these questions. This framework has two fundamental dimensions: the chooser's social focus (relationship vs. recipient oriented) and the chooser's consideration of consumption preferences (highlight the recipient's preferences vs. balance the recipient's preferences with the chooser's preferences). This framework captures most choosing-for-others situations, and each cell involves a distinct profile of motives, ultimately affecting choices. This framework integrates the choosing-for-others literature, which we hope will guide future research, and it also offers practical implications for marketers, consumers, and policy makers.

2.2 A study was conducted by Sharon E. Beatty Lynn R. Kahle Pamela Homer Shekhar Misra on alternative measurement approaches to consumer values: The list of values and the rokeach value survey. Two methods of measuring consumer values, the *List of Values* and the *Rokeach Value Survey, are* compared. Both involve some social desirability responding but both have convergent, discriminant, and empirical validity for consumer research. The *List of Values* may be preferable for some types of research because it detects more daily influence in people's lives and because it is simpler to administer.

2.3 A study was conducted by Dawn B. Valentine , Thomas L. Powers on generation Y values and lifestyle segments. The purpose of the research presented in this paper is to provide a segment characterization of Generation Y using the VALS typology and provide insights into the media habits of this population. The results contribute to the literature by providing for the first time a segmented characterization of Generation Y consumers.

3. Objective

To understand the nature of the consumer, it opens a path to study on the behavior through certain ways. The main objective of this research work is "to understand the elements of horizontal dimension of VALs segmentation and in turn learn about the people's behavior while buying a product".

The study classifies the number of people in the sub category of ideals, achievement, and self-expression (the determinants of horizontal dimension).

Hypothesis 1: The consumer should be open to socialize as well as create self- opinion while buying any product. This calls for an *ideal* situation.

Hypothesis 2: The consumer should strive and then achieve to buy a product and in turn motivate others to buy them by making them understand the pros and cons of any product.

Hypothesis 3: The consumer must balance between the duties and responsibilities to look after one's own self and the family and experiencing new brands.

4. Methodology

The study was conducted through primary method. It is a quantitative research. A sample size of 50 was taken to understand the ideology of the consumers in the horizontal dimension of VALSs segmentation. The subjects were provided with a questionnaire which contained 6 questions based on the categories under horizontal dimension. The age group was between 20 - 30 which includes both male and female.

The pattern of the questionnaire was grouped as 2 questions where 1 question was dedicated for each sub category under one category of the horizontal dimension.

Eg: Questions 1, 2, 3, 4 belong to the ideal category (thinkers and believers), questions 5, 6, 7, 8 belong to the achievement category (achievers and strivers), questions 9, 10, 11, 12 belong to the self-expression category.

The responses are displayed in the form of a pie chart which helps follow the discussion.

5. Results

5.1 Age and gender

Fig. 1 shows the age that people between the ages of 20- 26 were more considerate in buying products.

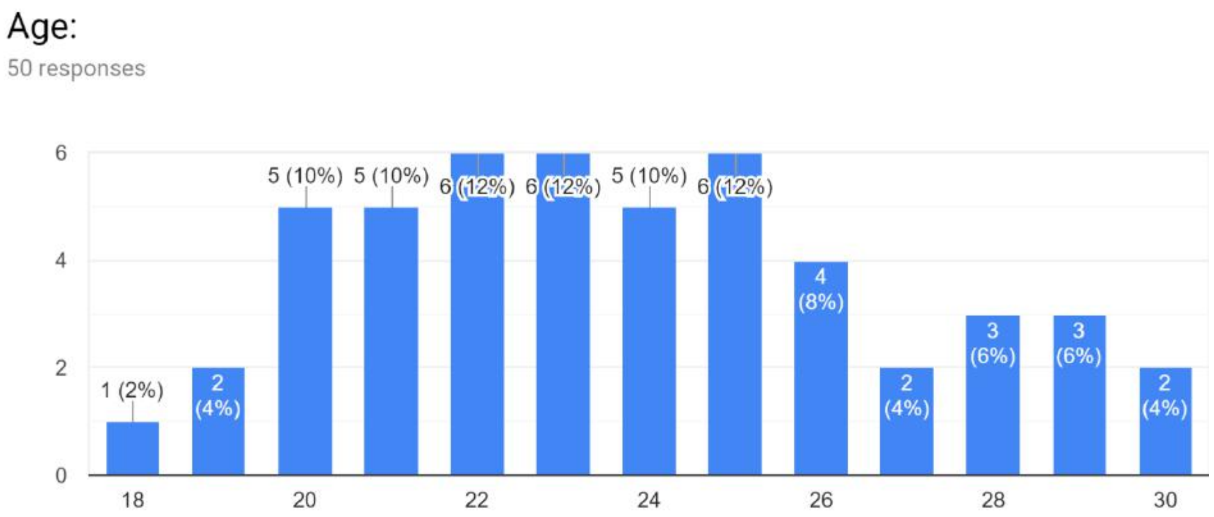


Figure 1. Age of the people

Fig. 2 shows the gender population of the buying aspects of individuals. It has been seen that male students who are professionals have high buying capabilities than the other individuals in the group.

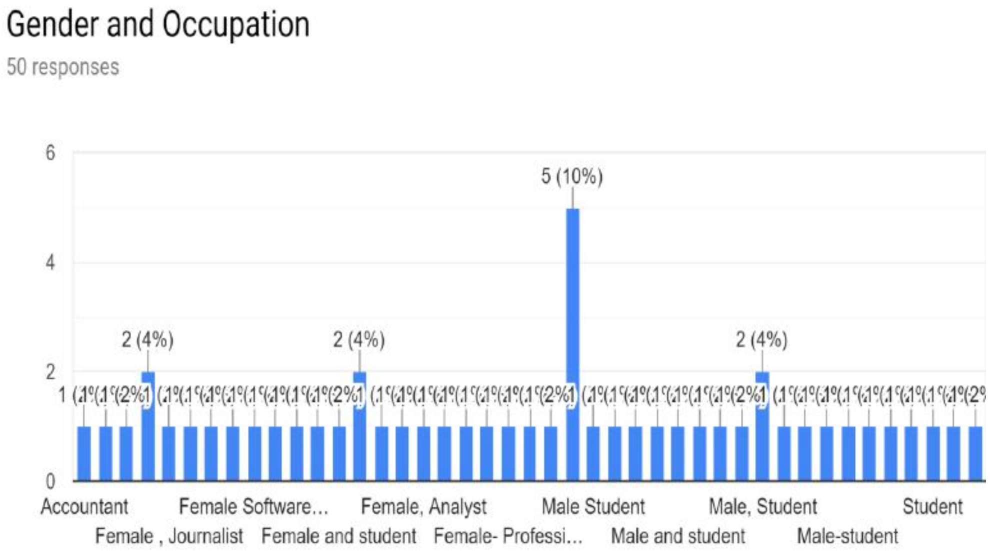


Figure. 3 The gender population of the buying aspects of individuals

5.2 Category 1- IDEALS

Figure 3 shows the individuals dong research in buying certain products. From the pie chart it can be seen that 74% of people do a high- end research before buying any products.

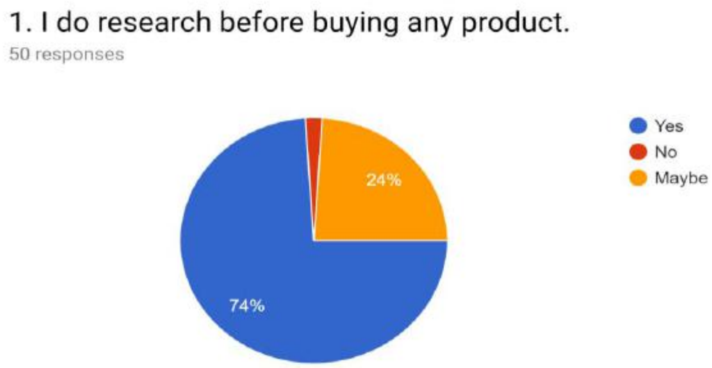


Figure 3. the individuals dong research in buying certain products

Figure 4 shows whether the individuals are open to change their products by being are of their surroundings. **It can be seen that 68% of people do change their products.** The first subcategory of ideals is thinkers. Those set of consumers who are flexible enough to buy a product based on the knowledge gained as well as are open to the changes of any product through the environment are known as thinkers. The above two questions are posed to know the number of people who fall under this category. In this part, the independent variable is the criteria through which the respondent responded and the dependent variable is the response.

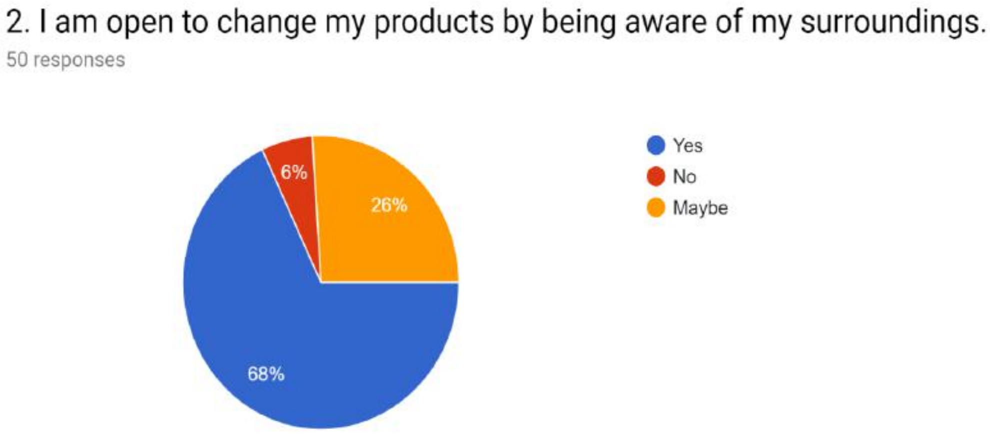


Figure4. The individuals are open to change their products by being are of their surroundings.

From the pie chart (Fig. 5) it can be seen that the majority doesn't depend on others before buying any products.

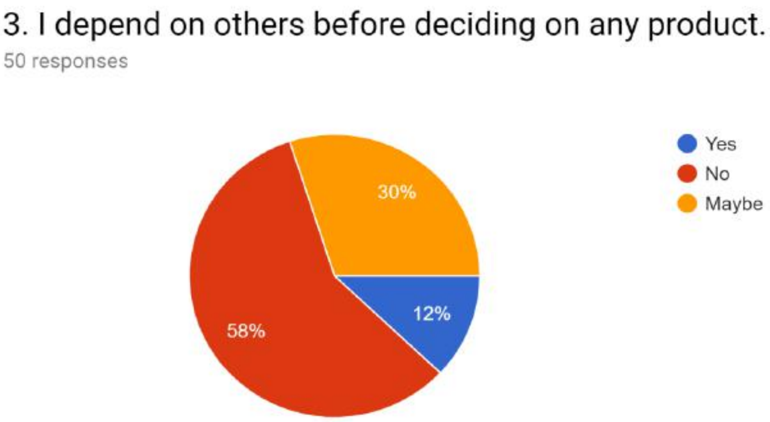


Figure 5. The dependency on others before buying the products.

Figure 6 shows the advertisement resources that are available before buying any products rather than any self - research. From the pie chart it can be seen that 94% states that they do self- research rather than believing in advertisements.

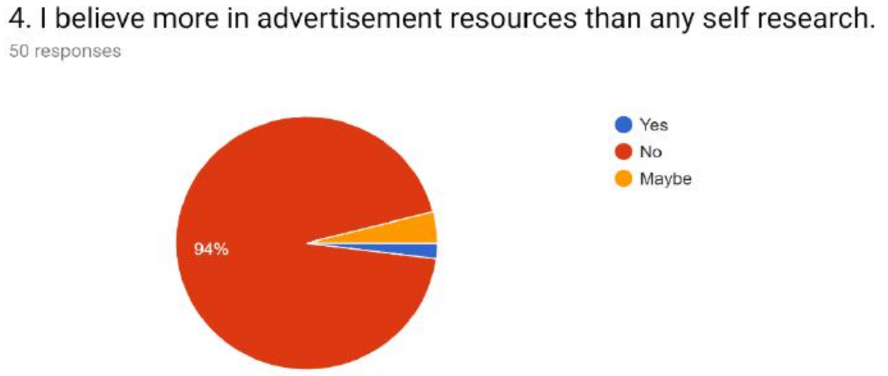


Figure 6. The advertisement resources that are available before buying any products rather than any self - research.

The second subcategory of ideals is believers (Fig. 7 & 8). Those set of consumers who depend more on the external sources of information to buy any product than much of self -research. They believe more on what people insist about any product. The above two questions are posed to know the number of people who fall under this category. In this part, the independent variable is the criteria through which the respondent responded and the dependent variable is the response.

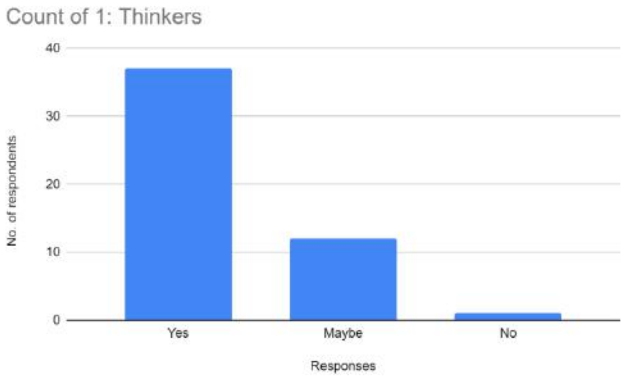


Figure 7. Thinkers-a subcategory of ideals

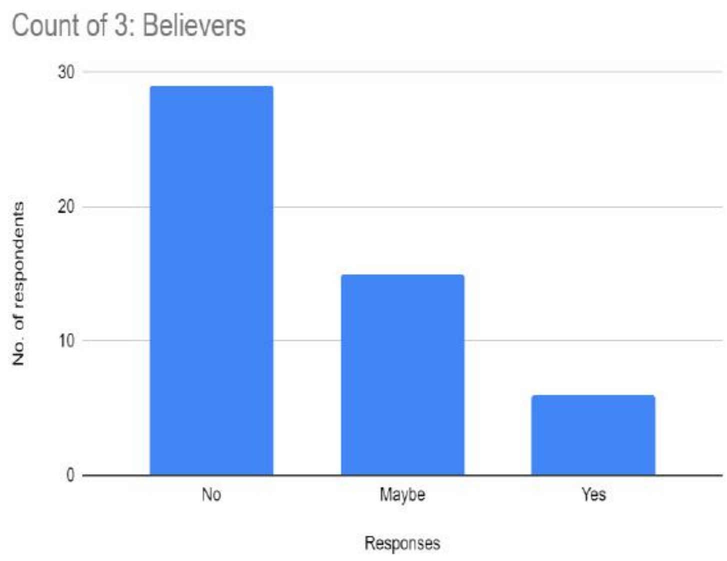


Figure 8. Believers-a subcategory of ideals

5.3 Category 2- Achievement:

The first subcategory in achievement is achievers (Fig.9). They are driven by the success in their career by achieving something great. Thus they purchase brands which are more in trend. They are high resource consumers. The two questions (Fig 10 a & b) are posed to know the number of people who fall under this category. In this part, the independent variable is the criteria through which the respondent responded and the dependent variable is the response.

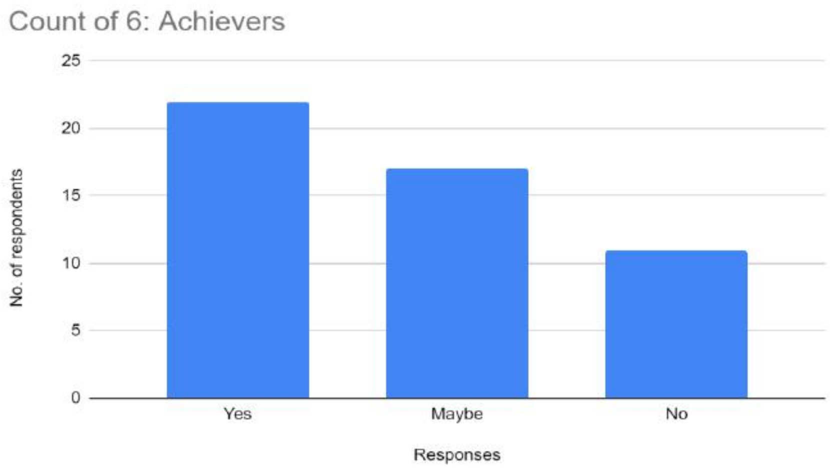


Figure 9. The first subcategory in achievement - achievers

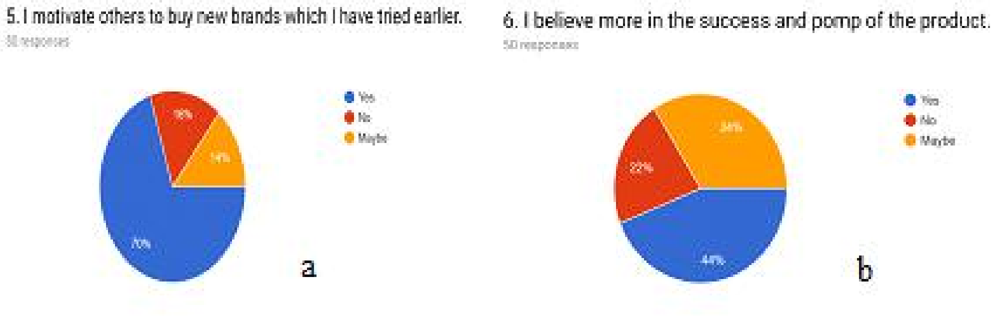


Figure 10. a) People those motivate others to buy brands which they have tried, b) People those who believe more in success and pomp of the product

The second subcategory of achievement is strivers (Fig. 11). They are low consumers of resources as they strive to manage to purchase any brand. So this makes them work hard, in turn, to become an achiever. The two questions (Fig. 12 a & b) are posed to know the number of people who fall under this category. In this part, the independent variable is the criteria through which the respondent responded and the dependent variable is the response.

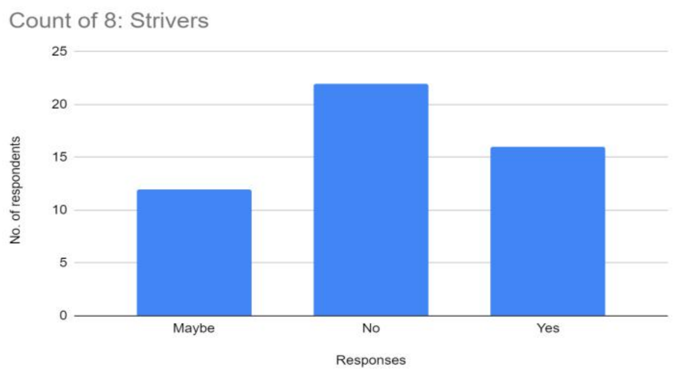


Figure 11. The second subcategory of achievement -strivers

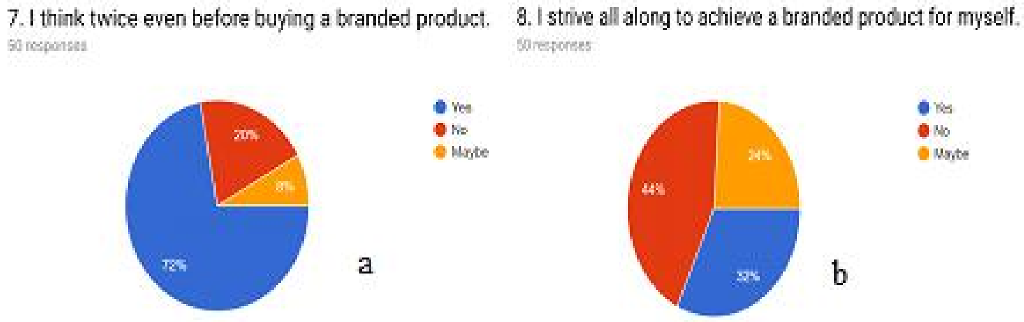


Figure 12.a) People those think twice before buying a branded product, b) People those who strive all long to achieve a branded product

5.4 Category 3- Self-expression

The first subcategory of self-expression is experiencers. Those set of consumers who like experiencing different brand and products mostly irrespective of the cost are experiencers. They mainly spend on clothing, food, and lifestyle products. The two questions (Fig. 13) are posed to know the number of people who fall under this category. In this part, the independent variable is the criteria through which the respondent responded and the dependent variable is the response.

Figure 13. The questions and the responses that could identify “experiencers”

The second subcategory of self-expression is makers. Their self-expression is mostly in taking care of the family and meeting their needs. They limit their resources and dedicate more to the responsibilities they have to bear. The two questions are posed to know the number of people who fall under this category (Fig. 14)

Figure 14. The questions and the responses that could identify "experiencers"

6. Discussion

The study conducted was conducted under the purview of 3 hypothesis under the categories of the horizontal dimension of VALs segmentation. The hypotheses are as follows:

Hypothesis 1: The consumer is open to socialise as well as create a self opinion while buying any product. This calls for an *ideal* situation.

Hypothesis 2: The consumer strives and achieves to buy a product and in turn motivate others to buy them by making them understand the pros and cons of any product.

Hypothesis 3: The consumer balances between the duties and responsibilities of one's own self and the family as well as experiencing new brands.

6. 1 Ideals

The two graphs (Fig.15a &b) establish the ratio between thinkers and believers to deduce the category of ideal.

The majority of the sample size agrees to the norms of a thinker's behaviour. The blue part shows YES, which is major between the three options. It indicates that the majority population of the sample size go with the hypothesis for thinkers that "The consumer should be open to socialise as well as create self opinion while buying any product. This calls for an *ideal* situation."

The sample size agrees to the norms of a believer's behaviour. The blue part shows NO, which is the major between the three options. It indicates that the majority population of the sample size go with the hypothesis for believers that "The consumer should be open to socialise as well as create self opinion while buying any product. This calls for an *ideal* situation."

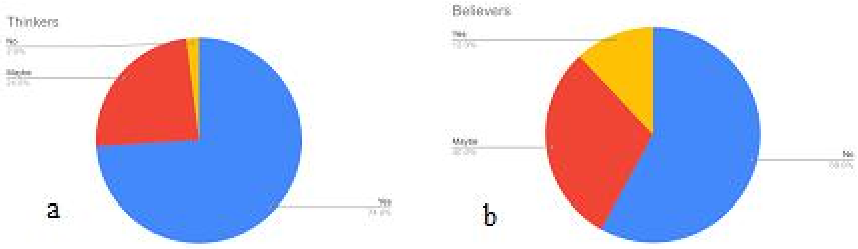


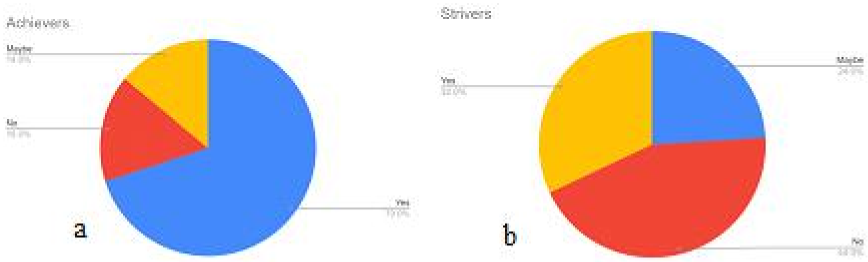
Figure 15. a) Sample size agrees majorly to the norms of a thinker’s behaviour , b) Sample size agreesmajorly to the norms of a believer’s behaviour

6.2 Achievements

The two graphs (Fig 16 a&b) establish the ratio between achievers and strivers to deduce the category of achievement.

According to the pie chart(Fig. 16 a), we learn that the majority of the sample size agrees to the norms of an achiever’s behaviour. The blue part in the chart shows YES, which is the major of all. It indicates that the majority population of the sample size go with the hypothesis for achievers that “ The consumer strives and achieves to buy a product and in turn motivate others to buy them by making them understand the pros and cons of any product.”

According to the pie chart (Fig. 16 b), we learn that the majority of the sample does not agree to the norms of a striver’s behaviour. The red part in the chart shows NO, which is the major of all options. It indicates that the majority population of the sample size does not go with the hypothesis for strivers that “ The consumer strives and achieves to buy a product and in turn motivate others to buy them by making them understand the pros and cons of



any product.”

Figure 16. a) Sample size agrees majorly to the norms of a Achiever’s behaviour , b) Sample size agrees majorly to the norms of a Striver’s behaviour

6.3 Self-expression

The two graphs (Fig. 17 a&b) establish the ratio between experiencer's and makers to deduce the category of self-expression.

According to the pie chart (Fig. 17a), we learn that the majority of the sample size does not agree to the norms of an experiencer's behaviour. The red part shows NO, which is major between the three options. It indicates that the majority population of the sample size go with the hypothesis for thinkers that "The consumer balances between the duties and responsibilities of one's own self and the family as well as experiencing new brands."

According to the pie chart (Fig. 17 b) (below the thinkers, believers), we learn that the sample size agrees to the norms of a believer's behaviour. The blue part shows NO, which is the major between the three options. It indicates that the majority population of the sample size go with the hypothesis that "The consumer balances between the duties and responsibilities of one's own self and the family as well as experiencing new brands."

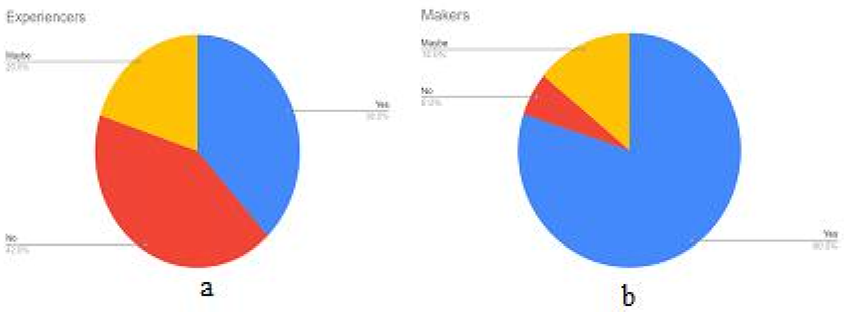


Figure 17. a) Sample size agrees majorly to the norms of a experiencer's behaviour , b) Sample size agrees majorly to the norms of a Maker's behaviour

7. Conclusions

From the study we conclude that majority of the population of the sample size agrees with the hypothesis which states that,

- The consumer is open to socializse as well as create a self-opinion while buying any product. This calls for an *ideal* situation.
- The consumer strives and achieves to buy a product and in turn motivate others to buy them by making them understand the pros and cons of any product.
- The consumer balances between the duties and responsibilities of one's own self and the family as well as experiencing new brands.

Although the subcategory strivers of achievement, under horizontal dimension showed an exceptional number which might have resulted from the subject's variation in thoughts. This research paper is a tool in the field of consumer psychology which will help in focusing more on the psychological aspect of marketing. It will also lead for further research to understand the nature of customers or consumers.

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SELECTION OF PRODUCTS BETWEEN WELL ESTABLISHED BRANDS AND PATANJALI PRODUCTS

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Abstract

Patanjali Ayurved Limited is an Indian consumer goods company that manufactures mineral and herbal products. In a country like India, herbal and ayurvedic products have an impact on consumer selection. The present study 'Selection of Products Between Well Established Brands and Patanjali Products', aims to understand the psychological factors, social factors, economical factors and religious factors that influences consumer psyche while selecting the products . With the mixed design, the first phase consisted of a survey executed by the scholars to understand and explore consumer selection behaviour between Patanjali Products and Well Established Brands on 121 samples. In the second phase, a focus group discussion was conducted on 8 subjects selected from the phase 1 sample, to get an in depth understanding on the social, psychological, economical and religious factors that contributed to the success of Patanjali products in India. The results attained from the present study indicate that Patanjali products are popular in the economical market however they haven't replaced the brand royalty of well established brands. The influence of the consumers' economical and religious practice has impacted Patanjali's rapid growth.

Keywords: *Patanjali; Well Established Brands; Consumer Psyche; Mixed Design*

1. Introduction

Consumer behaviour is the study of indivual , group or organizations and all the activities associated with the purchase , use and disposal of goods and services , including the customers emotional, mental and responses that precede or follow these activities. Consumer behaviour in the 1940's and 50's emerged as sub-discipline in marketing area. (Smriti Chand, 2008)

Its actually an inter-disciplinary social service that blends elements from psychology, sociology, social anthropology , marketing and economics, especially behavioural economics- it examines how emotions , attitudes and preferences affect buying behaviour , lifestyles and behavioural variables such as –

- Usage rate
- Usage occasion
- Loyalty

- Brand advocacy
- Willingness to provide referrals

It's an attempt to understand people's wants and consumptions which are investigated in formal studies of consumer behaviour. The study of consumer behaviour also investigates the influences on the consumer from groups such as family, friends, sports, reference groups and society in general.(Anuj Nawal, 2019). The study of consumer behaviour is concerned with all aspects of purchasing behaviours from pre-purchase activities through post- purchase consumptions evaluation and disposal activities. It is also concerned with all persons involved, either directly or indirectly, in purchasing decisions and consumption activities which include brand- influences and opinion leaders. (Anuj Nawal, 2019)

Research has shown that consumer behaviour is difficult to predict, even for experts in the field. However, new research methods such as ethnography and consumer neuroscience are putting light on how consumer makes decisions. (Dr.Divya Priya vol.7, no.3)

Customer relationship management:- CRM databases have become assets for the analysis of customer behaviour. The data produced by these enables and gives a detailed examination of behavioral factors that contribute to customer – re purchase intention, consumer retention, and loyalty.

Other behavioural intentions such as the willingness to provide positive referrals, become brand advocates or engages in customer citizenship activities. (Elizabeth Parsons and Pauline Maclaran, 2009)

Fast moving consumer goods: - Fast moving consumer goods are those goods which consumers buy on a regular basis. It is the 4^{th} largest sector for Indian economy with household and personal care according to 50% of FMCG sales in India. (Dr.R.Maharajothi, 2007).

FMCG goods provides to every human consumer on a daily basis. As the population continuously rises, one state urbanizes at a high rate, there is no doubt that the FMCG sector will only raise in market capitalization.

FMCG are consumer goods which are consumed on day to day basis. Its needs and wants drive consumers to buy those products at certain intervals. FMCG are consumers packaged goods which are produced to fulfil the basic needs of the consumer and available in the market at cheaper price. Consumers today have become more health conscious. They consume goods that provide maximum satisfaction with no-defect to their health.

Purchase decision: - To understand purchasing and consumption behaviour it's a key challenge for marketers. Consumer behaviour is concerned with understanding both how products or services are consumed or experienced.

Consumers are active decision makers, they decide what to purchase, often based on their disposable income or budget. They may change their preferences according to their budget and other factors.

- Some purchase decisions involve long, detailed processes that include extensive information search to select between competing alternatives.
- Other purchases are impulsive buyers who make decisions instantaneously with little time or effort.
- Some decisions are made in groups [such as family, households or business] while others are made by indivuals. When a purchase decision is made by a small group, such as household, different members of group may have involved at different stages of decisions process and perform different roles. Ex- one person may suggest the purchase category; another may search for product related information while another may physically go to the store, buy the product and transport it home.

It gives us different decision roles such as:

- The initiator- a person who proposes a brand [or product] for consideration [something in return].
- The influencer- someone who recommends a given brand.
- The decider- the person who ultimately makes the purchase decision.
- The purchaser- the one who orders or physically buys the product.
- The user- the person who uses or consumes the product.(journal of marketing research vol.5,no.2, 2013,pp-212-222)
- Consumer lifestyle: - In present society and living way, the Brands not only represent the symbol of the company or product but to a larger extent define the general life of a person. What the person uses can reflect his taste of life, his status in the society, his economic background and many other things. This makes a deep connection between the company and its brand, with the consumer. In today's time customers are very deeply connected to the brands. When they purchase any product like a car, mobile, items of daily need, brand name influence the consumer's choice. Some customers purchase the specific branded things just due to the brand name. Customers believe that brand name is a symbol of quality. (Raganath, 2010) Consumer lifestyle is changing, with media exposure; there is a plethora of information available in the market about a brand. Consumers brand choice and decision making process is activated by the level of involvement brands can generate both in the form of products and its attributes. Consumers place a number of attributes wiz, price, quality, package, ingredients, features and many more in their choice set. Each consumer will differ in certain aspects. This differentiation has a direct influence on purchase, so referred as perception.

Perception is the psychological factor that affects consumer's behaviour. It is how consumer perceives a products value based on the benefit obtained from the products performance. Today many brands were available in the market in many designs, shape and style, colour and different price range. Consumers are making their own choice based on their perception and preferences. (Gatut l.Budiono, vol 8, Nov 2017)

1.1 Do brands impact our life?

1.1.1 If yes

Companies spend on marketing and influence people through advantages and marketing strategies to promote their brands, most of consumers purchasing decisions are influenced by their marketing strategies.

- The hype that is created around branded products is so high that people spend beyond their budget just to fit into the peer group.
- Companies hire data scientists, psychologists to influence and manipulate consumers. By the amount they put into it. They have huge profits by manipulating consumers' choices.
- Many people buy fake imitations of branded goods, by this we can observe the importance of brands in our society. Companies market their products in turning into a style statement.

1.1.2 If No

- Companies market their products and the ultimate decision lies with the customer choice.
- It's a win – win situation for both companies and consumers. Companies put so much effort to deliver quality products to get a good name for their brands. This helps consumers to not waste money on low quality products

Although brands do not rule our lives subconsciously they influence us a lot that our purchase choices do depend on the advertisements we see in our daily lives. Some people do recognise it and tries to buy brands that are worth the price and some others fall into the trap of branded goods and buys expensive products.

1.2 Patanjali

Patanjali was the sage in Hinduism; he is to be the author of a number of Sanskrit works. They are greatly known as the yoga sages, which are a classical text in modern day yoga. Patanjali is a brand established with the combination of both the brand as well as personality Identity. In the beginning Baba Ram Dev had introduced himself as a Yoga Guru and gave information that, Yoga is a solution to many health challenges which are prevalent because of western influence and food which made our lifestyle sedentary and unhealthy.

He started out by teaching yoga to Indian audience. First, Sanskar and then Ashta channel broadcasting his Yoga Shivir's in various cities. He got a wide acceptance .He made the people realize the audience that Indians have forgotten our old traditions and art forms –Yoga being one of them. Elders of the family related to this combination of spirituality and tradition started this practice in their family too. It's been a decade now since, a phenomenon called Baba Ram Dev, arrived on the Indian political and social scene, when all other Baba's were minting good money by using spiritualism in a self owned manner. Baba Ram Dev did not fall in the traditional category and took the Yoga as a brand new level which probably his predecessors were unable to take. During his own rise Baba ram dev has not limited his presence to Yoga and spiritualism only, but he has extended it to politics and rise of Patanjali Ayurved Ltd. And is now challenging India's consumer space which is traditionally dominated by MNC's such as Colgate, HUL, P&G and certain large Indian Corporate like Dabur, Emam

Patanjali ayurveda limited is an Indian consumer goods company. Manufacturing units and headquarters are located in the industrial area os Hardwar, uttrakhand while the registered office is located at Delhi. The company manufactures mineral and herbal products. It also has manufacturing units in Nepal under the trademark Nepal gramudhyog and imports majority of herbs in India from Himalayas of Nepal. According to CLSA and HSBC, patanjali is the fastest growing FMCG Company in India.(Anjula Agarwal,volume5 ,2017)

- Progress of patanjali products :- Patanjali ayurved produces products in the categories of personal care and food. The company manufactures more than 2500 products including 45types of cosmetic products and 30 types of food products. According to patanjali, all the products manufactured by patanjali are made from ayurveda and natural components. Patanjali ayurvedic manufacturing division has over 300 medicines for treating a range of ailments and body conditions, from common cold to chronic paralysis.

Patanjali has launched instant noodles on 15november 2015 . Food and safety and standards authority of India slapped a notice on the company as neither patanjali nor ayush, which are the two brand names under which patanjali got licenses, have got any approval for manufacturing instant noodles.

In 2016, patanjali has announced to enter the textile manufacturing centre. The company is reported to manufacture not only traditional clothes such as kurta pyjamas but also popular western clothes such as jeans.

On November 2016, patanjali announced that it will set up a new manufacturing plant patanjali herbal and mega food park, in Balipara, Assam by investing 1,200 crores with the manufacturing capacity of 10 lakh tonnes of goods per year. The new plant will be the largest facility of patanjali in India and will be operational by March 2017. Patanjali already has around 50 manufacturing across India.

In 2015, the Maharashtra government announced plans to sell excessive material from its van dhan Jan dhan scheme to patanjali. The government set up this scheme to sell medicinal and herbal products, derived from the forests of Maharashtra, to the consumer in government-established shops. Patanjali amla juice had also been suspended by the armed forces canteen stores department in April after it failed the quality test at a public health library in Kolkata. Patanjali's products are cheaper compare to the alternatives available in the market due to less production and marketing.(Dr. Moloy ghoshal,2017)

Though patanjali started as a brand that concentrated only on the well-being of the indivuals. Their target audience were those individuals, who couldn't afford other expensive brands. It raised to popularity due to the fact that all the products were made out of natural organic products and anybody could use them. Patanjali strives to maintain reasonable prices.

2. Review of literature

Literature review speaks about the many relevant studies facilitated to understand the importance of the concepts and its application. Review of literature supports the study, provides ideas for execution of the study to make it relevant for the present situation and adding value to the society through the research work. The present study intends to know the selection criteria of consumers between well established Brands and Patanjali.

2.1 Several studies have been executed to identify the success factor of Patanjali products. **Maheshwari (2017)** has explained few reasons for the growth of Patanjali in his article. According to the study- quality products at lower price, strong brand ambassador, good distribution channel, swadeshi campaign, efficient team and good execution are the stated reasons

2.2 Another study by **Sagarmalviya (2017)** showed that the growth of Patanjali products was due to its Ayurvedic essence and has created a new demand in the market for such products. As per the statistics given in the study, it tells that 77% of household are now using Ayurvedic products while it was just 69% earlier. The study shows that there is a significant growth in Ayurveda segment of FMCG (fast moving customer goods) market in last few months.

2.3 Accoding to **Tandan's study (2017)** , they found that the traditional linking of Patanjali as an Indian company was the main reason for the growth of Patanjali. The study also shows that there are many professionals who are joining Patanjali for the same reason and this has contributed a lot in growth of Patanjali.

2.4 Rupali (2015) studied "customer perception towards Brand: A Study on Patanjali". The study attempted to show the key factor influencing the Patanjali brand. Customer perception towards a brand depends on the satisfaction after using the product by the customers. It was found that majority of the users are satisfied from Patanjali products which will help them in customer retention. Good satisfaction has been the key factor influencing the increased choice for Patanjali products.

2.5 Another study by **Ganesh & John (2015)** focused on the "customer perception towards brand loyalty of FMCG products". The study illustrated that satisfaction creates brand loyalty. Ayurvedic, herbal product and Patanjali products endorsed by Baba Ramdev himself as Yoga guru gives satisfaction to costumers as these products promote healthy living. **Nagaraju & Thejaswini (2015)** focused on "customer perception analysis and market awareness towards eco-friendly FMCG products". The study analysed the fact that the customers give more preference to eco-friendly FMCG products as they are very health and environment cautious. Patanjali has rightly marketed its products in the same category.

2.6 Surinder (2015) in his study "customer perception towards the FMCG in rural market". The study showed that costumers from rural areas are mainly influenced by Media, Print Advertisement and Word of Mouth. All these factors play a significant role in the buying decision of the customer in the rural areas.

2.7 The literature shows that there are various factors influencing change in choice of products by costumers. Similarly many reasons have been listed for the increase in choice of Patanjali products.

The present study would further reveal the factors influencing the selection of products between well established Brands and Patanjali products.

3. Methodology:

3.1 Research Questions:

- Do the psychological factors influence consumers in selection of products between well established Brands and Patanjali products?
- Do the social factors influence consumers in selection of products between well established Brands and Patanjali products?
- Do the economical factors influence consumers in selection of products between well established Brands and Patanjali products?
- Which major factorsare influencing the success of Patanjali products in India?

3.2 Objectives:

- To study the psychological factors influencing consumers in selection of products between well established Brands and Patanjali products.
- To study the social factors influencing consumers in selection of products between well established Brands and Patanjali products.
- To study the economical factors influence consumers in selection of products between well established Brands and Patanjali products.
- To study the major factors influencing the success of Patanjali products in India?

3.3 Inclusive Criteria:

- Products selection is based on the popularity noticed in media.

3.4 Exclusive Criteria:

- Consumers from rural areas.

3.5 Operational Definitions:

- **Consumer Behaviour:** Consumer behaviour is the study of individuals, groups, or organizations and all the activities associated with the purchase, use and disposal of goods and services, including the consumer's emotional, mental and behavioural responses that precede or follow these activities.

- **Survey**: A Survey is defined as a research method used for collecting data from a pre-defined group of respondents to gain information and insights on various topics of interest.
- **Focus Group Discussion:** A focus group discussion involves gathering people from similar backgrounds or experiences together to discuss a specific topic of interest. It is a form of qualitative research where questions are asked about their perceptions, attitudes, beliefs, opinion or ideas.
- **Mixed Design:** Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e. g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.
- **Well Established Brands:** Well established brands can be defined as having existed for a long time and having been successful or accepted for a long time.
- **Patanjali Products**: Patanjali Ayurved Limited is an Indian consumer goods company. Manufacturing units and headquarters are located in the industrial area of Haridwar, Uttarakhand while the registered office is located at Delhi. The company manufactures mineral and herbal products.

3.6 Sampling Technique:

Snowball sampling technique.

3.7 Sample:

- Population between the age of 21 to 40.
- Survey: N= 121
- Focused Group Discussion: N= 08

3.8 Tools of assessment:

- A questionnaire containing pictures of similar products from a well-established Brand and Patanjali product.
- Questions developed by research scholars for Focus Group Discussion with the scrutiny of three experts.

3.9 Procedure:

Mixed Design was followed in the present study. The study was executed in two phases.

Phase I: Survey:

The subject was seated comfortably in a well-lit room. Consent form was given to the subjects to take their consensus to be part of the study. Approval was taken to record and use their responses for the research paper. The questionnaire was administered by the scholars on all 121 samples. The questions were kept constant.

Phase II: Focused group Discussion:

The focus group discussion was conducted facilitated by the scholars. Representative samples from the survey (N=08) were selected for the FGD. The responses given by the samples were noted down.

3.10 Analysis of Data:

- Phase I: The data collected from survey method has been graphically represented.
- Phase II: Qualitative research design: Thematic and content analysis.

4. Results and Discussion:

An individual's choice of products shows his/her taste, status, economic background and life style. These have a very close connection between the companies, its brand with the consumer. A change in the choice of products based on brands has been subjected to change. Consumers have various choice and preferences and companies catering to their needs are mostly preferred. Brand names generally have influence on choice of consumers. Patanjali has been a new entry to the market, having its influence on change of choice among consumers.

The present study attempted to understand the difference in brand choice of consumers and to know the factors influencing preferences between well-established and Patanjali products. The study was executed in two phases, Phase 1 (Survey Method) and Phase 2 (Focus Group Discussion). Phase I shows the graphical representation of the consumers choice and Phase II has been evaluated using thematic and content analysis.

4.1 Phase I

Table 1 shows the percentage of the responses given by the subjects, regarding the selection of products between Patanjali and Well Established Brands. The responses obtained from the survey shows that consumers more preferably chose Patanjali products over well established brands. The popular Patanjali products preferred by the consumers as per the present study were Patanjali Kesh Kanti Natural Shampoo, with the percentage of 66.1% and Patanjali Kesh Kanti Conditioner with the percentage of 66.9%, and the least preferred product was Patanjali Herbo wash detergent, with the percentage of 52.1%.

PATANJALI	**PERCENTAGE**	**WELL ESTABLISHED BRANDS**	**PERCENTAGE**
Patanjali Herbo Wash Detergent	52.1%	Surf Excel Easy Wash Detergent	47.9%
Patanjali Corn Flakes	54.5%	Kelloyg's Corn Flakes	45.5%

Patanjali Kesh Kanti Oil	57.9%	Parachute Coconut Oil	42.1%
Patanjali Haldi Chandan Soap	63.6%	Santoor Gold Soap	36.4%
Patanjali Beauty Cream	62%	Ponds White Beauty Cream	38%
Patanjali Sunflower Oil	54.5%	Fortune Sunflower Oil	45.5%
Patanjali Kesh Kanti Natural Shampoo	66.1%	Clinic Plus Shampoo	33.9%
Patanjali Kesh Kanti Conditioner	66.9%	Sunsilk Conditioner	33.1%
Patanjali Dant kanti Toothpaste	66.1%	Colgate Toothpaste	33.9%
Patanjali Herbal Kajal	52.9%	Colossal Kajal	47.1%

Table 1: Shows percentages of preferences between well-established and Patanjali products

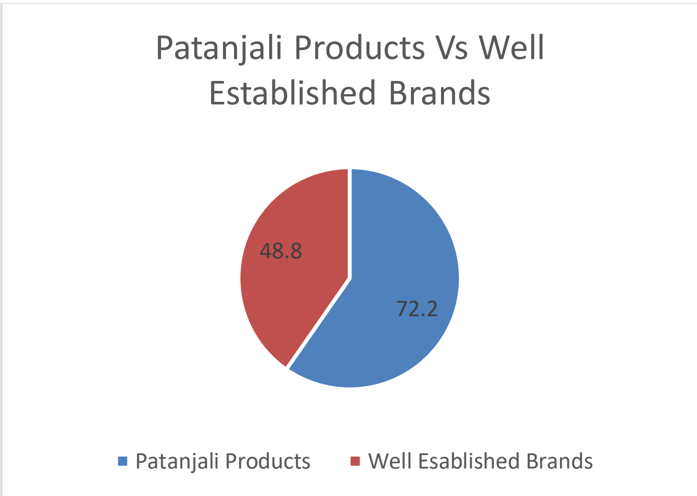

Figure 1. The average scores of the preferred products by the consumers

The graphical representation (Fig 1) shows the average scores of the preferred products by the consumers. The mean obtained for Patanjali products is 72.2 and the mean obtained for Well Established Brands is 48.8. This indicates that the consumers have shown more preference towards Patanjali Products over Well Established products.

4. 2 Phase II

Themes have been developed to understand the factors influencing selection of products.

Theme 1: Psychological Factors:

The consumers were all very well aware of Patanjali through means of great marketing techniques, advertisements done by Ram Dev Baba, and the ayurvedic Patanjali shops around them. Some of the samples were not even aware that who the actual Patanjali was, many felt Ram Dev Baba was the Patanjali. He is actually the ambassador endorsing Patanjali products. Through the responses it can be derived that introduction of Patanjali products has made people think over established brands and changes required. Samples explained that, chemicals used in established brands had made them think about the effects of it on their health. When Patanjali was introduced, it was endorsed for its herbal products and being more natural and very less chemical. This made people to think towards selection of products. This shift in thinking has made people to choose Patanjali over well-established products. Health factor was one the main factor identified by the samples to select Patanjali products than well-established products.

Theme 2: Social Factors:

In the focus group discussion it was prevalent that there is a huge religious following for Ram Dev Baba, which made it more prominent in the public eye. Consumers have also used most of the Patanjali products and specifically the aloe vera gel.

Patriotism was one of the main identified social factor. One of the sample said "we should buy Patanjali products and support our own Indian based company than other Foreign Companies". Few other samples agreed upon and explained that supporting Patanjali products would have positive impact on our Indian Economy. The name Patanjali is very Indian in nature and makes people feel it closer to them than other products. Some of the well-established products continue with their brand loyalty, yet change in selection of products was noticed in the market. Patanjali products are also preferred in rural areas, as it is organic and ayurvedic, eco-friendly and even patriotic. It was also noticed that the working class generation was not satisfied with the products, whereas, the values of Patanjali connected to the older generation. Along with these successful factors, the samples also spoke about religion and its role in the success of Patanjali products, as its symbol is "Om" which directly targets Hindu audience. One of the sample said "Patanjali products neglects to cater to other religious communities".

Theme 3: Economical Factors:

Samples expressed that, themselves and family members have shown a shift to Patanjali products as they are cheaper. Patanjali products are affordable to any economic class. Brand loyalty has a tough fight, where brand loyal people would still get back to their established products. Making Patanjali products available for cheaper price has been main strategy of the company.

As per recommending Patanjali products, the consumers gave mixed responses as some of them were more prone to well established brands as compared to Patanjali. While the others have recommended some of the well known Patanjali products. The results obtained from both the survey and the focus group discussion has shown that Patanjali is vastly growing as a company. Well Established Products are however still as much in demand, along with Patanjali's progress. The study shows that Patanjali has been favoured by many, but well-established products continue with their brand loyalty in the market. Irrespective of importance given to Patanjali products, well-established products are successful in the market in satisfying their costumers and continuing their existence.

5. Conclusions

Patanjali products are mostly preferred than well-established products according to the survey conducted. Shift in thinking style of people towards health benefits and giving preference to the products with health factors has made Patanjali products more popular. Patriotism was identified, as Patanjali has been the Indian based company. Religious factors were also noticed, as it has directly been connected to Hindu consumers. Patanjali products have been preferred as they are cost effective in nature. Patanjali products are available to any economic status people. Though Patanjali has popularity, well-established products continue to be successful due to the brand loyalty and their earlier success rate. Patanjali has been popular, but may not replace well-established products.

6. Limitations

Due to snowball sampling technique the researchers had limited control over the distribution of survey to the samples.

7. Suggestions

There are not many significant qualitative studies done on Patanjali products and it's popularity, hence, a qualitative research would give an in-depth analysis of the brand and it's success.

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TECHNICAL SESSION 5

PROGNOSIS OF DATA SCIENCE

CYBER SECURITY AND PRIVACY ISSUES IN SMART GRIDS

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Abstract

This paper focuses on Smart grid. Smart Gird is a promising power delivery infrastructure integrated with communication and information technologies. The bi-directional communication and electricity flow enable both utilities and customers to monitor, predict, and manage energy usage. It advances energy and environmental sustainability by the integration of distributed energy resources. Nevertheless, increased interconnection and integration also introduce cyber vulnerabilities in grid. Failure to address the problems will hinder the existing power system in a modern way. In order to build a reliable smart grid, an overview of relevant cyber security and privacy issues is presented. Based on current literatures, several potential research fields are discussed at the end of this paper.

Keywords: Smart grid; SCADA; AMI; security; privacy; accountability

1. Introduction

The technology and innovation is to modernize industry, our electric power system has been maintain from years ago. The increasing load and consumption demands increase electricity complications, such as voltage sags, black outs, and overloads. Meanwhile , the current electrical network contributes greatly to carbon emissions. The United States' power system alone takes up both economic and environmental interests , substantial changes must be made to such an unstable and inefficient system. Therefore, many nations (e.g., U.S., EU, Canada, China, Australia, South Africa, etc.) are now modernizing their power grids [42]. They believe that they not only require reliability, scalability, manageability, and extensibility, but also that they should be secure, interoperable, and cost-effective. Such an electric infrastructure is called a "smart grid." Generally speaking, the smart grid is a promising power delivery infrastructure that is integrated with two-way communication and electricity flows. Through advanced sensing technologies and control methods, it can capture and analyse.

2. **Differences of it networks and smart gird**

Categories	**IT Networks**	**Smart Grid**
Architecture	1) flexible and dynamic topology; 2) center server requires more protection	1) relatively stable treelike hierarchy topology; 2) some field devices require the same security

	than periphery hosts	level as the central server
Technology	1)Diverse operating systems; 2) public networks; 3) IP-based communication protocols	1) proprietary operating systems; 2) private networks; 3) DNP (Distributed Network Protocol) - based communication protocols.
Quality of Service	1) transmission delay and occasional failures are tolerated; 2) allow rebooting	1) high restrictions on transmission delay and failures; 2) rebooting is not acceptable

According to the analysis results, the smart grid may provide predictive information and corresponding recommendations to all stakeholders (e.g., utilities, suppliers,and consumers) regarding the optimization of their power utilization .It may also offer services like intelligent appliance control for energy efficiency and better integration of distributed energy resources (DERs) to reduce carbon emissions

In fact, we have some IT security techniques into the smart grid to meet its security and privacy requirements. However, while choosing any of the possible security measures, there always exists a trade off among security, cost, and performance

OVERVIEW OF SMART GRID

Features

Enabling Informed Participation by Customers: Unlike traditional power systems, customers are better informed by a two-way communication technology. The entire smart grid becomes an active electricity market that allows customers to shift load and to generate and store energy based on near real- time prices and other economic incentives

Accommodating All Generation and Storage Options: The smart grid not only accommodates remote centralized power generation, but also adopts diverse and widespread distributed energy resource (DER) (e.g., solar, wind, or geothermal energy) through flexible network architecture and distributed management.

Enabling New Products, Services, and Markets: New products and services are essential parts of the smart grid that can promote low-cost and green solutions for all power users. By using consumer-oriented "smart appliances" or intelligent electronic devices (IEDs), for instance, customers or authorized service providers can remotely control IEDs' power usage.

Providing the Power Quality for the Range of Needs: Power quality involves factors like voltage flicker, voltage volume, momentary interruptions, etc. Different consumers may have distinct power quality requirements .To satisfy a particular consumer's power usage, the smart grid must meet a wide range of power quality needs in terms of architectural designs and contract concerns.

Optimizing Asset Utilization and Operating Efficiently: The smart grid is a complex system of systems that manages a variety of appliances, facilities. Optimizing the utilization of those assets and enabling efficient operation and maintenance will reduce both whole life-cycle and investment costs and power consumption.

Operating Resiliently to Disturbances, Attacks, and Natural Disasters: This concept **is** proposed to ensure the reliability of the power grid. Regardless of the type of physical damages or cyber attacks , the smart grid can effectively resist these problematic events through local, regional, and national coordination.

Key Components

AMI (Advanced Metering Infrastructure): AMI is an integration of multiple technologies that provides intelligent connections between consumers and system operators . It is designed to help consumers know the near-real-time price of electricity and thus to optimize their power usage accordingly .

SCADA (Supervisory Control and Data Acquisition): SCADA system is responsible for the real-time monitoring and control of the power delivery network .Through intelligent remote control and distributed automation management at medium voltage substations, it can both help the grid reduce operation and maintenance costs and ensure the reliability of the power supply . Two related subsystems are the energy management system (EMS) and the distribution management system (DMS) .

SCADA systems consist of four parts (as shown in Fig. 3)

field data interface devices such as remote terminal units (RTUs) and programmable logic controllers (PLCs),

A communication system (e.g., telephone, radio, cable, satellite, etc.),

A central master terminal unit (MTU), and

Human machine interface (HMI) software or systems

PHEV (Plug-in Hybrid Electric Vehicle): PHEVs, addition to reducing carbon emissions and reliance on fossil fuels, could also provide a means to support DER in the smart grid. Since most PHEV batteries are designed to speed up rapidly for fast discharge, parked PHEVs can supply electric power to the grid . This vehicle-to-grid concept may improve the efficiency and increase the reliability of the power grid .

Communication Protocols and Standards: The communication standards for the power industry were developed by five leading organizations including the IEEE, the IEC (International Electro-technical Commission), and the DNP3 (Distributed Network Protocol) Users Group . The most prevalent protocols for SCADA communication systems are IEC and DNP3 . (Manufacturing Message Specification, ISO 9506) protocol security in the IEC standard. Specifically, the MMS will work with the TLS to secure communications . Not all components are required to adopt this secure mechanism. Part-5 focuses on the security of serial communication in IEC and DNP3.

CYBER SECURITY ISSUES ON SMART GRID

The traditional power delivery system focuses on developing equipment to improve integrity, availability, and confidentiality. Recently, contemporary communication technologies and equipment were typically regarded as supporting the power industry's reliability. Securing the power grid prevents, prepares for, protects against, mitigates, responds to, and recovers from unexpected cyber events or natural disasters .

The development of a secure smart grid would encounter the following four challenges:

The power delivery system has new communication requirements in terms of protocols, delay, bandwidth, and cost. Avoiding early obsolescence is essential in smart grid security development.

Many legacy devices have been used in power automation systems for decades. Most of them only focus on a certain functionality and thus lack sufficient memory space or computational capability to deal with security problems. Integrating the existing legacy equipment into the smart grid without weakening their control performance is a challenge.

Networking in the current power grid uses heterogeneous technologies and protocols such as ModBus , ModBus+ , ProfiBus (Process Field Bus) , ICCP (Inter-control Center Communication Protocol), DNP3, etc. Nevertheless, most of them were designed for connectivity without cyber security.

Current power systems are usually proprietary systems that provide specific performances and functionalities but not security.

Device Issues

Devices like PLCs (Programmable Logical Controllers), RTUs, and IEDs are widely deployed in power delivery systems to allow administrators to perform maintenance or to dispatch functionalities from a remote location .

- The function enables malicious users to manipulate the device and disrupt normal operations of the grid, such as shutting down running devices to disconnect power services or tampering with sensing data to misguide the decisions of the operators .
- The authors in discussed such a cyber vulnerability, in which an attacker could switch-off hundreds of millions of smart meters with remote off switches.
- No agreed solutions are proposed in present standards and regulations, some recommended counter measures in may be considered in further discussions.
- Addressing the problem may require hardware support. We therefore not focus on its solutions in this paper.
- They used AES-CCM with 128 bit shared key to encrypt the line between the meter and the gateway, which showed their protocol is reliable and energy efficient (according to their experiment results). As for the customer interfaces and PHEVs, not too many papers are presented to address potential security problems. On going relevant research mainly focuses on issues of malware attacks and fast encryption.
- Although there is currently no solution, one thing is recommended: all mobile code (e.g., ActiveX, JavaScript, Flash animation, etc.) in the smart grid should be strictly controlled from suppliers to operators.

Networking Issues

Potential security problems of networking in smart grids mainly focus on issues of the Internet, wireless networks, and sensor networks. Just like the Internet, multiple networking technologies can be utilized for the smart grid, including fiber optics, land mobile radio (LMR), 3G/4G (WiMax), RS-232/RS-485 serial links, WiFi, and so on . It depends on the requirements of the grid environment and is an open issue in the development of smart grid communication standards.

IT industry has witnessed a series of attacks against wireless mesh technologies such as cross-layer traffic injection, node impersonation, route injection, message modification, etc. Most existing routing protocols lack specific strategies to secure the paths and the data mainly because of their inherent distribution features .

Dispatching and Management Issues

Smart grid can be regarded as a combination of several micro grids . Each micro grid operates autonomously within its local SCADA system and interacts with others like “Island Functionality” or “Islanding.” Micro grids will be controlled by a central master SCADA system in which every local SCADA acts as a slave controller providing energy related information to the central controller. This framework ensures reliability of the smart grid and thus has been approved by the IEEE-1547 standard.

This increased interoperability, makes them more accessible to public users, which inevitably increases the risk of the system being compromised as follows:

- Take down the server
- Gaining control over the system

- Stealing corporate data
- Fiddling with billing information
- Key logger software
- Gain competitive advantage
- Misuse the SCADA servers to attack the other servers in the system and gain access information to the valuable information from the utility companies.
- Manipulate mathematical data points to off track the utility operators, who then tend to detect a false alarm and tend to shutdown or rescale the system causing unnecessary latencies.
- Change user logged data in a distant and remote DBMS; this can affect the innocent users as well as the utility companies.

For example: an attacker can attack the power grid by attacking the energy management system (EMS) faking meter data and misleading EMS by the state estimator to make bad decisions.

FUTURE RESEARCH DIRECTIONS

Generally speaking, three areas should be further studied to enhance the security level of the grid:

- Integrity and confidentiality of the transmitted data,
- Building a robust and efficient dispatching and management model for SCADA system
- Establishing a universal policy and standard for secure communication technology. We also have examined privacy concerns in the smart grid.

Control System Security

Industrial control normally does not do too much about security. In recent years, people pay some attention to control systems security to protect power generation, transmission and distribution. Co-designs of control and security in smart grids will be interesting topics in the future.

Power System Security

Besides cyber security, vulnerabilities in physical power grid should also be further explored and studied. Since new devices will be largely deployed, no one can guarantee the power line itself is 100% secure. Standards and regulations for those new components and their compatibilities need to be modified accordingly.

Authors gave us a good example. They proposed a graph-based model that combined both cyberand electrical grid. It can be used for analyzing the cause-effect relations on cyber attacks. Before it applies to a large-scale power grid, more work is still required.

Accountability

Advanced cyber security technologies protect every level of the current network infrastructure. New vulnerabilities and risks continue to emerge under the particular framework of the smart grid. As a complement, accountability is required to further secure the smart grid in terms of privacy, integrity, and confidentiality.

Generally speaking, accountability means that the system is recordable and traceable; this makes the system liable to those communication principles for their actions. Every single change in a local host or network traffic, which may be the most important or most desirable information, can be used as evidence in future judgment. Under such a circumstance, no one can deny their actions, not even the administrators or other users with high privileges.

Integrity and Confidentiality

Integrity and confidentiality are two main aspects for computer and network security design. Naturally, they are still essential for securing the smart grids. For example, integrating with huge numbers of DERs may incorporate with distributed database management system and cloud computing technologies. Whether or not we could adopt current solutions to provide integrity and confidentiality for smart grid is indeed a future research direction.

Privacy

Privacy issues in cyber security may be addressed by adopting newly anonymous communication technologies. Current approaches to anonymize traffic in general networks will cause overhead problems or delay issues. For some time-critical operations, limited bandwidth and less connectivity features in the smart grid may hinder the implementation of anonymity.

CONCLUSION

This paper mainly gives an overview of cyber security and privacy issues in the smart grid. According to existing research, we may conclude that almost every aspect related to IT technology in the smart grid has potential vulnerabilities due to inherent security risks in the general IT environment.

The paper also provides future research directions. Cyber security and privacy issues in the smart grid are new areas in the fields of power industry, electrical engineering, and computer science. More in-depth research is required to develop such a promising power grid in the near future.

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CYBER SECURITY: PHENOMENA, CHALLENGES AND LEGAL -RESPONSE

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Abstract

The purpose of this paper is Understanding Cybercrime: Phenomena, Challenges and Legal Response is to assist everyone in understanding the legal aspects of cyber security and to help harmonize legal frameworks. As such, it aims to help better understand the national and international implications of growing cyber threats, to assess the requirements of existing national, Regional and international instruments, and to assist in establishing a sound legal foundation. It provides a comprehensive overview of the most relevant topics linked to the legal aspects of Cybercrime and focuses on the demands of developing countries. A solution out of this dilemma is a cyber-security policy that is decidedly anti-vulnerability and at the same time based on strong considerations for privacy and data protection. Such a security would have to be informed by an ethics of the infosphere that is based on the dignity of information related to human beings.

Keywords

Cyber-security, Indian IT Act, Cyber Forensic Labs, Cybercrime Cells

Introduction

Cyber-threats and the measures necessary to counter them are the security issue of the hour. In recent years, a number of sophisticated cyber-attacks and intensifying media attention have combined to give the impression that cyber-incidents are becoming more frequent, more organised, more costly, and altogether more dangerous. As a result, cyber-fears have percolated upwards, from the expert level to executive decision-makers and politicians. Threats to cybersecurity can include computer viruses, spam, identity theft, data breaches, denial of service attacks, and cybercrime. Attackers can range from hackers to activists to petty criminals to businesses to national governments. With over 370 million people falling victim to cybercrimes each year and tens of thousands of known viruses in existence, the threats to our security are real - but so are the threats to our human rights online. Deterring cybercrime is an integral component of a national cyber security and critical information infrastructure protection strategy. In particular, this includes the adoption of appropriate legislation against the misuse of ICTs for criminal or other purposes and activities intended to affect the integrity of national critical infrastructures. At the national level, this is a shared responsibility requiring coordinated action related to prevention, preparation, response and recovery from incidents on the part of government authorities, the private sector and citizens.

Literature Review

Cyber-security has two elements: the specificities of the ‘‘threat’’ and the related ‘‘referent object’’ (that which is seen in need of protection). In any political process, the definition of referent objects is not only closely connected to how a danger is viewed, it also is an unavoidable decision since any danger discourse must be tied to some kind of endangered entity to become meaningful (Hagmann and Dunn Cavelty 2012). The ‘‘human’’ is presented as a direct threat in the form of the (evil) hacker, the inadequate software developer or system administrator, but is hardly ever a specific and direct referent object of security. The threat to (national) security is presented as possible disruption to a specific way of life—one building on information technologies, economic performance and ‘‘critical’’ functions of infrastructures—but the direct threat to human security, especially a threat that undermines acquired values such as anonymity, privacy, freedom of speech, free access to information, etc. does not figure prominently in the policy discourse. Computer hackers (Chandler, 1996; Duff and Gardiner, 1996; Sterling, 1994; Jordan and Taylor, 1998) played an important role in the early stages of the conceptual development of the internet, combining high levels of specialized knowledge to test out and develop new ideas with a staunch ethical belief in freedom of access to all information.

Objective

- To define a concept and terminology of cyber security and cyber crime
- To analyze the growing cyber security threat
- To provide a solution to tackle with cyber crime
- To create awareness about latest cyber crime
- To propose recommendations and a comprehensive research agenda regarding cyber security and cyber-crime

What is cyber-crime?

Cyber dependent crimes (or ‘pure’ cyber-crimes) are offences that can only be committed using a computer, computer networks or the other form of information communications technology (ICT) .These acts include the spread of viruses or other malware, hacking and distributed denial of service (DDoS) attacks. They are activities primarily directed against computers or network resources, although there may be a variety of secondary outcomes from the attacks. For example, data gathered by hacking into an email account may subsequently be used to commit a fraud.

Framing the issue

- Mobile devices and apps- Every new smart phone, tablet or other mobile device, opens another window for a cyber-attack, as each creates another vulnerable access point to networks.
- Social Media Networking - Growing use of social media will contribute to personal cyber threats. Social media adoption among businesses is skyrocketing and so is the threat of attack.
- Protect systems rather Information - As consumers and businesses are like move to store more and more of their important information online, the requirements for security will go beyond simply managing systems to protecting the data these systems house.

Cases of Cybercrime in India

Mumbai

Vodafone was directed to pay Rs 4.5 lakh to a Mulund resident who fell victim to cybercrime after a duplicate of his SIM card was allegedly issued to another person.

Bangalore

Bangalore police arrest man for hacking bank account: It just took four days for him to siphon Rs 3.94 lakh from a Bangalore based ABN- Amro bank account into his ICICI bank account in Vadodara.

Delhi

The cyber cell of Gurugram police arrested a 27 year old commerce graduate for allegedly duping over a hundred of people from Delhi-NCR by getting their debit/credit card details and also involved in 135 cyber fraud cases.

Initiatives taken by Indian Government

- Cyber Crime Cells have been set up in States and Union Territories for reporting and investigation of Cyber Crime cases.
- In collaboration with Data Security Council of India (DSCI), NASSCOM, Cyber Forensic Labs have been set up at Mumbai, Bengaluru, Pune and Kolkata for awareness creation and training.
- Programmes on Cyber Crime investigation. National Law School, Bangalore and NALSAR University of Law, Hyderabad are also engaged in conducting several awareness and training programmes on Cyber Laws and Cybercrimes for judicial officers.

Legal Action:

As far as legal action is concerned, the following actions may be helpful to reduce Cyber Crime and important to take into

- Electronic Communications Privacy Act of 1986
- Indian IT Act

- Computer Fraud and Abuse Act of 1984
- Computer Security Act of 1996
- Personal Data Privacy and Security Act of 2007
- Identify Theft Prevention Act

Qualitative Study

- An online cyber security research survey was conducted with 53 respondent's data analysis.
- According to which 70% of respondents were doubtful about their internet security
- Whereas 80% of the respondents wanted more stricter laws to be implemented with regards to their online privacy
- Around 45% of respondents preferred online payment systems that were anonymous to those that were user defined.

Methodology: Online survey method

Suggestions

- Properly configure and patch operating systems, browsers, and other software programs.
- Use and regularly update firewalls, anti-virus, and anti-spyware programs.
- Be cautious about all communications; think before you click.
- Don't reveal too much information about yourself on social media websites.
- Complain about illegal communication and activities, if found to Internet service Providers and local law enforcement authorities

Future Enhancements

In cyber-security as currently understood and practised, human beings are seen as victims, as weakest link in the system, as direct threat—but not (or only very indirectly) as beneficiaries of the type of security that states (and companies) want. On the one hand, the neglect of the human element is a direct consequence of a focus on technical systems as targets and technology-based countermeasures in cyber-security. On the other hand, the lack of consideration for ''the human'' in this field also seems to be an effect of the issue that human security scholarship has already tackled decades ago: that too much focus on the state and national security tends to crowd out consideration for the individual citizen, with often detrimental effects for security overall (cf. Burgess and Owen 2004). I look at both aspects and their consequences for security below and then turn to the clash between this type of security and human security.

Conclusion

- Cybercrime is now serious, widespread, aggressive, growing, and increasingly sophisticated, and poses major implications for society and economic security.

- Reduction in Cyber Crime is only possible when user will be much more aware of the aspects of Cyber Crime.
- With the increasing incidents of cyber-attacks, building an effective intrusion detection model with good accuracy and real-time performance are essential.

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A COMPREHENSIVE STUDY ON CYBER SECURITY ISSUES IN ORGANIZATION

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ABSTRACT

In this era of digital world all forms of data are moved around the globe in digital form. According to the global Wikipedia survey about 51 percentage of world's population had internet access. Security to these digital data are very necessary from the intruders, foes and unauthorized individuals for any organization. Security is the protection against danger, criminal and loss. But due to the day to day emerging sophisticated technologies we are unable to cope up for the new vulnerabilities which came along with it. This research paper emphasis the data security issues in an organizations and various cyber security techniques by which chances of cyber-attack can be reduced.

INTRODUCTION

Today man is able to send and receive any form of data may be an e-mail or an audio or video just by the click of a button but did he ever think how securely his data id being transmitted or sent to the other person safely without any leakage of information?? The answer lies in cyber security. Today Internet is the fastest growing infrastructure in everyday life. In today's technical environment many latest technologies are changing the face of the mankind. But due to these emerging technologies we are unable to safeguard our private information in a very effective way and hence these days' cybercrimes are increasing day by day. Today more than 60 percent of total commercial transactions are done online, so this field required a high quality of security for transparent and best transactions. Hence cyber security has become a latest issue. The scope of cyber security is not just limited to securing the information in IT industry but also to various other fields like cyber space etc.

Even the latest technologies like cloud computing, mobile computing, E-commerce, net banking etc. also needs high level of security. Since these technologies hold some important information regarding a person their security has become a must thing. Enhancing cyber security and protecting critical information infrastructures are essential to each nation's security and economic wellbeing. Making the Internet safer (and protecting Internet users) has become integral to the development of new services as well as governmental policy. The fight against cyber-crime needs a comprehensive and a safer approach. Given that technical measures alone cannot prevent any crime, it is critical that law enforcement agencies are allowed to investigate and prosecute cyber-crime effectively. Today many nations and governments are imposing strict laws on cyber securities in order to prevent the loss of some important information. Every individual must also be trained on this cyber security and save themselves from these increasing cyber-crimes.

DATA SECURITY ISSUES FACING COMPANIES TODAY

TARGETED CYBER ATTACKS

Cyber attacks are no longer the creation of the teenage hackers looking for bragging rights. With global organized crime syndicates behind cyber attacks, the nature of how they attack networks is changing, says a report by Forrester Research. No need for the hackers to gather as much information as possible in one go; targeted attacks can now extract data over a longer period of time.

DATA BREACH

From international leaks from disgruntled employees to blunders involving misplaced laptops, data is escaping from inside organizations. The 2010 Version Data Breach Investigations report released in July found that almost 50 percent of data breaches were inside jobs. Companies need to be more vigilant about who has access to information, especially when it comes to corporate networks outside the firewall. The U.S military is so concerned about insider threats that the department of Defence is working on an algorithm to figure out when trusted insiders may be on the brink of psychologically turning on an organization.

CLOUD COMPUTING

Cloud computing opens up a new set if data-security concerns, mainly because it means companies must relinquish control of security to an outside party. While cloud computing providers are doing everything they can to build a secure data centres, the way data is stored in cloud- in shared environments alongside other customer data is different from how a company might store it themselves and poses security concerns.

SOCIAL NETWORKS

Corporate employees aren't use wasting time on social networking sites -they‘re inadvertently leaking company data. Aside from the vulnerabilities in these online applications that seep into corporate networks, people are often posting private information.

Third party applications that employees can access through Facebook which are often developed by individuals or very small companies- may also pose security threats unknown to corporate IT administrators.

MOBILE DEVICES

Smartphones are ubiquitous in today‘s workplace. While companies have some control over protecting devices they configure, many employees use personal smart phones to download and access corporate information, giving IT administrators little to no control over their security. Because it's so difficult to implement platform-specific security given the range of devices being used, the paradigm is shifting from device-specific solutions to the security being built into the network.

CYBER SECURITY TECHNIQUES

Furthermore only way to decrease the chance of being a victim to the cyber-attack are 1. **ACCESS CONTROL AND PASSWORD SECURITY**

The concept of user name and password has been fundamental way of protecting our information. This may be one of the first measures regarding cyber security.

AUTHENTICATION

The documents that we receive must always be authenticated be before downloading that is it should be checked if it has originated from a trusted and a reliable source and that they are not altered. Authenticating of these documents is usually done by the anti virus software present in the devices. Thus a good anti virus software is also essential to protect the devices from viruses.

MALWARE SCANNER

This is software that usually scans all the files and documents present in the system for malicious code or harmful viruses. Viruses, worms, and Trojan horses are examples of malicious software that are often grouped together and referred to as malware.

FIREWALL

A firewall is a software program or piece of hardware that helps screen out hackers, viruses, and worms that try to reach your computer over the Internet. All messages entering or leaving the internet pass through the firewall present, which examines each message and blocks those that do not meet the specified security criteria. Hence firewalls play an important role in detecting the malware.

ANTI-VIRUS SOFTWARE

Antivirus software is a computer program that detects, prevents, and takes action to disarm or remove malicious software programs, such as viruses and worms. Most antivirus programs include an auto-update feature that enables the program to download profiles of new viruses so that it can check for the new viruses as soon as they are discovered. An anti virus software is a must and basic necessity for every system.

FINDINGS

The scope of cyber security is not just limited to securing the information in IT industry but also to various other fields like cyber space etc. With the never ending new technology its definite that cyber related attacks have an infinite ways to hack into a target system and even though the cyber security tools are increasing the level of danger of being the victum of a cyber-attack too is increasing. The fight against cybercrime needs a comprehensive and a safer approach. Given that technical measures alone cannot prevent any crime, it is critical that law enforcement agencies are allowed to investigate and prosecute cybercrime effectively.

FURTURE ENHANCEMENTS

This is a comprehensive research paper in which not very detailed study is conducted. In future further research can be conducted through various methodology like survey method and include responses of top MNCs.

CONCLUSION

Cyber security is a vast topic that is becoming more important because the world is becoming highly interconnected, with networks being used to carry out critical transactions. With every passing year cyber-crime continues to diverge into different paths and so does the information security. Challenging organization with not just how they secure their infrastructure, but how they require new platforms and intelligence to do so.

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EMERGING CYBER SECURITY CHALLENGES

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Abstract

Cyber Security plays an important role in the field of information technology. We are living on incredibly large digital word and securing the information have become one of the biggest challenges in the present day. Now a day's 24/7 online lifestyle making humans lifestyle very easy, everything is connected with other but we can't deny that it is giving chances to cyber criminals. Security of Big Data and internet of things (IoT) is a very serious concern, it is creating a huge problem in cyber security world. According to survey 1.9 billion Cyber Attacks recorded in worldwide in 2017 just double from 2016. Cyber Crimes are increasing immensely day by day. This paper is a study on the top emerging field in which the cyber security is big challenges and provides some suggestion or technique to overcome on these challenges. This study is based on secondary data collected from well-known articles of journals, different types of research papers, websites.

Keywords: Cyber Security, Cyber Crimes, Challenges, Big data, internet of things.

Introduction

The fastest-growing areas of technical infrastructure development is the Internet. Now days everything is connected with internet. As of June 2017, 51% of the world population has internet access. Fast growth of internet user is offering lots of new cyber security problem because majority of internet users don't know the basics of cyber security technique or how they can protect themselves from hackers.

Cyber security or information technology security are the techniques of protecting computers, networks, programs and data from unauthorized access or attacks that are aimed for exploitation from cyber criminals.

Cyber Crime is nothing but where the computers are used as an object or subject of the crime. In simple word crime which are committed using computer to steal the data or the information. Criminals who performs these illegal activities are often referred to as Hacker or called cyber criminals.

There are many cyber security threats present in the world like malware, phishing, passwords attacks, DDos, ransomware etc. As day by day technology is playing in major role in a human life the Cyber Crimes also will increase along with the technological advances. One simple way to reduce attacks are Every individual must be trained on cyber security so they can save themselves from these Cyber threats

Here mentioned below are some of the emerging field where the cyber security is going to big challenges

Change Mobile Technologies

We are not only living in highly connected world but also one that is highly mobile cellular wi-fi, Bluetooth, RFID, NFC these are just a sampling of the technology. The around 35% of people of the world population are using smartphone. Mobile users are growing day by day. We can not even think about single day without a smartphone. Amazing number of app we are using day to day bases. Now days smartphones know us more than others. The users don't know what type of information our smartphone is collecting by different type of sensors and apps used in mobile devices and they also don't know how to secure their information. But the most frustrating thing is majority of user are not aware, when they download and install third party apps, what all are rights they giving to those apps to access their data or information. No one wants to read the rights taking by the apps.

Now days hackers are too intelligent what will happen if they will be able to build digital profile using third party apps and use it against us. This is a very scary thing.

Effect of Ransomware

It is a latest type of virus. It stands for ransom demanding malware. It gets on a computer either when we download an attachment containing the virus or when we visit non-secure website and clinks on a link. As soon as attack succeed, it starts encrypt all files, and to unlock the file we have to pay the demanded ransom (money) to the hacker. In the report says, 184 million ransomware attacks were carried out from 2014 to 2017. This Threats is most challenging and growth rate of this is very high.

Internet of Things (IoT)

The Internet of Things (IoT) is the network of physical objects or Things embedded with electronics, software, sensor and network connectivity, which enables these objects to collect and exchange data. now days devices are connected with each other by the new technology called IoT.

After analyzing the data, it is found that the IoT devices have weak security because if the hackers are successful in hacking one device then they can hack all other connected devices with the help of that. It is estimated that there will be 30 billion IoT devices by 2020. just think what a rich attack surface this is going to give to the hacker or cyber criminals.

Big Data Issues Leads to New Attacks to Security

Big data most commonly refers to more and more large and complex data sets. Big data not only refers to the volume of data but also data's variety and the velocity at which it is created, linked & altered. This is because of dramatically expanding universe of sensors, information technology services and connected devices, which all produces more and more data. All digital data created, replicated or consumed is growing by a factor of 30, doubling every two years. By 2020, there will be over 40 trillion gigabytes of digital data or 5200 gigabytes for every person on earth. It is said that every human is going to generate 1.7 megabytes in every second. The best example of this is Attack in India in Mumbai city on 2008, the attackers utilized cyber space for targeting venues and they simply processed the big data for their plan.

The Human Factor

We can have Million Dollar security infrastructure in place but it is said that "Cyber Security is only as good as the weakest link in the security chain." And weak link is not technology it is us human. It is said that amateur hack system but professionals hack people because it is easy by using social engineering technique to make them reveal information rather than using tools and technology. Facebook, g-mail, and millions bank account have been hacked and analysis of 32 million breached account indicates the people use insecure passwords. People carry this burden of having to remember so many different passwords. Research say that Almost 90% of cyber Attacks are caused by human error or behavior. Here mentioned below are some of the cyber security technique to overcome on the cyber security challenges.

FINDINGS

Cyber Security Awareness

The main reason for the increase in Cyber Crime is lack of awareness or education towards cyber security. Country like India have large number of internet user and facing many cyber Crime issue because majority of people don't have basic cyber security literacy. There should be a subject on cyber security in school. Making people aware about the cyber security can reduce the Cyber Crime.

Alternative of Passwords

To solve the problem of remembering password we can increase the use of multi-factor authentication and three-factor authentication. This can help people to make their passwords more safe and secure.

Use of Machine Learning and Artificial Intelligence

We can use machine learning and AI technology to find out the attacks. We can use machine learning in our device and system to analyze the data and find out the threats. It can help to solve the problems in bid data as well as in IoT.

Malware Scanners

Viruses, worms, and Trojan horses are examples of malicious software that are often grouped together and referred to as malware. We can build a software that usually scans all the files and documents present in the system for malicious code or harmful viruses.

Antivirus Software

Antivirus software is a computer program that detects, prevents, and takes an action to disarm or remove malicious software programs, such as viruses and worms. Most antivirus programs include an auto-update feature that enables the program to download profiles of new viruses so that it can check for the new viruses as soon as they are discovered. Antivirus software is a must and basic necessity for every system.

Firewalls

A firewall is a software program or piece of hardware that helps screen out hackers, viruses, and worms that try to reach your computer over the Internet. All messages entering or leaving the internet pass through the firewall present, which examines each message and blocks those that do not meet the specified security criteria. Hence firewalls play an important role in detecting the malware.

Future Enhancements

According to study conducted these challenges in cyber security are overcome from various solutions described. In future study can be expanded by conduct a survey of internal issues which every organizations faces on impact of big data and IoT.

Further study can be conducted based on responses from clients and business people who are actively involved.

Conclusion

Cybercriminals are going to create jobs for security professionals over the next few years. And they're going to do it at a remarkable rate. Sadly, there seems to be no end to hackers who want to access your business and customer data and then use that information to their own malicious ends. cyber threats and cyber security will continue to play a major role in our life but the people and technologies can work together to find out effective solutions. There is no perfect solution for Cyber Crimes but we should try our level best to minimize them in order to have a safe and secure future in cyber space.

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SECURING ATM USING BIOMETRIC AUTHENTICATION

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ABSTRACT

Biometric frameworks works on behavioral parameters and biometric instalment framework is utilized for different sorts of frameworks rather than the strain of keeping cards and to remember their troublesome security code.Useful and secure as well simple to utilize it, without utilizing watchword or mystery codes to recall as contrast and past framework like Visa instalment, remote, portable. In day to day life, the use of Visas, check card for shopping, transport card, metro card for voyaging, understudy card for library and office, and numerous sorts of cards for boundless purposes are increasing. Hence, the issue is any person needs to take many cards, remember their passwords or mystery codes and to keep secure.

Keywords : Fingerprint , Security, ATM, Biometric, Skimming, Pin code, Frameworks

Introduction

The behavioural biometric parameters are mark, discourse, keystroke and these parameters changes with age and conditions. However, physiological qualities, such as, confront, unique mark, palm print, and iris stays unaltered all through the lifetime of a man. Society today holds new potential outcomes along with, challenges with respect to security advances. Effective alteration takes place in many fields with the developing utilization of biometry and remote advancements.

Such frameworks having distinctive biometric qualities are being utilized, for example, fingerprint, hand geometry, iris as well as retina structure, hand vein structure, face, and voice. The other applications which are developing are mark, DNA, ear shape, warm pictures, body notice, and writing rate and nail epidermis.

The ID mode works on a particular character by performing matches against various unique finger impression biometric formats. Fingerprints are being utilized as a part of day to day life for over 100 years, due to its possibility, peculiarity,not variant, precision.

A cashless payment is a new way in which all transactions are done through cards or digital means like Mobile wallets, UPI apps, etc. The main advantage of a cashless society is that it records all economic transactions minimizing the black marketing and also reduces the chances of tax avoidance.

Objectives

The objective is to implement fingerprint recognition algorithm. The Region of Interest (ROI) for each fingerprint image is extracted after enhancing its quality.

The false minutiae are eliminated. An alignment based matching algorithm is then used for minutia matching.

The specific objectives of this research are:

- To study the importance of fingerprint recognition in the current biometric authentication systems.
- To determine the factors affecting the fingerprint recognition system.
- To investigate the factors affecting the fingerprint recognition rate.
- To develop an effective algorithm for fingerprint recognition.

Literature Survey

A reasonable amount of research survey has been carried out on Fingerprint and the Biometric Payment System.

The work presented by Swaroop Borukar, Kinjal Patel, K.T.Talele [1], designed a system, which uses power source for its working without any PC interfaced to it, hence programming language like C for its implementation has been used The data can be retrieved from the system at any desired time using the GUI designed for it.

The examination work of RenuMourya , Ms.Sarita [2], portrays the distinctive sorts highlights about the fingerprints and demonstrates an audit of various strategies display in the writing for coordinating fingerprints.

The purpose of the assignment[4] become to create an a device for two-wheelers based totally on biometrics like Fingerprints. The self-start of the two wheeler is replaced with the fingerprint machine. As quickly as the finger print module acquires the fingerprint, the fingerprint module immediately in interacts with the microcontroller and checks if that fingerprint is present in the database of the module.

The exploration done Ruggero DonidaLabati, Vincenzo Piuri, and Fabio Scotti [5], presents an exploration on Comparison with customary procedures used to build up the personality of a individual, biometric frameworks offer a more noteworthy certainty level that the confirmed individual is not imitated by somebody else.

The work done by Anil K.Jain, Lin Hong, Sharath Pannkanti and Ruud Bolle [6] demonstrates the plan and usage of a model programmed personality validation framework that utilizations fingerprints to verify the character of a person.

The paper presented by Dileep Kumar, Yeonseung Ryu [7], was on survey of biometric payment system. They developed a fingerprint payment system via recognition, matching, and extraction and enhancement techniques.

The paper presented by Priyanka Mahajan, SupriyaMalekar, Anuja More, Amol Wairagade, Prof. B. Mahalakshmi [9] focused on the objective to provide security for online transaction and to ensure that valid user should always get access to his account without any inconvenience.

The Paper by Jaswinder Singh, Jaswinder Kaur [10] pro- posed a strategy to enhance the execution in ATM machine security improvement. Security of client account is ensured by the Personal Identification Number (PIN).The paper discussed ATM framework security and was enhanced by incorporating the fingerprinting and voice acknowledgment of the client.

Fingerprint Features

Unique mark elements can be characterized into three classes. To start with highlight gives full scale level subtle elements of the edge stream, second includes a detailed focus on features which are sufficiently discriminative for acknowledgment, and third element gives pores of the unique mark which supplement the uniqueness of second element.

Problem

One method is two-factor authentication, which adds an additional layer of security a user must pass before being allowed access to an account.

Often used when logging in to online services like social media and email systems, two-factor authentication has most commonly involved entering not only the PIN but also a numeric code received by text message on the user's phone and valid for only a short period of time.

This method, no longer considered secure because it is so easy to falsely simulate cellphone numbers, is being phased out in favor of smart phone apps that generate new codes every few seconds – or even physical keys. Without this one-time code, an attacker can't access the victim's bank account.

Solution

Future methods of user authentication at ATMs are likely to involve biometrics, like fingerprints, which could augment – or even replace – the cards and PINs that have gotten banks and users through the past 50 years of automated banking.

Advance Encryption Algorithm should be used to the pin and password at the time of access of ATM.

Future Scope

This integrates Biometric services over Internet of Things (Internet of things is a concept of Integrating embedded system with Internet by binding through cloud services) to offer an unique solution for ATM security and transaction that not only integrates biometric authentication but also takes care of the case where user can not be present in the booth.

Offer Biometric scan (Both Fingerprint & Face) and authenticate

- Validate Pin number of ATM
- Release Money

- Actual User should get an alert message in his mobile along with photo of the person in the ATM booth. The message opens a Face Biometric App in Android Mobile. Wherever user is, he can verify his face remotely through his device.

- Upon face verification, user needs to supply ATM pin through his mobile.

- Upon verifying by actual user, transaction window for selecting money will be presented to user in the booth.

- If any false user then the buzzer in ATM centre should ring and ATM location to be sent to user and nearest police station.

Conclusion

As we all know, these days most of the ATMs have been attacked by the robberies. From the first ATM being installed in the world till now, ATM has gradually become a target of crimes. While with the constantly evolving of reported ATM crime ATM industry has begun to pay attention to the safety of ATM, even cardholders.

Monitory transaction in ATM is one of the most vulnerable security threat in the banking process. Over last few years several instances of ATM misuses are being reported which includes card skimming and duplicating ATM cards and shoulder surfing. Virtually user has no control over the amount being withdrawn from the ATM in his absence. Therefore ATM security has been an evolving domain. Some banks recently have incorporated fingerprint based security for ATMs, but even such solutions do not solve the afore mentioned problem.

This paperwork highlighted the execution investigation for unique mark biometric system. The success assessment has been done on reviewed research with existing techniques and various parameters. The review considered different issues identified with unimodular biometric frameworks. The security and protection worries that biometric verification raised cannot be over looked. It is over viewed that programmed unique mark acknowledgment. It is one of the best competitor biometric innovations for explosives security from an investigation of the prerequisites security, convenience, toughness, estimate, frame factor, protection and operational temperature run.

We chose to work on this topic as its benefits are not just restricted to any single company or college but its usage is worldwide. So we are adding upon new technologies to improve security for our hard earned money.

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SIGNIFICANCE OF ENCRYPTION IN CYBER SECURITY

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Abstract

With the rapid evolution of computers and the need for them to be connected and share data, there is a need to protect and secure being shared between these computers. These data can be encrypted so they do not give access to third party users or prevent unauthorized access and can be transmitted through network of computers. The data in the form of plaintext is being encrypted with a function and a key to derive a cipher text. The cipher text can only be decrypted with the key value which was used to encrypt the data or message.

Encryption of data ensures data confidentiality, integrity and authentication. With the constant threats and attacks on data there is need to secure personal and confidential files and documents from tampering from third parties. To ensure proper security on the cyber space we need to have stronger pass keys and more secure networks for which we can transmit data. Encryption is a very essential factor in cyber security because it ensures that the internet network of things is safer for there is a vast number of information which is under threat from external forces.

Introduction

Cyber security is a growing and fundamental part of safety and security for individuals, organizations and society. We humans have arrived at an age whereby our lives are slowly being integrated with computers. When the computer was first introduced it could only do a handful of operations like writing a text and then providing the same in print format but with the evolving technologies, we are now being woken up by computers; our coffee is being made by a computer, we even drive to work in a machine that is controlled by hundreds of computers. Indeed, we are surrounded by computers we don't even think of them as computers anymore as they have become part of our daily lives.

These computers are not just omnipresent but they are connected. In the past a computer was connected to nothing at all but the socket on the wall and a printer to print out whatever information we needed. A few years down the line the internet was introduced as a link between two university researchers. The first email was sent in 1971 but now we live in a world where 40 trillion emails are sent in a single year, the first website was created by 1991 but buy the year 2013 that number has grown and known to be over 30 trillion individual web sites.

The internet now has evolved from mainly sending emails and compiling information: it now handles the linking of electronic devices to other remote devices we find in our households. Cisco (the company in charge of handling the back end of the company) has estimated that by the end of 2012 there were over 8.7 billion devices connected to the internet and that number is estimated to increase to over 40 billion by 2020 as cars, fridges, medicals devices, gadgets not yet invented or imagined all link in. In short, domains that run from commerce to communication to the critical infrastructure that powers our modern day civilization all operate on what has become a globalized network of network.

With every device that is connected to the internet, it faces a difficult challenege some form of cyber-attack and some degree of cyber security is required. For all the hope and promise of the information, ours is also a time of "cyber-anxiety"; the cyber area has been described as the "single greatest emerging threat".

Emergence of Encryption

In the information age, information security issues are increasingly important. We often need a measure to protect our data, to prevent those people with bad intentions who would want to steal or destroy it. Therefore, there is a grave need for strong security measure to protect confidential data from theft and tampering. The way to solve this problem is data encryption.

An encrypted network, not only to prevent an unauthorized users to eavesdrop on the network, but to also to deal with other malicious software. In some cases, users may need to encrypt some confidential files, not because they want to transfer the file on the network, but worry about someone stealing a computer password to obtain the confidential file. Identity authentication is based on encryption technology; its role is to determine whether the user is true. Network security requires confidentiality, integrity, availability, can be achieved using cryptographic techniques. It can be said that cryptography is one of the practical means of protecting information on large scale communication networks.

With the rapid development of modern information and the popularity of the network, people need not go out to every part of the world to understand the world events and learn some important information. For our own personal privacy not to be leaked, data encryption is very important to us, the data encryption can be used in various fields, and it affects all aspects of our lives.

Overview of cryptography

Cryptography is an ancient disciple but for the average person it can be somewhat strange. For a long time, only in a very small range such as military, diplomatic, intelligence and some other few departments have made use of cryptography. Computer cryptography is the science that studies the encryption, decryption and transformation of computer information. With the development of computer network and computer communication technology, computer cryptography has received unprecedented attention and has been rapidly popularized and developed. In advanced countries it has become the main research direction of computer security.

Encryption and Decryption can be translated to “cipher” and “decipher”. The message is called “plain text”, and the process of using a method to disguise the message and hide its contents is called encryption. The secret message is called as “cipher text”, and the process of converting the cipher text into a plaintext is called decryption. The plaintext can be a bit stream, a text file, a bitmap, a digitized speech stream, or a video image.

An encryption function acts on a message and it converts this into cipher text which cannot be understood. A decryption function acts on the cipher text which is the by-product of encryption and it translates the cipher text back to plaintext which is understandable. This is the basic process of how encryption works over a network between two computer systems.

Findings

Key and Algorithm

K can be an arbitrary value in many values, and the range of possible values for key K is called the key space.

Encryption and decryption operations use this key, that is, the operation depends on the key, and K as the subscript expression, encryption and decryption function expression:

EK (M) = C

DK (C) = M

DK (EK (M)) = M

Some algorithms use different encryption keys and decryption keys, that is, the encryption key K1 is different from the corresponding decryption key K2. In this case, the encryption and decryption function expressions are:

EK1 (M) = C

DK2 (C) = M

Caesar plus decryption algorithm

Julius Caesar uses a simple replacement password - called Caesar cipher. Caesar is first applied to the military (Gallic Wars), his replacement rules: each letter with the subsequent third letter to replace.

Caesar password can be described as follows:

Plain: ABCDEFGHIJKLMNOPQRSTUVWXYZ

Cipher: DEFGHIJKLMNOPQRSTUVWXYZABC

Symmetry Algorithm

Key-based algorithms usually have two types: symmetric algorithms and public key algorithms (asymmetric algorithms). Symmetric algorithms are sometimes called traditional cryptographic algorithms, and the encryption key can be derived from the decryption key, which in turn is established.

In most symmetric algorithms, the encryption and decryption keys are the same. The symmetric algorithm requires the sender and the receiver to negotiate a key before secure communication. The security of a symmetric algorithm depends on the key, and the leaking key means that anyone can encrypt and decrypt the message. The encryption and decryption of the symmetric algorithm is expressed as:

EK (M) = C

DK (C) = M

Public key algorithm

The encrypted key of the public key algorithm (asymmetric algorithm) is different from the decrypted key, and the decryption key cannot be calculated from the encryption key or cannot be calculated at least in the time that can be calculated.

It is called the public key algorithm because the encryption key can be made public, that is, the stranger can encrypt the information with the encryption key, but only with the corresponding decryption key to decrypt the information. The encryption key is called a public key (referred to as public key), and the decryption key is called a private key (referred to as a private key).

The public key K1 is encrypted as:

EK1 (M) = C

Public key and private key is different; the private key K2 decryption is expressed as:

DK2 (C) = M

Suggestions

Purpose of encryption

Encryption algorithm to achieve the purpose of four points:

(1) To provide high-quality data protection, to prevent unauthorized disclosure of data and unaware changes;

(2) Has a very high complexity, making the cost of deciphering more than possible benefits, but also easy to understand and master;

(3) The security of the cryptosystem should not depend on the confidentiality of the algorithm; its security is based only on the confidentiality of the encryption key;

(4) To achieve economic, effective operation, and applies to a variety of completely different system applications;

Encryption tips

In the process of using the computer, we are dealing with the password all the time. If you set the password by someone else guess or decipher, then it will lead to important information, personal privacy is leaked. So how to set a safe password is a major event associated with each. Here we introduce you to set the password in the process must comply with the ten military regulations.

(1) As long as possible;

(2) As unfamiliar as possible;

(3) As complex as possible;

(4) From the front to the previous order;

(5) Easy to forget the password;

(6) Do not use the same password;

(7) Frequent replacement of the password;

(8) Do not save the password;

(9) The correct password;

(10) The most important self-safety awareness;

Relevance of encryption to cyber security

To understand the attack and mode of attack we need to tackle the principles of security to tackle the problem of attack. The following are security principles that encryption can be applied to which can enable organizations must put in place before they send data on the internet or store data

- Confidentiality: It refers to the fact that only intended recipient must be able to access the message sent by a sender. If someone else accessing the message in transit, confidentiality is compromised. Such attack is known as Interception. This can be prevented when the messages are encrypted before being sent to the recipient; this ensures that even if the messages are intercepted their contents are encrypted and cannot be accessed.
- Integrity: The contents of the message must not be changed by any means, otherwise integrity gets lost. These changes can be beneficial to the attacker like financial gain, or it is just to create a nuisance to the recipient as they are not able to read any relevant information. Attack made on to compromise the integrity is called Modification. Encrypted messages cannot be modified

which preserves this principle because when they are intercepted they cannot be read or accessed which preserves the information of the organization of sender of the message.

- Availability: Normal services provided or operations performed by computer server must be available to the legitimate users without any interruptions or downtimes. Attacks that compromise the availability of the services are known as Interruption or Denial-of-Service. Networks can be encrypted and access granted to legitimate users and access is restricted to third party users.
- Authentication: Authentication helps to ensure the correct identity of sender of the message. Attacker can pose as a different user and may try to communicate with the victim and try to gain the critical information. Such attack can be known as Fabrication. This can be prevented if the details of the sender are encrypted over the network to prevent the attacker from gaining access to the sender on the network.
- Non-Repudiation: Non-repudiation refers to the fact that sender refuses sometimes for the transmission of the malicious messages. Therefore, it is important to have some methodology to verify the original sender of the message. These methodology can be employed using encryption and decryption techniques which have keys. When a message is encrypted with a certain function key, that key would be required the encrypted message. This can be used to test the genuineness of the message being sent.

Conclusion

With the continuous development of Internet technology and scale, the scope and field of its application in the continuous expansion and promotion of security issues, but also gradually become increasingly prominent. Especially in the financial, e-commerce, database areas, the security requirements are higher. On the basis of demand, with the traditional method to solve the security problem, there are great drawbacks. More and more users are aware of the importance of data confidentiality. Data sensitivity, confidentiality will have a means or method to solve, so the use of data and dissemination of encryption is very important, must greatly guarantee their encryption reliability and security.

But security is a combination of technology, management and regulation, and absolute security is not the only way to minimize the potential threat of the network through all efforts. So encryption is the core of network security, file security, e-commerce security. Encryption algorithm, key management, field type processing problem is an important research topic of network database encryption and fi le encryption.

In this paper, the data confidentiality technology is studied under such a premise, and the key technologies of data encryption, encryption method, data encryption technology and data encryption are analyzed. After analysis and comparison, the advanced encryption technology is selected, encrypt the data. This will maximize the protection of our data security.

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INFORMATION ABOUT CYBERCRIME AND MODES OF CYBERCRIME SECURITY

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Abstract

As we all know that cyber crime has been one of the common practices made by the computer expert. In the paper I have mentioned some of the impact of the cyber crime. Cyber crime is that activities made by the people for destroying organization network stealing others valuable data ,documents ,hacking bank account and transferring money to their own and so on. My paper gives detailed information regarding cyber crime, types ,modes of cyber crime and security measures including preventation to deal effectively with cyber crime…….finally I will go for the research on the crime made by the misuse of cyber crime in some of the field and areas like financial crimes, cyber pornography, online gambling, intellectual property crimes, forgery, cyber defamation, cyber stalking, email spoofing, email bombing, virus /warm attack, web jocking, data diddling etc. and also tried to find which type of cyber crime is most practice in the world and finally I will get the main objective of my term paper. like this my term paper will be complete.

Introduction

In Malaysia, ICT infrastructure had been use in many organizations for doing their activities in efficiently and effective to support a quality of production. The study will discuss about more issues of digital security in the usage of ICT services. Security issues of the digital Journal of Education and Social Sciences, Vol. 8, Issue 1, (October) ISSN 2289-1552 2017 280

- Errors and accident - These threats are happen from by many agents like people errors, procedural errors, software errors, electromechanical problems and dirty data problems.
- Natural and other hazards - Some of these threats can causes all the systems or applications will be down overall and permanently.
- Crimes against the ICT infrastructures -This kind of the threat is about illegal act perpetrated against the ICT infrastructures.
- Crimes using the ICT infrastructures - Before that, it had discussed about how the crimes act to the ICT infrastructures but now how the crimes happen by using ICT infrastructures.

- Malware - It is a computer programs or software that can causes destruction or make slowly the operations of the computers, systems or other ICT services and infrastructures.
- Computer criminals. - This is about types of the people who's involved in this ICT threats. People in the organization such as the employees and the people outside the organizations such as suppliers, customers, hackers, crackers and professional criminals can be categorizing as that types. In the many cases of the computer criminals, the organizational employees do it itself. This is happen because they can access the ICT infrastructure own by the organizational from the inside of the organizational. They may be use the ICT facilities in the organization in the dishonesty purpose for his personal profit, sell the information or steal the hardware. Outside users such as suppliers and customers may be having a link or certain access to the ICT infrastructure of that organizational. So, they can use this ability to make a threat to the ICT facilities of that company. But in the cases of the hackers and crackers, which are usually categorized as the outside people, are the peoples that are can get the unauthorized access to the ICT infrastructure of the company. The different between these two kinds of users are the hacker does it for challenging but the cracker does it for malicious purpose. Professional criminals are members of the crime are organizational. They didn't only using ICT but also does the illegally business or process like selling the drugs or gambling. All this threat to the ICT infrastructure had become more seriously to the any organizations because of the increments of the more sophisticated user which is using its ability to make an unauthorized access and make several software that can break the any organization's digital security. By this problem any organization must have its control and safeguarding on their ICT infrastructures that will be in details on the next part.

ICT Security Management

The definition of Information Security based on ISO/IEC 17799:2005 is "preservation of confidentiality, integrity and availability of information, in addition, other properties such as authenticity, accountability, non-repudiation and reliability can also be involved". Information has many definitions as follows:

- Information is about someone or something consists of facts about them.
- Important or useful facts can be obtained as output from a computer by means of processing input data with a program.
- Information is an asset which is like other important business assets which is has value to an organization and consequently needs to be suitably protected.

- Information can exist in many forms. It can be printed or written on paper, stored electronically, transmitted by post or using electronic means, shown on films or spoken in conversation. The core elements of information security management are to ensure the information assets, namely the following aspects
- Confidentiality
- Availability Upon the successful implementation and testing of a new and improved security profile, an organization might feel more confident of the level of protection it is providing for its information assets (A. Vance, 2012). By the time the organization has completed implementing the changes mandated by an upgraded security program, a good deal of time has passed. In that time, everything that is dynamic in the organization's environment has changed (A.C. Kim, 2012). Some of the factors that are likely to shift in the information security environment are:
- New assets are acquired.
- New vulnerabilities associated with the new or existing assets emerge.
- Business priorities shift.
- New partnerships are formed.
- Old partnerships dissolve.
- Organizational divestiture and acquisition occur.
- Employees who are trained, educated, and made aware of the new policies, procedures, and technologies leave.
- New personnel are hired possibly creating new vulnerabilities. Journal of Education and Social Sciences, Vol. 8, Issue 1, (October) ISSN 2289-1552 2017 281 If the program is not adjusting adequately to change, it may be necessary to begin the cycle again. That decision depends on how much change has occurred and how well the organization and its program for information security maintenance can accommodate change (C. Melara, 2003). If an organization deals successfully with change and has created procedures and systems that can flex with the environment, the security program can probably continue to adapt successfully. The CISO determines whether the information security group can adapt adequately and maintain the information security profile of the organization or whether the macroscopic process of the SecSDLC (Security System Development Life Cycle) must start a new to redevelop a fundamentally new information security profile. It is less expensive and more effective when an information security program is designed and implemented to deal with change (J.Fonseca, 2013). It is more expensive to reengineer the information security profile again and again.

Management model must be adopted to manage and operate ongoing security program (K.H.Guo, 2012). Models are frameworks that structure tasks of managing particular set of activities or business functions. With that, by assist the information security community to manage and operate the ongoing security program, a management model must be adopted (Tripathi A. Singh, 2011). In general, management models are frameworks that structure the tasks of managing a particular set of activities or business functions.

Method and Proposed

Model The usage of ICT services and infrastructures can be disabled or become poorly usage by many factors. It will be down the productivity of businesses in the organizations. All this factors may be become from one of these agents which it is the components of the IT itself whether it is in indirectly or not indirectly such as peoples, procedural, software errors, applications, electromechanical problems, dirty data, and hardware and communication parts. The methodology of the proposed research will be carried out based on the fundamental of the experimental information technology method. This method examines the research work to demonstrate two important concepts: proof-of-concept and proof-of-performance. To demonstrate the proof-of-concept, some important steps were performed. First, the research area within security maintenance is critically reviewed to provide the overview that leads to the justification of a valid research problem. Then, a novel model of the security maintenance framework is designed and analytically analyzed. This includes the creation of the mechanism for managing security model, processes and metrics in relation to use of security maintenance. Proof-of-performance is demonstrated by integrating the proposed security model, processes and metrics within a novel conceptual framework of the security maintenance in ICT infrastructure. Then, it will be assessed using proposed framework. In those proposed framework, various parameters and workloads were used to examine and demonstrate the viability of the proposed solutions compared to other similar baseline solutions. Also, analytical analysis of some proposed security metrics is performed to evaluate the correctness. Specifically, the main stages involved in the research are divided into three: • Data Acquisition Stage • Investigation and Modeling Stage • Analysis and Evaluation Stage The proposed conceptual framework for security maintenance in mid-size ICT infrastructure represents as an integration of ICT security management model and concepts covering several facets of information security aspects and processes. The framework draws from multiple areas including software vulnerability, risk assessment, attack motivation, threat detection, deterrence and security objective. It is based on an earlier model for information security management model. The framework has been enhanced with the inclusion of combination of constructs and refined through the recalibration of cyber or ICT security management model to ensure that potentially anomalous situations are prevented. **Conclusion**

Actually, a novel conceptual framework of the security maintenance had proposed to make any ICT infrastructures and services that follow those guidelines will accessible properly and secure by any authorized peoples. However, there are no security aspects had been discuss in details for ICT services and infrastructure's maintenance. Then, the documentation had been provided as a manual access which is needs to follow the guidelines. Now days, security should be concern in any ICT services and infrastructures including in any proposed maintenance model and guidelines. Then, its need overall coverage to make the guidelines become more effective and easy to use. Security maintenance is more important in cyber space for any organizations especially for ICT services and infrastructure usage in safe and secure manner.

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THREAT INTELLIGENCE - MISCONCEPTIONS AND REALITY.

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Abstract:

The current generation is in an era of exponential advancement in technology, and every new technology comes with an inherent risk of being exploited for malicious purposes. We are all aware that the protection of data, especially in terms of cyber security, is vital. This is where Cyber Threat Intelligence (CTI) or Technical Threat Intelligence (TTI) comes into play. Threat Intelligence is organized, analysed and refined information about potential or current attacks that threaten an organization. It includes in-depth information about specific threats to help an organization protect itself from the types of attacks that could do them the most damage. The major concern is that, to this day there isn't enough awareness and CTI is considered to be an elusive concept. The aim of this presentation is to address the misconceptions and elucidate on its functioning. In today's environment, there isn't enough awareness on the need for Threat Intelligence. In this paper, I will be discussing about the challenges that are faced by organizations in maintaining the privacy of the content that they are accounted for. There are three infamous cyber threat intelligence myths that are dealt with in this article. I would also like to throw light on the reasons behind organizations hesitating to approach Threat Intelligence vendors and how this situation can be overcome.

Keywords: Threats, intelligence, myths, data, organizations.

Introduction

In the context of military/business/security, intelligence is information that gives a strategic advancement.

What exactly is meant by Threat intelligence?

Threat Intelligence can be defined as proactive measures taken against potential threats that are anticipated based on collected evidence.

Figure 1. Threat Intelligence process [1].

The primary purpose of TI is to help organizations understand the risks of threats and to help them overcome these.

Scenarios in which organizations may require Threat Intelligence. Threats come from internal as well as external sources. Owing to this, organizations are under tremendous pressure to manage threats. Even if raw data is available, it is not an easy task to analyze and prioritize things. This is where the concept of Threat intelligence is helpful.

The categories of threats and the indicators of compromise [2] are illustrated. (Table 1).

Category	Indicators of Compromise	Examples
Network	IP addresses URLs Domain names	Malware infections targeting internal hosts that are communicating with known bad actors
Email	Sender's email address and email subject Attachments Links	Phishing attempts where internal hosts click on an unsuspecting email and "phone home" to a malicious command and control server
Host-Based	Filenames and file hashes (e.g. MD5) Registry keys Dynamic link libraries (DLLs) Mutex names	External attacks from hosts that might be infected themselves or are already known for nefarious activity

Table 1. Categories and examples of threats [3].

Why do organizations hesitate to approach TI vendors?

Using the same words often doesn't imply the same thing for different people. Similarly, there are many misconceptions regarding Threat Intelligence, especially considering the situations where TI vendors requested for the signing of a non-disclosure agreement, which is reasonable.

Myths and Reality.

They are three widespread myths regarding Threat Intelligence that generally contribute to confusions [4].

Myth #1:

We can get all the threat intelligence we need from internal data and logs. This is a reactive approach, instead of a proactive one (which has proven to be efficient time and again). You can only *respond* to security events that are happening on your network, instead of *preventing* events from ever happening in the first place. External threat intelligence data, on the other hand, can show you how your industry, technologies, and even your specific digital assets are being targeted — with relevant information on new vulnerabilities, exploits, and malware. You will also be able to identify threats that your internal logs can't find, such as spear phishing attacks or malware targeting industry-specific hardware or software. This saves time for your information security team, which they might otherwise spend chasing false positives or threats that have little to no impact on your business.

Myth #2:

External threat intelligence is just a matter of tapping into data feeds. External threat intelligence comes in many forms — vulnerability feeds, targeted threat feeds, social media feeds, dark web alerts, and nation-state warnings, just to name a few. Merely obtaining the data isn't sufficient; the data is further evaluated and put into context to understand how it affects the particular organization. It's also important to correlate data from many feeds. Multiple perspectives are usually required to truly evaluate the seriousness of a particular threat to the environment, and to ensure that they are discovered at the earliest.

Myth#3:

Threat intelligence experts can easily analyze threat data feeds. There is simply too much information, and to assess these, human expertise is not enough. Humans on their own don't have the capacity to absorb and understand all the variables and all the "if-then" paths of a potential threat. Certain tools and processes are required to manage all the information and to combine external threat intelligence data with internal data. Before feeding external threat intelligence data into a SIEM system(Security information and event management[5]), the data has to be analyzed by correlating, stripping, and synthesizing the feeds, and then putting it all into context based on analysis from other feeds and data sources. Only then will the intersection of external and internal data make sense. By automating the analysis process, information security experts can then focus on the output that first identifies the true red flags, as well as the false positives. The team can then make sure it focuses its efforts on mitigating the threats that can do the most potential harm to the business.

Conclusion:

Although the concept of Threat Intelligence could be refined and could be made to be more lucid, the points emphasized in this presentation are to support the usage of the same. The major concern seems to be appropriate awareness amongst businesses/organizations, and once they are addressed, there will be much more efficient usage of TI.

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