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ISSN No. (Online) : 2581-7515

Parichay Maharaja Surajmal Institute Journal of Applied Research

Volume 4

Issue 1

Jan-Jun 2021

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C-4, Janakpuri, New Delhi-110058

Ph.: 25552667, 25528117 • Website: www.msi-ggsip.org

Email id: msijournal@msi-ggsip.org

Published by:
Maharaja Surajmal Institute
(an affiliate of GGSIP University)
C-4, Janakpuri, New Delhi-110058

Annual Subscription Fees: Rs. 1000/-



Parichay Maharaja Surajmal Institute Journal of Applied Research

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Parichay: Maharaja Surajmal Institute Journal of Applied Research

Printed and Published by Prof. Dr. J.P. Singh (Retd. Senior Professor) on behalf of Maharaja Surajmal Institute and printed at Pushpak Press Pvt. Ltd., Shed No. 203-204, DISIDC Complex, Okhla Indl. Area, Phase I, New Delhi-110020 and published at Maharaja Surajmal Institute, Affiliated to Guru Gobind Singh Indraprastha University, C-4, Janakpuri, New Delhi-110058, India.

Editor – Prof. Dr. J.P. Singh

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Printed by

Excellant Publishing House
Kishangarh, Vasant Kunj, New Delhi-110 070
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Parichay Maharaja Surajmal Institute Journal of Applied Research

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Building Resilience among Teachers: Challenges and Strategies

Dr. Neeru Gupta*

Abstract: *Teaching is a profession full of change. Teacher has the responsibility to sharpen the intellect of the students along with controlling the changes occurring in the environment. Some changes are controllable but some can't be controlled; and cause stress among teachers. Teachers can manage their stress by bouncing back the adversity to create its positive impact. Resilience is the way by which a teacher can manage the changes and fulfil his responsibilities towards students and society. Resilience is all about adaptation of a set of individual attributes and positive approach. Building resilience among teachers is a challenging task. This paper is an attempt to identify various challenges in the way of resilience building and also to explore the strategies that can be used to build resilience.*

1. INTRODUCTION

In the contemporary world of modern education and knowledge, a teacher is not only a fountainhead of knowledge-creation and dissemination but is also the instrument required to sharpen the intellect of students. The journey of education has changed over the time to accommodate the fast moving world and so has the role of a teacher. The education system has been reconstructing its variables and a teacher has to pace with it. In today's highly competitive globalised scenario, the institutions of higher education demand the subversion of conventional chains of teaching and its approach. From the mere chains of routine events comprising of curriculum delivery, managing time-tables, examination responsibility and to cover up the syllabus in an assigned duration, the teacher has now expected to conceptualise a phenomenon. It requires new understanding of commitment, dedication and perseverance. Moreover, these new emerging trends, requirements and goals can be stressful to cope up with and hence there is a call for a multidimensional saviour.

Teachers often come across incidents like students misbehaving in class, parents challenging a decision made by a teacher, a colleague not being supportive of an instructional practice. These small actions might not appear to be a problem for a teacher. They are often neglected and at times are not even counted as obvious challenges of this profession. However, if a teacher thinks about them, then these challenges are actually the biggest hindrance to the peace and productivity. By considering these problems and taking required and timely

action, a teacher can discharge his/her duty in a more effective manner. The dynamic factor which will help the teacher in managing his profession and life is resilience. Comprehending the role of resilience in teachers' management of profession and life can help to increase his/her effectiveness and quality of work. Resilience helps teacher to react the challenging circumstances in a positive manner.

Someone has rightly said "Resilience is the capacity to continue to 'bounce back' or to recover strength or spirit quickly and efficiently in the face of adversity; it is closely allied to a strong sense of vocation, self efficacy and motivation to teach, which are fundamental for sustaining a commitment to promote achievement in all the aspects of life".

2. CHALLENGES TO BUILD RESILIENCE

Resilience, is both a process of adaptation and a set of individual attributes. Therefore, understanding individual and contextual factors instigating teachers or disturbing their peace become important to explore.

Individual Challenges: Individual challenges include problems like negative self-belief, hesitation in asking for help, Individual dilemma about the differences between the one's own beliefs and institutional practices etc. These factors are labelled as risk factors and discussed below:

1. *Negative self-belief*

A State of negative self-belief can result in decrease of confidence level. The feeling of 'I am not good enough' can hamper a classroom. It becomes necessary to balance it with the positive beliefs and facts. One should 'back-up' the beliefs with reasoning and trust. Self-assurance, trusting your skills and capabilities are very important. A comment or a complaint will not dishearten a teacher if he is honest with his values of hard work and dedication that are required for a class.

2. *Hesitation in asking for help*

It has been witnessed that teachers hesitate in asking for help or clearing their doubts with a fellow colleague, just

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out of the fear of sounding incapable or not-intelligent or incompetent. One should actually understand that there is no harm in asking for assistance, as even the most experienced teachers don't 'know it all'. Knowledge is a vast sea which no one could or can conquer. Moreover, one teacher being cannot be interested in all the sections of society. By reaching out for help, teachers can get the answers they need which would help them to bring out their best in a classroom. Asking for help, will not make you look weak rather you will be seen as someone with great strength.

3. *Conflict between perceived beliefs and practices in use*

Conflict between perceived beliefs and actual practices might create a state of disequilibrium. For example, a teacher might view teaching as transformation of knowledge and may not be very comfortable with static curriculum. In fact, the teacher will want the authority to change the pre-defined content and bring some dynamism in the class in form of contemporary and contextual content and modern methodologies. The conflict might also arise because of the differences in understanding of the various definitions like progress, time management, protocol and values like punctuality. Sharing between colleagues, teachers and students can help to reduce conflict and then teacher's stress.

4. *Ego*

When teachers are of an opinion that they know everything, they have solutions to all the problems, their word in the class is the last, then ego problems can originate. Statements like 'Which language do you understand in?', 'how many times do you expect me to explain the same thing?' are often heard in a classroom but a teacher should not use such statements. A teacher must work in the class with the objective of building mutual trust and strive to understand the perspective of students. Teachers' ego must not be fed by the virtue of authority they enjoy in the class. Teachers should also critically analyze his/her behaviour and should inculcate the habit of listening and confirming with the students.

Contextual Challenges: Our environment also creates a number of challenges which are beyond the control of a teacher like unsuitable/outdated course structure, timetable issues, delegation of improper work, unavailability of proper space etc. Such issues also affect the resilience of a teacher leading to negative consequences. Imagine the frustration of teaching nature, flowers and love in a closed wall classroom or teaching commerce to a student who is studying it only because he/she could not get admission into science stream or a teacher asked to

organise a fresher's party when he/she is at the last stages of a publication of a journal.

1. *Classroom challenges*

One of the most frequent factors associated with the teacher resilience is behaviour of students in the classroom. Students' misbehaviour become unacceptable and cause anger to the teacher. Sometime students' more disruptive behaviour occur in the classroom like an act of violence, disorder and verbal abuse, smashing door while leaving the classroom or kicking etc. All these might result in teacher losing his/her confidence or calm.

2. *Diversity among students*

Now the education is happening in global world, students are coming from various segments and sections of society. The students in this diverse group have different belief system, understanding & knowledge. It becomes important for a teacher to have broad mindedness, compassion and inclusiveness to incorporate the diverse belief and value system of students. Some actions of teacher in the classroom like a teacher calling a male student more frequently than female counterparts, supporting one culture and religion, raising voice while talking about a particular phenomenon, pointing out a blind student repeatedly etc can result in negativity among students. Although these actions are insignificant and remain unnoticed many time but sometime they can work as catalyst to the aggression of students.

3. *Lack of resources/equipments*

Poor infrastructural facilities can be stressful for both teachers and students. A poorly ventilated, dark and dirty classroom drastically affect the performance of both the teacher and students. Other facilities like well-maintained washrooms, availability of drinking water are also necessary. It has been found that facilities at an institution affect students' health, behaviour in terms of engagement in class, learning and their achievements. Ultimately, poor quality resources and services do also result in increase in absenteeism and sickness, low test scores and decrease in productivity. All these will affect a teacher's confidence and morale.

4. *Professional work environment*

The professional work environment can also give rise to a lot of challenges like heavy workload, executing administrative duties, strict and rigid hierarchies. For instance, superficial ego and prejudices of senior peers can hinder the workings and peace of junior colleagues. The junior teachers feel pressure of work and duty and this hampers their performance in the classroom

5. *Other factors*

Poor hiring practices, lack of job security, low salary, unsupportive leader/mentor. All these can also lead to unsatisfactory work environment for teachers.

3. STRATEGIES TO BUILD RESILIENCE

All the discussed factors pose serious challenges to teachers' resilience. These have to be overcome in order to ensure teachers' efficacy in classrooms. To mitigate the risk factors, protective factors come to rescue. Protective factors help an individual to view or convert adverse situations into positive measures that help in building resilience. In the further part of the paper the key strategies are discussed to build resilience and establish a stress free and happy working place for teachers.

1. Teachers should be sure about the values that are important to them and the beliefs that they value the most. These values and beliefs are substantial part of their social identity and thus, identifying them will help them analyse what are their expectations from their students/ colleagues/ institution and how will that be kept in front of the class or their colleagues. It will further assist them in challenging times. For example, punctuality is a very significant value for some teachers and they cannot compromise on it. So, before going to the class, the teacher should be very clear about how he/she will ensure the same from the students. Discussing it openly with the students, will help the teacher to prevent future arguments over it.
2. The second important thing is to understand the emotions. A teacher has to retrospect and think about the various ways in which a teacher has expressed a particular emotion, which emotion engulfs him more. Read them and see if emotions like anger and frustration have been productive or destructive. Compare the expressed emotions of past, whether it is compassion, anger or kindness that helped to build a positive environment. This comparison will help him to understand the difference of good and bad emotions and their degrees. This will further assist to control certain emotions. For instance, at times it is easier to sort out things with a discussion rather than strict actions.
3. Another thing is to understand the gap between action and its interpretation. For example, if a student is sitting with a dull face, it does not necessarily mean that the teacher's content or methodology is boring, rather, it is possible that the student is tensed because of some personal problem. So, how a teacher interprets an action or situation increases the power of resilience.
4. Bonding with colleagues and students can be a big strength. Healthy relationships give the space to express emotions, discuss problems and expectations freely. This leaves a teacher more balanced for a class and hence stress free. Many studies have proved that an introvert person remains in stress more time than an extrovert counterpart.
5. Understanding that 'No other can decide my reality, I know who am I' will make acceptance easier to teacher. If a student is reading a teacher to be strict in a situation, then it is based on his understanding of strictness. For example if a student calls you strict teacher because you did not let your student smoke in the class then it is definitely not being strict but being a dutiful teacher.
6. Give yourself some time. Continuous speaking, managing, arranging, organizing, counselling, sorting can be tiresome at times. Hence, it should not be always about narrating the experiences of being in the mountains but sometimes, a teacher should be actually in the mountains. Fresh air, daffodils and bright light can definitely relax and rejuvenate any being.
7. Understanding diversity can also add to the power of resilience. Students come from different cultures and backgrounds with different value systems. Identifying and accepting the differences and behaving accordingly without hurting the feeling of others will give power to resilience.
8. Be open to learning. Exploring the unknown depths will help to answer more questions of students. Also, the students and the younger colleagues may be more aware about the changing contemporary trends, they are also more tech-friendly, so it is always good to appreciate and learn them, they can make the class both easier and interesting. This way you can also be friends with them.
9. Change your methodology. Be creative. One should sit back, analyse week point and try to reconstruct actions, ways and reactions to enhance resilience. Relate the theoretical concepts with realities by taking them out. Let them experience the phenomenon by meeting, talking and observing the things. Be a facilitator and not merely the tutor.
10. Appreciate yourself. Applauds and appreciation are the best resources to develop resilience. Teachers work hard not only to improve their students' skills and concepts but also immensely contribute to their social and personal growth. Therefore, it is very important to recognise and congratulate yourself for the effort that you put in shaping student's right behaviour and mental attitude. A

teacher works hard for many events in their institutes like cultural fests, sports meet, annual day, it's a team work, he and his colleagues have made this day successful after dedication and hard work of many days. So, celebrate the successful completion of the event. Recognise each other's work, it spreads happiness.

4. CONCLUSION

Fast changing environment and increasing expectations of students and abandons of responsibilities have created many challenges for a teachers. Many Individual and contextual challenges come in the way of fulfilling his/her responsibilities and coping up with the changing environment. If these challenges remain unchecked, it may effects his/her performance and cause many misunderstandings, loss of confidence, lack of motivation and stress among teachers. It not only deteriorates teachers' performance but also hinders the growth of students which might surface in form of negative actions, low academic scores, low self-esteem. Building teachers' resilience can ensure excellent performance of the teacher and students. Self appreciation, managing diversity, evaluating his/her past emotions, discussion with friends and colleagues, self confidence, being close to reality are some of the strategies which can be used to build resilience. Practice makes a man perfect and so a teacher can perfectly handle the risk factors by practising the resilience strategies.

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Impact of Covid-19 on Healthcare Sector with Reference to India

Shweta Goel*

Abstract: A few months back, a deadly coronavirus hit globally which leads to the deaths of approx 1million people. This paper presents the impact of the deadly virus on the Indian economy, especially the healthcare sector. It tries to bring out different opportunities and threats it poses for the healthcare sector. Although being a new topic not much conclusion can be made but this paper focusses on swot analysis for the healthcare sector because of the pandemic.

Keywords: Pandemic, coronavirus, healthcare, opportunities, threats

1. INTRODUCTION

Recently a pandemic spread by a deadly virus, COVID- 19 has triggered the Indian Economy. Different sectors of the Indian economy are worst hit by the virus and result in an economic slowdown. Amongst those are the Education sector, Financial sector, FMCG, Healthcare sector, etc.

However, it cannot be ignored that the pandemic has also created great opportunities for many sectors. The industry which adapts itself to this situation will have the opportunity to capture a larger market share and those who wait for the pre-COVID situation to come will danger their existence in the market. The government of Indian has clearly issued some guidelines to cope with this situation because of which there has been a shift in consumer preferences. The shift in consumer preferences has led to altering market demand for different products and services in different sectors of the economy.

Every firm has to face a business environment which consists of the internal and external environment.

The internal environment defines the strength and weaknesses of a business and the external environment determines opportunities and threats of business.

Now this pandemic has posed different challenges to the external environment, so the business firm needs to be dynamic and adapt itself to this new normal instead of waiting for the pre- COVID situation to come.

In this paper, different opportunities and threats for the Healthcare sector are being analyzed in the current and post COVID era.

2. OBJECTIVES OF THE STUDY

- How the pandemic caused by SARS COV-2 affects the health care sector and various other sectors of the economy?
- What are the opportunities this provides to various firms in the health care sector of India?
- What threats it poses for these firms?
- The impact of pandemic on the relationship of India with other countries.

3. BUSINESS ENVIRONMENT

Business Environment is the sum total of forces (external and internal) affecting a business or industry. A Change in any of these forces may affect business in a significant way. So a business firm must be dynamic to adapt to the changes in the business environment.

A business has to perform a SWOT analysis before dealing with any situation. Every external force brings threats and opportunities and every internal force brings strength and weakness for a business firm.

This pandemic caused by the virus SARS COV-2 posed external threats and opportunities for the Healthcare Sector.

4. OPPORTUNITIES FOR HEALTHCARE SECTOR

1. **INCREASED AWARENESS:** Due to pandemic and guidelines issued by WHO, people are becoming more aware of various healthcare products. Almost everybody starts using Sanitizers, face masks, face shields. Many people started using immunity boosters, organic products. They started shifting towards Ayurveda. All this results in boosting the sales for these products. The

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demand for Oximeters starts increasing. Consumer's preferences are shifting towards more sanitization.

- 2. **INNOVATION:** This pandemic enables the companies to come out with innovative products. E.g.; Some ice cream companies come out with Haldi and Chawanprashflavor to cope with changes in consumer taste and preferences as a way towards healthier products. Companies like Mother diary comes with Haldiflavored milk. This leads to increased revenue in the healthcare sector.

Coming to the medical sector, a glucometer-like device is being developed which can detect antibodies against Covid-19. Another device is being developed that uses magnetic nanoparticles to collect virus fragments or antibodies from a sample within a few minutes under the CAWACH initiative.

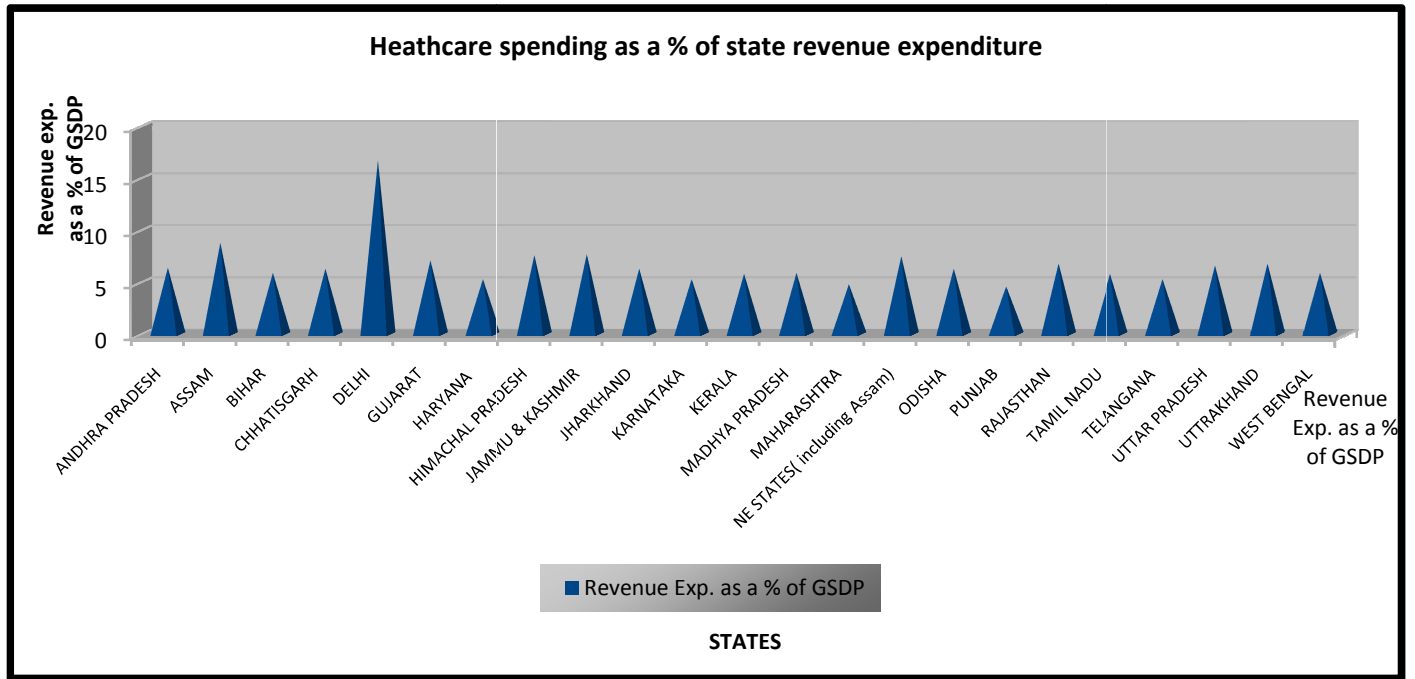
- 3. **MARKETING STRATEGIES:** To bring innovation in marketing strategies, companies are offering free masks and sanitizers with the purchases made by customers. In restaurants and hotels, food is being served in disposables. Some companies are even changing their logo to adapt to the situation.
- 4. **SELF- RELIANCE:** The emergence of COVID-19 from Wuhan, China, and the stand-off between India and

China has led India to restrict the import of medical equipment, syringes, disposables, etc. This paves a way for Indian Companies to start producing their own products and attain global standing by being self-reliant. As a part of this initiative Serum institute ,Bharat biotech and zyduscadila in collaboration with foreign universities are producing their own vaccines to deal with the pandemic. This paves the way for these companies to make India- a self reliant nation.

5. THREATS FOR HEALTHCARE SECTOR

- 1. **DEMAND- SUPPLY IMBALANCE:** Due to the spread of COVID-19 across the world, most of the imports-exports are being restricted. The majority of products of healthcare and medical equipment are imported to India from countries like China, the USA, UK, etc., the reduced supply adversely affects the healthcare sector.
- 2. **LOSS OF JOBS:** Due to shifting in demand of consumers, many people have lost their jobs.
- 3. **COMPETITION:** As a result of increased awareness and demand for healthcare products, many rival firms enter the market by offering a low price to capture the market which in turn risks the survival of existing firms.





SPENDING ON HEALTHCARE IN DIFFERENT STATES AS % OF STATE REVENUE EXPENDITURE IN FY2020.

STATES	% of total revenue expenditure
ANDHRA PRADESH	6.4
ASSAM	8.8
BIHAR	5.9
CHHATISGARH	6.3
DELHI	16.7
GUJARAT	7.1
HARYANA	5.3
HIMACHAL PRADESH	7.6
JAMMU & KASHMIR	7.7
JHARKHAND	6.3
KARNATAKA	5.3
KERALA	5.8
MADHYA PRADESH	5.9
MAHARASHTRA	4.8
NE STATES(including Assam)	7.5
ORISSA	6.3
PUNJAB	4.6
RAJASTHAN	6.8
TAMIL NADU	5.8
TELANGANA	5.3
UTTAR PRADESH	6.6
UTTRAKHAND	6.8
WEST BENGAL	5.9

Source: Reserve Bank of India, National health profile

From the above it can be clearly analysed that on one extreme there is Delhi with highest spending followed by Assam, Jammu& Kashmir, NE states and on other extreme there is Punjab, Maharashtra with lowest spending, all other states are in between Delhi and Punjab. Delhi having highest per capita spending also has highest spending as a % of state revenue expenditure.

6. FINDINGS

Due to the Covid-19 crisis, the private sector in the country continue to reel under negative impact of pandemic. Both in-patient and out-patient footfall for private hospitals, diagnostic centres, multi-speciality has dropped significantly. This leads to a permanent loss and has put pressure on working capital and liquidity. They are not able to sustain fixed costs, debt obligations increased. There was a sudden decline in medical tourism. People from different countries suffering from various health problems had to wait for the restrictions to ease so that they can travel India to get treatment. So many surgeries, organ transplants were pending due to restrictions.

7. RESEARCH METHODOLOGY

The study has been done using secondary sources of data collection. I have collected data from authorised sources on internet, various newspapers, published research papers etc. Due to the lack of much research and time, not much data has been collected.

The methodology used here is descriptive research. It tries to explain how and what are the impact of pandemic on Indian economy specifically health care sector.

8. CONCLUSION

Being a new topic, not much research has been done on it in past few months. We can conclude that this pandemic brings both opportunities and threats for the healthcare sector in specific and the entire economy. Although its opportunities outweigh threats to the healthcare sector it adversely affects the Indian economy negatively. It's for the firms to take first-mover advantage by adapting to these external changes so that they can survive in the market in long run. Only by anticipating and adapting to change can the rivals away from the market. The government should take steps to revive regressing healthcare system of the country. They can cut GST on covid related medical supplies, tax credit for manufacturers or cheaper credit facilities for them, standardise the cost of covid-19 tests across the country.

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A Study of Web Structure Mining Algorithmic and its Application

Harjender Singh*

Abstract: Web Data Mining is an important area of data mining which focuses on the extraction of interesting information from WWW and can be classified as a web content mining, web structure mining, web usage mining and other types of information. In each of the three different forms of web mining, web structures mining is the aim of the paper is to provide an up to date and past evaluation and update and outlines future research guidelines. Web structure mining is a tool used to identify the link between web pages connected by information or direct links. It provides information on how different pages are linked to this vast website. Web Structure Mining finds hidden basic structures for web application search and uses hyperlinks for other application. This paper presents an overview of research development and several important research topics in terms of comparisons and summaries of web structure data mining with its applications.

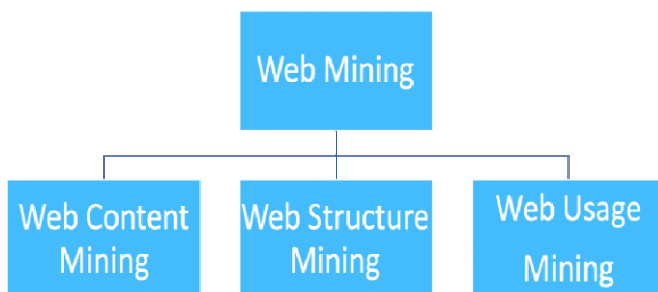
Keyword: Web mining, Web structure mining, Web content mining

1. INTRODUCTION

Motivation

The motivation for writing this paper is primarily an interest in undertaking a challenging task in an interesting area of research (Web Structure Mining). The opportunity to learn about a new area of Structured mining and its techniques.

Problem definition



The application to discover structural information on the Web is web structural mining. The web graph structure consists of web pages as nodes and hyperlinks as borders which connect related pages. Structure mining essentially shows the structured summary of a specific website. It identifies relationships between linked web pages or a direct link. Web structure mining can be very useful in determining the connection between two commercial websites.

Web applications are characterised by hypertext links and certain procedures, which permit real-time discussions between client and server. The hyperlinks are symbolised with a different mark from the rest of the document of word, picture or icon document which causes the browser to be placed on the web, regardless of where the document is located. Electronic documents which refer to each other have been gathered and led to the Web name.

Objective

The main purpose for structure mining is to extract previously unknown relationships between Web pages. This structure mining provides use for a business to link the information of its own Web site to enable navigation and cluster information into site maps.

Literature survey

This type of mining approach is used to identify the link between different web pages linked through information or direct links. This type of mining process is primarily concerned with deriving an existing type of unknown associations between the different web pages. The mining usage type can examine log data stored in the web server, proxy server and client caches in indifferent formats. Thus, because of the vast amount of information, the mining approach oriented towards the structure may reduce the two major issues posed by the WWW. And the first problem is not at all related to the search results.

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The relevance of the information searched has been misunderstood by the problems which the search engines apply mainly to the low accuracy conditions. And secondly, the inefficiency to create the large quantity index when the data is provided via the internet. This can reduce the reminder volume along with the mining approach in terms of its content. This sort of minimisation has therefore been used to find models of this type of mining technique in the web-based hyperlink architecture.

There are some issues for Web Structure mining process which is related with the architecture of the hyper links presented over the web. Earlier these hyper-links get analysed by the researchers. But these emerging interest within the web mining mechanism and various researches on analysis of structure have also increased which leads to latest growing research domain which is known as link-mining. Link mining is at communication level of various works like – analysis of link, web mining process, relational-learning process, graph mining approach etc..

WEB Structure Mining

The web structure mining can help users to get their relevant documents just by analysing link oriented structure of any type of web content. Also they give some issues in order to work with structure of any given hyperlinks in the web. Analysis of these links is also a domain for researchers and the web consist of not only some pages but also of hyperlinks directing any page to any other type of pages. It finds the specific structure of links that is hyperlink for any other inter document, also generate structural result regarding any web page or websites.

This concept of web structure mining is used for retrieving pages that are not only relevant also of high quality or authoritative on any topic. Though by the increase in attention on web mining concept, the analysis of structure have also been increased. The hyper text is placed and performed the web mining through some learning and inductive type of approach and through graph mining process.

2. TYPES :

Hyperlinks:

Hyperlinks is unit of structure which can link a particular location within a web page to other location of same or different web pages. There are majorly two types of Hyperlinks which are, the hyperlink that connects different sections of similar page is called intra-document hyperlink and the hyperlink that connects the two type of pages is referred as an inter-document hyperlink. There exist a significant body that work on hyperlinks analysis and provide up-to date survey.

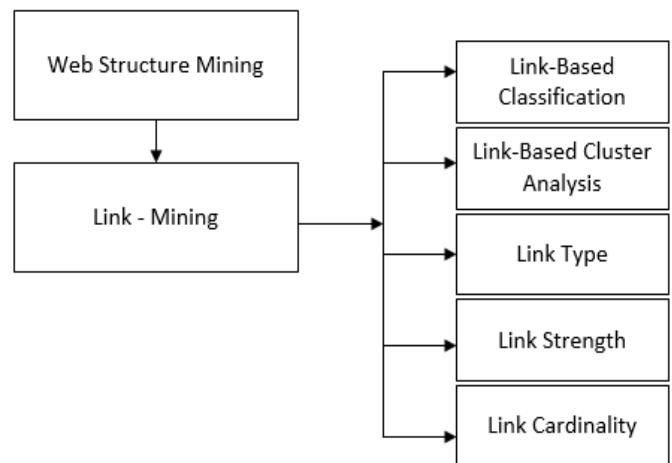
Document Structure

The content present in web pages may also be arrange in the tree type structured pattern which is due to several types of HTML tags or designing XML tag in any page of web. Here mining is focused to automatically extraction of document object model structures out of document.

The WSM is a type of web mining process for data which is type of tool applied to recognize links between web pages that are connected through information or direct connection. This type of data structure can be applied through supplying web architecture model by techniques of database for web pages. This type of connection enables any search engine in order to take data which is similar to query for search which directly connected with linking page of web site on which the content is placed. Generally this type of work may be performed by use of spiders scanning process over website and retrieve content from home pages , after that with the help of links of reference it brings some particular pages in front that have some desired details.

The main objective of the web structure mining process is to discover the unknown association in between webpages and web. This structure type of DM can enable to use in the business purpose to connect the details of websites to allow the navigation function and also make cluster information over site maps. This may enable of their websites to navigate function and group the information over the site maps. Also this may help users to have capability to use required information with the help of association of keywords along the content based mining process. Here web structure mining can also be define as in terms of graphs. The webpages are representing the nodes and hyperlinks represents the edges. Its shows the relationship between the user and web. The main motive of web structure mining is creating structured summaries about information on web pages.

Processes in Web-Structure-Mining:



Link-oriented process of Classification

This process is latest DM work in linking the domains. This main target of the process is to anticipate the categories of the web pages and also depends on the word which may found over the pages or links in between the pages over HTML tags, anchor text and may be present on the attributes over web pages.

Link-oriented Cluster-Analysis process:

The objective of this process is finding the sub classes which are naturally found. The data in this process is fragmented into clusters in which same type of object are grouped and different type of objects are also grouped separately within other groups. It is different process in which this analysis is considered as unsupervised and also helpful in finding out the hidden pattern in the data.

Type of Link:

There is a wider range of works in process of prediction of pattern of links between two different entities or can anticipate the objective of the links.

Strength of Links:

In this each link should have unique weight so they may be related along their weights.

Cardinality of Links:

Main objective of the process is the anticipation of the links present in between the objects.

3. OPTIMIZATION TECHNIQUES IN WSM

Clustering-technique:

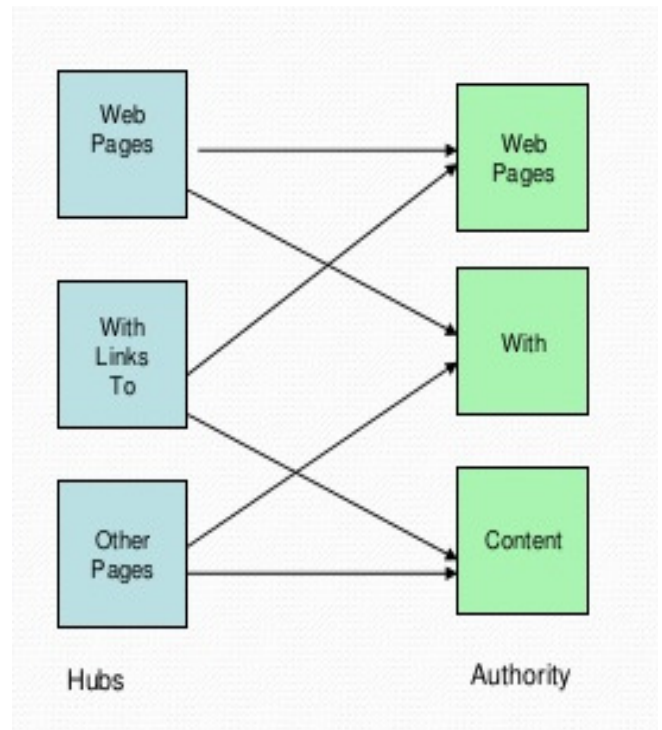
This Clustering technique is the process of grouping of sets of objects in such manner that same type of object is in same group are termed as clusters. The primary task of explanatory DM process that basic type of approach is used for analysis of statistical data which is used for various domains like pattern , ML approach , Data retrieval , Bioinformatics and picture analysis.

Page-Ranking Technique:

This ranking technique is relationship between group of items like two given points either the first is ranked lesser to other or first is ranked greater than other or both can be equal ranked . It is inadequate to use total number of object as two separate object as they may have similar ranking, in this case page ranking is completely merged. This technique leads to better approach that can calculate the importance of a web page by calculating the number of pages linked to it, the greater the

number of pages the greater will be the importance. The calculated links are called back-links. In any case back link generate from key page then this link gives higher weightage than those which are coming from non-important pages so link from first page to other is measured by VOTE.

Hyper-link induced-topic-search algorithm:



This approach is defined with two attributes like hubs and authorities. It uses process of link analysis that may rate any webpage and also developed an approach which enable use of linking structure for web so that it finds and rank the page related with specific concept. The hits algorithm uses sampling and iterative steps. This technique follows the concept of search engine called ASK.

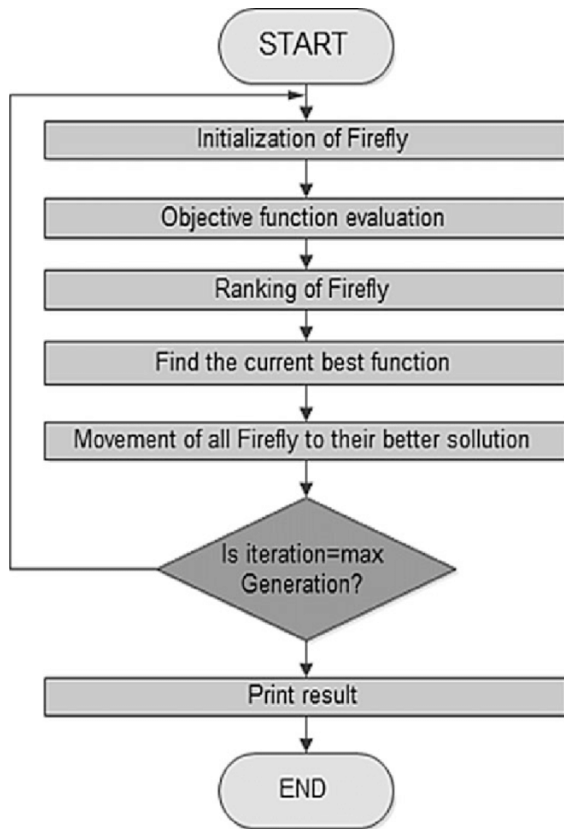
Ant-colony-optimization algorithm:

In this pheromone trails are used. According to the probabilities the artificial ants may carry one or more objects and drop them. These agents do not directly contact each other, but through configuration of objects on the floor they may influence themselves. Thus from this the artificial ants can able to create same type of objects and a problem known as data clustering. A traveling salesperson problem is perfect for ACO because this problem resembles to finding the closest path to the food source. Unless pheromone evaporation is implemented (a solution disappears after a period of time), ACO results in premature convergence to local optimal solution.

Genetic-Algorithm:

Due to the extra ordinary enhancement in the WWW have increased the subject of crawling of a web therefore this approach is used. The targeted process of crawling includes mechanical categorization of web page approach like WPC which is required to find whether the page is being taken for approach or not. For this type of approach of leaning process, the genetic algorithm is dependent over mechanical type of WPC approach that uses HTML and conditions both that are related with each tag as feature of classification and also it analyses best classifier obtained from webpages through just estimating within learned type of classifier and some latest web pages. By applying the hybrid type of GA or PSO approaches this may have various issues help to recover those complexities.

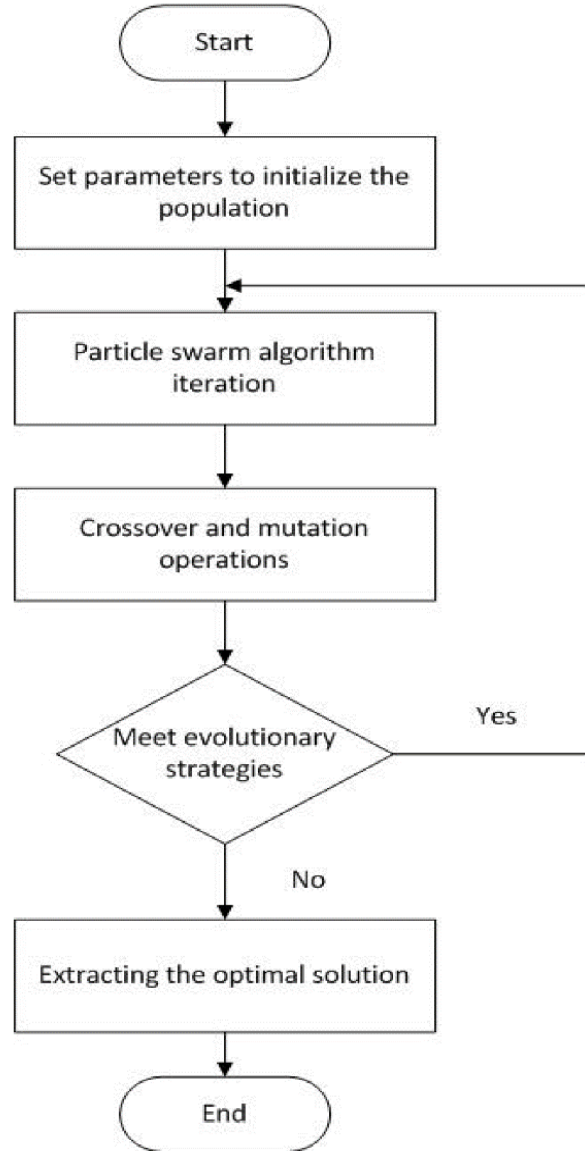
Firefly Algorithm:



It is Meta heuristic approach that is inspired through glowing nature of fire flies. The main aim of firefly's flash is to attract other fireflies. In this analysis of the algorithm it formulates through supposing situations like entire fireflies are unisex such that any one firefly may attract the entire type of fireflies. The brightness of fireflies flash make them attractive accordingly. Any two type of fireflies if one is less glowing then one will attract to brighter one. Here increase in distance

makes decrease in brightness. If no firefly is glowing as compare to given then it may be randomly move.

PSO algorithm:



In PSO (particle swarm optimization) algorithm the birds in a flock are represented as particles in n dimension. For representing one solution of problem, best fitness value of particle at a location in the n-dimensional problem space. When a particle updates its position it generates another problem solution is generated and then new solution is evaluated by fitness function and process is repeated until the stopping criteria is met. PSO has random population matrix like GA, but rows in matrix are called particles instead of chromosomes. Particles are potential solution that move in particular direction on cost surface with certain velocity. They

update their velocities and position using formulas based on knowledge about best solution achieved by complete swarm of particles and each particles at its best.

4. CONCLUSION

Web mining is powerful technique used to extract the information from past behaviour of users. It plays an important role in this approach. Various algorithm are used in ranking process as described in this research paper . when distributing the rank score Page rank and HITS treat all links equally. In this we majorly focused on web structure mining, its types, approaches, techniques and algorithm and some related issues with them to have an idea about their application and effectiveness. Since this is a huge area, and there a lot of work to do, we hope this paper could be a useful starting point for identifying opportunities for further research.

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An Analytical Study on the Pattern of use of Edublogs by the Student-teachers in Relation to Their Level of Programmes

Dr. Monika Singh*

Abstract: *Technology aids in developing and adopting new approaches to teaching and learning and can be really helpful for specialized growth of future teachers. Technology lends support to both student and the teachers as it is an integral part of the classroom learning environment. One of the documents NCFTE 2009 also expressed the concern about ICT integration in education and that it should be used for professional growth and academic enhancement of pre-service and in-service teachers. Reasonably priced ICT tools and techniques can be integrated into classroom practices right from the primary stage so that the students may attain the desired proficiency. Student teachers of B.Ed and D.El.Ed should be introduced to the computers and its education and research during their training. Using a blog can be a great influential 21st century tool for professional learning as well as writing, Edublogs are web 2.0 tools which should be used in teaching learning by the pre-service and In-service teachers of. In the study the pattern of use of Edublogs by the added users like student teachers of B.Ed and D.El.Ed was studied through the graphs automatically generated in the Edublogs. The analysis of the data to study the pattern of use of Edublogs has been done on the basis of the graphical data generated on the Edublogs which was monitored and studied for a period of three months. The findings concluded that B.Ed. Student-teachers were more participative as they used Edublogs more often than D.El.Ed. Student-teachers.*

Keywords: *NCFTE, Blogs, Edublogs, Student-teachers, Web 2.0, B.Ed, D.El.Ed*

1. INTRODUCTION

Blogs are routinely updated daily. Using a blog can be a great influential 21st century tool for professional learning as well as writing. Blogs become a medium for public expression that is imperative for educators who want to amend and refine their thinking about teaching and learning. Some blogs are defined by their type: a teaching blog for educators, a techie blogs for technologists, fashion blogs, videoblogs, photoblogs etc, .. Edublogs for example is an education-specific blogging service which means it is a platform meant only for education purposes. And for the reason that it is the largest blogging

platform for educational purposes, its deliberate users are people concerned with education like mentors, teachers, professors, administrators, librarians, students etc. Technologies in the form of interactive tools can smoothen the progress of creation of knowledge, deciphering meaning and establishing new connections. Interactions with ICT provide users with modern ways of undertaking things, exchange or augment abilities. Technological innovations can provide many resources and many of which are free to use and it is important to incorporate new learning tools like Edublogs to make the overall educational process interesting provided the future teacher's are trained in making use of these emerging technologies in the classrooms.

There are reasons that will encourage one to use such tools as Educators like Edublogs in the teaching learning process the only things required are interest, focus, consistency, desire to integrate technology into Education which is also the need of today's digital era, passion for writing, reading and creating something new in education. Also, a teacher's future professional development in the present scenario should have objectives like, skills with the new and advanced applications of computer, change in a teacher's role and curriculum, also changes the use and intervention of ICT in education.

2. STATEMENT OF THE PROBLEM

On the basis of the above description the researchers chose the following problem for investigation: "An Analytical study on the pattern of use of Edublogs by the student-teachers in relation to the level of Programmes.

1) Objectives of the Study

- (i) To Create a Blog using the platform Edublogs.org to integrate ICT in Education for the student – teachers of B.Ed. and D.El.Ed. programme.
- (ii) To Study the pattern of use of Edublogs by student-teachers in relation to their: level of the programme – D.El.Ed. and B.Ed.

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Since Objective 1 was only creating a blog using the platform Edublogs.org to integrate ICT in education for the student-teachers of B.Ed. and D.El.Ed, so no hypothesis was required for the objective.

Hypothesis (ii) Student-teachers of B.Ed. and D.El.Ed., will show variation in their pattern of use of Edublogs.

(2) Method

The first objective of the study was to create a blog using platform Edublogs.org. Edublogs are blogs created specifically for educational purposes. The Edublogs created using the platform <https://Edublogs.org> in the present study for the future teachers of B.Ed. and D.El.Ed. courses mainly covered the content based on the topics that are included in the curriculum of B.Ed. I Semester and of D.El.Ed. First year viz; topics mostly from their foundation papers- Childhood and Growing up and Critical understanding of ICT in Semester-I, B.Ed...

The *Edublogs* was created as given in the steps below:

- 1) Creating a user name for your Edublogs
- 2) Creating a Blog Title
- 3) After login the blog screen has the option as dashboard which is actually used to view the content that is posted on it and is the overall control of the blog.
- 4) Optimizing theme and appearance for the Edublogs
- 5) Setting up a class Blog
- 6) Setting up rules and guidelines for the class
- 7) Orientation about Edublogs and its use in Education
- 8) Adding users to the class Blog so that they can write posts and comments
- 9) Adding a visitor tracking widget (tool) to the blog sidebar: The visitor tracking widget was required for the study as the pattern of the use of Edublogs was to be studied by the B.Ed and D.El.Ed student teachers.
- 10) Combined graphs for three months were also generated using this widget.
- 11) Posting the content on the Blogs.

Student - teachers were allowed to use the blogs for a period of three months. After that, the pattern of their use was analysed, which was the second objective of the study. The analysis was done on the basis of frequencies.

Sample of the study

In the present research the B.Ed. student-teachers studying in the colleges affiliated to G.G.S.I.P.U and D.El.Ed student - teachers studying in the Institutes affiliated to SCERT were the sources of the data. The sample consisted of 458 student

teachers in all and included approximately equal number of student -teachers from each of the course i.e., B.Ed. and D.El.Ed. There were 252 student-teachers from B.Ed. and 206 from D.El.Ed courses, who constituted the sample for the study.

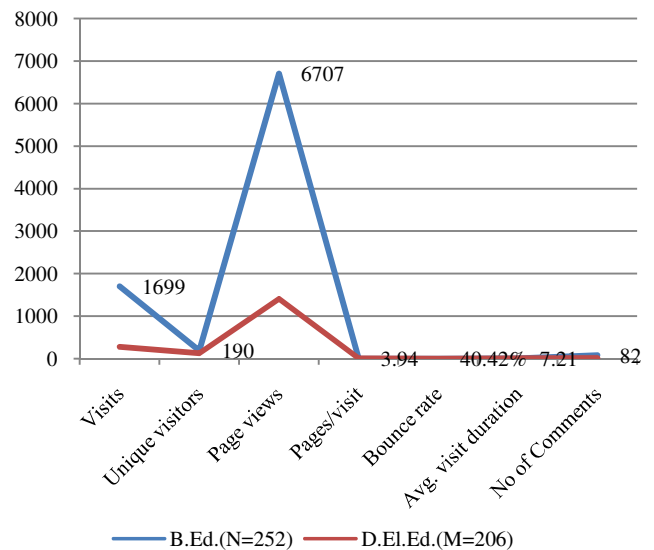
Analysis and Interpretation

For scoring, the statistical data obtained from the Edublogs in terms of visits, average visit duration, unique visitors, bounce rate in the Edublogs, page view /page visit, comments on the Edublogs etc. was taken as frequencies which were collected for each of the three months separately and were later added for the purpose of analysis.

Discussion

TABLE 1: Pattern of use of Edublogs (Three months) by B.Ed. and D.El.Ed student-teachers

S. No.	Criteria	B.Ed. (N=252)	D.El.Ed. (M=206)
1.	Visits	1699	279
2.	Unique visitors	190	127
3.	Page views	6707	1408
4.	Pages/visit	3.94	5.04
5.	Bounce rate	40.42%	31.46%
6.	Avg. visit duration	7.21	8.79
7.	No of Comments Received	82	09



Graph 1: Pattern of use of Edublogs (Three months) by B.Ed. and D.El.Ed. student- teachers.

The analysis showed the no of visits, unique visitors, average visit duration, page/views, bounce rate, and comments received on the Edublogs which were analysed to find out the pattern of use of Edublogs by the users. Sample student-teachers of both B.Ed.and D.El.Ed. took interest and interacted through the Edublogs and commented on the Edublogs. The analysis was done on the basis of the graphical data generated on the Edublogs which was monitored and studied for a period of three months.

The first criteria, the visits are counted according to the number of times users visit the Blog. Every time a user logins to the blog, it is registered as different visit to the blog. The number of visits as indicated in the table shows 1699 times by 252 B.Ed. users, the blog is visited in three months duration from which it can be interpreted that on an average B.Ed student teacher accessed/login the blog 7 times. Edublogs can be helpful to these learners as they can access the content related to their syllabus on a single platform. The researcher also took this into consideration and provided the content by referring to various sources. Similarly the pattern of use of Edublogs was studied on the basis of other criteria like unique visitors which indicates number of different users access the blog is treated as unique visitor over the course of the past month and the no. of times a user visits the blog using different devices/browsers (like laptops, smart phones, computer etc. As seen from the table 4.23 the unique visitors in case of B.Ed. is 190 out of the total 252 added users who accessed the Blog. This indicates that approximately 75% participation was seen in case of B.Ed student teachers. The next criteria for the study of pattern of use of Edublogs are the page views which are counted every time a user opens or reloads a webpage on the Edublogs. In this way, for instance a single user loading the webpage 5 times in a single session will generate 5 page views. So, on the basis of the above criterion in case of B.Ed webpage's were accessed 6707 times. So on an average 27 webpage's of the posts are accessed per user.

The next criterion is number of pages/visit which counts the average number of pages that a user loads during a single visit to a blog. In the above table B.Ed. student-teachers on a single visit access 3.94 pages /visit. Bounce rate is defined in terms of the percentage of visitors who load a single page on the Edublogs and then leave without any additional interaction. The lower the bounce rate, the better it is depending upon the number of users. It shows that how engaging the researcher's blog is. As can be seen, the bounce rate in case of B.Ed. is 31.46 % it indicates that 77 users did not loaded more than single webpage or left without any further interaction and remaining 113 B.Ed users were consistently engaged in using the Edublogs for the content. Average visit duration indicates the average time duration a user visits the Edublogs during a single visit. The average time for which the B.Ed. student-teachers visited the blog is 7.21mins.

3. FINDINGS OF THE STUDY

When compared on the basis of the criteria mentioned in the above table, B.Ed. as well as D.El.Ed. Student-teachers show variations in their pattern of use of Edublogs in terms of the visits on the Edublogs, unique visitors, page views, pages/visit, bounce rate, average visit duration, and No. of comments received on the Edublogs. The pattern of use of Edublogs by B.Ed. and D.El.Ed. student-teachers, when compared, the B.Ed. student-teachers showed significantly more no of visits as compared to the D.El.Ed. student-teachers. Also, the pages were viewed extensively in case of B.Ed. student-teachers and less in case of D.El.Ed. student-teachers.It is found that B.Ed. student-teachers were more participative and involved in the use of Edublogs than D.El.Ed. Student-teachers. The reason for less no. of visits and unique visitors in case of D.El.Ed. student-teachers probably could be that they are used to studying from their recommended textbooks based on their papers and they find it easy to go through these books to prepare the content instead of studying through Edublogs. Another probable reason is the language barrier, as the content posted on the blogs is entirely in English and B.Ed. student-teachers as compared to D.El.Ed. are more proficient in English. Most of the B.Ed. students were comfortable with the language of the content except for a few student-teachers who were less familiar with the language.

4. CONCLUSION

From the above analysis it can be concluded that both B.Ed. and D.El.Ed student-teachers show variation in the pattern of use of the Edublogs for learning and hence the Sub-Hypothesis is accepted. In B.Ed. student-teachers use of Edublogs was found to be higher than among the D.EL.Ed student-teachers. The results of the study show that the teacher's positive approach is a vital sign of keenness and first step in effective assimilation of ICT in education. The analysis of the data revealed that Edublogs is considered a unique educational tool by most of the student-teachers from B.Ed. and D.El.Ed courses.

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Green Computing: Issues, Challenges & Suggestions

Sushma Malik*, Dr. Anamika Rana**

Abstract: At present, the computer is being used by common man or organization in our society for saving and to reduce manpower but at that time we also need to aware about its harmful impacts on our environment. Human beings are not aware of the harmful effects of it's in the excitement of using new technologies. Green computing can be defined as the study of designing, manufacturing, usage, and disposal of computing devices in a way to minimize the impact on the environment. The term green computing is used to signify the efficient usage of computing resources. The manufacturing of computing resources in huge amounts has a direct impact on the environment and researchers are performing a lot of research to minimize the negative impact of computing resources on the natural resources of the environment. The main aim of green computing is to use IT resources proficiently. The responsibility to protect the environment is increased with the increment of computing requirements in our daily life. The research paper's motive is to provide a better understanding of green computing in the modern world. This paper also includes the literature review on green computing.

Keywords: Green computing (GC), Information Technology (IT).

1. INTRODUCTION

In today's IT world, the usage of computers is increasing day by day in the form of laptops, smartphones, smartwatches, and many more which increase the consumption of electricity. This crisis has been realized by people and measures are being taken which help in minimizing the power usage of computers. This initiative can be called Green Computing (GC). So the GC can be defined as the study of designing, manufacturing, usage, and disposal of computing devices in a way to minimize the impact on the environment[1]. GC is the usage of IT resources proficiently. The main aim of GC is to reduce hazardous materials usage, maximize energy efficiency during the lifetime of products and also promote the recyclability of IT products. In the industry of IT, "Green" means the more efficient usage of computing devices with diminishing the negative impacts on the environment. GC includes the usage of computing resources in a way to minimize the usage of hazardous materials and services that comply with the environment, recycling the e-waste in a way that it does not

affect the environment. GC is minimizing the energy cost and also saving the environment[2][3].

The main goal of GC is to reduce the carbon-di-oxide emitted by the computing devices and not damage the natural resources and reduce environmental pollution. To save our environment, nowadays GC is the main need to implement[4][5].

Four approaches are implemented to promote green computing globally like[6]:

Green Use: Minimize the power consumption of computers and secondary storage devices and also these devices using eco-friendly approaches.

Green Discarding: Correctly discarding the electronic products those are not usable.

Green Design: Using energy-efficient devices.

Green Development: Minimizing the electronic waste during the production of computers and other electronic devices.

1.1 Needs of Green Computing

Today computer plays a vital role in everyone's life. The computer makes our work effortless by reducing the efforts of the human being. Usage of Computer saves human beings time and making their life easier. But computers consume a large amount of power supply and simultaneously emit a huge quantity of heat. Due to this heat energy, a large amount of CO₂ is released into the environment and CO₂ is the main source of greenhouse gas which is very harmful to the environment. CO₂ is emitted by data centers, PCs, peripherals, and networking devices. But a large amount of CO₂ is released by PCs because it contains many toxic materials. PCs are non-biodegradable and can be rarely recycled. To reduce these impacts 'Green Computing' has been implemented on various computing devices[7].

2. COMPUTER VIRTUALIZATION

Virtualization can be defined as a process that creates a virtual version of a device or resources such as server, storage

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devices, network, or even OS where the framework divides the resources into more than one execution environment. In the computer virtualization process, more than one logical system can use a single set of physical hardware platforms to run. The amount of energy needs to run and cool down the devices is largely reduced by reducing the usage of peripheral devices and also minimizes the toxic waste. So, the computer virtualization process is supportive to enhance the GC[8]. There are types of virtualization as shown in Figure1:

- **Server virtualization:** In the server virtualization process, a server is dividing into small virtual servers to increase the resources of the server. In this process, users are not able to see the server resources and the physical server is divide into multiple virtual environments which are called private servers. In this, one sever is not dedicating to a single application or task to perform. It reduces the cost because less hardware is required and also conserves space through the consolidation of several machines into one server[8].

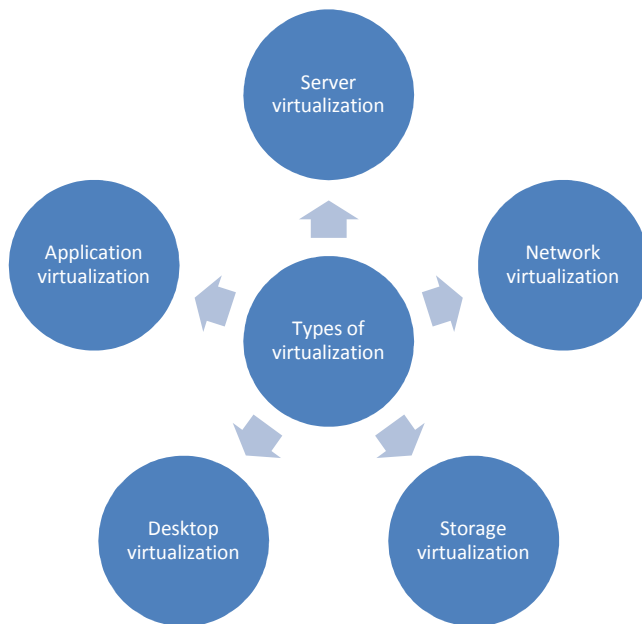


Fig. 1. Types of virtualization

- **Application virtualization:** It is a technology that encapsulates an application from the underlying host OS on which it is executed. It enables access to an application without requiring installing that application on the target device and allows the application to run independently. It is more useful for the IT administrator because install an application once on a server instead of multiple desktops and making it easier to update applications centrally.

There are two types of application virtualization. They are remote and streaming. In remote type, all the applications are run on a server. End-users using the remote display protocol to using their applications. But in streaming type components of applications are downloaded and executed on the user's local computer when required[8].

- **Network virtualization:** In network virtualization, hardware and software resources are combining in the network by splitting the existing bandwidth into independent channels. It is accomplished by installing software and services to manage the sharing of storage, computing cycles, and applications[8].
- **Storage virtualization:** In Storage virtualization, small sizes of the storage device are combined to become a single large size storage device. It helps in the expansion of storage capacity. It can be implemented with the fowling method
 1. Host-based
 2. Storage device-based and
 3. Network-based

Storage management is not an easy task and also a time-consuming process but this problem can be solved with the implementation of storage virtualization[8].

- **Desktop virtualization:** In the desktop virtualization process, the computer desktop environment is separated from the physical computer. It allows the central virtual desktop to manage by a server and run by the end-user on a thin client machine. The working of desktop virtualization is based on a client-server model. It allows users to remotely log in to access the desktop from any location[8].

3. EFFORTS TO IMPLEMENT GREEN COMPUTING

We do not need to stop using a computer system and power to save our environment but we have to make some effective efforts by adapting green technology to promote an eco-friendly computing environment at low cost by reducing power consumption. By adopting the following tips we can go green to make our environment healthy[7]:

1. **Purchase energy star labeled products:** Manufacturing of various electrical and electronics equipment with energy star labeling ensures less power consumption. Therefore we need to use monitors, air conditioners, refrigerators, and other technologies with energy star labels to go green.
2. **Unplug the electronics appliances when not in use:** Various experts say that most plugged-in electronic

gadgets use a low amount of electricity, but some other electronic devices like computer systems and television sets consume a lot of electricity even when they are in standby mode. Therefore we need to unplug various electronic devices when they are not in use to save money and electricity.

3. **Use flat screen monitors rather than CRT monitors:** CRT monitors uses approximately 90-110 watts of power whereas LCD or LED monitors uses 35-45 watts of power which is very less as compared to CRT monitors. Therefore we need to use flat screen monitors like LCD or LED monitors in the place of CRT monitors to reduce power consumption.
4. **Use soy ink or non-petroleum-based inks for printing:** Soy ink is renewable, biodegradable which is prepared from soybean oil which is better than other ink options which are prepared from various hazardous solvents.
5. **Purchase eco-friendly printing papers:** We have to buy environment-friendly printing papers which are prepared from more sustainable materials like organic cotton, bamboo, etc.
6. **Avoid using screen savers:** We have to stop using screen savers for reducing power consumption. Moreover, when we use a screen saver, it also uses some amount of processor power and memory.
7. **E-waste management:** Electronic waste is responsible for various harmful effects on our environment as it includes various hazardous substances like mercury, lead, cadmium, etc. So we have to stop the informal disposing of electronic devices.
8. **Recycling:** Recycling of waste electronics recovers many valuable substances like aluminum, copper and gold, etc. from the waste electronic devices. As a result of this, we can control pollution and save our atmosphere.

Other than these steps some more useful tips for implementing green technology are like using double side printed function, using sleep mode function to save electricity, turn off all devices like a printer when they are not in use, lower down the monitor brightness. By adapting these helpful tips a large amount of energy consumptions can be reduced and protect our surroundings from the harmful effects of technologies.

4. GREEN EMERGING IT TECHNOLOGIES

The green computing paradigm was presented with a center of attraction on emerging IT technologies. In IT industries Mobile Computing, Cloud Computing, Big Data Analytics, IoT, and

Networking are identified as the emerging IT technologies which get the popularity in IT domain. Green and sustainable computing practices review the adaptation of emerging IT technologies for efficient functioning and efficient usage of computing resources in all emerging technologies shown in Figure 2, such as Big Data and Internet of Things (IoT) and many more [9][10].



Fig. 2. Green Emerging Technologies [9]

5. ISSUES AND HURDLES IN IMPLEMENTING GREEN COMPUTING

The increase in usage of electronic devices such as laptops, mobiles, smartwatches, and many more increase the consumption of electricity. This crisis can be minimizing by reducing the power usage by electronic devices by green computing. But a number of issues and hurdles are facing during the implementation of green computing. Some issues are explained here such as [11][12]:

- Manufacturers are preparing devices that are more efficient and accurate but they use more energy and evolve very toxic, dangerous gases and chemicals.
- Some chemicals like Lead, Mercury, Cadmium, and other toxic chemicals are used by several electronic companies in the manufacturing of commuters.
- By surveying America energy consumed by the data center in the USA and all over the world will be doubled in the next few years.
- Green computing could be quite costly. Some green computers may be considerably low-powered also.
- The rapid technology change.
- Implementation cost for installing, training, updating, and technology support.

6. CHALLENGES

According to past researchers, the main focus was on efficient computing, cost associated with IT equipment and infrastructure services were considered low cost and availability. With growing computing needs, the cost of energy and global warming is becoming the bottleneck in IT environments and this shift is a big challenge to the IT industry. According to researchers, the few prominent challenges of Green Computing are as follows[13][14][15]:

- Equipment power density / Power and capacity of cooling.
- Growing of energy cost and requirements for Data Centers.
- Equipment Life cycle management.
- Disposal of Electronic Wastes.

7. SUGGESTIONS

- This part explains some suggestion to implement green computing in the IT domain[14]:
- When electronic devices are not in use turn off the devices.
- If the computer is not used frequently then acquire a small system with minimum peripherals devices.
- Always purchase a PC with Energy star and also observe the consumption of power.
- Always shutdown the computer instantly after usage. Don't use the standby mode because standby mode is consuming around 10 watts of power.
- Unplug the peripheral devices like a printer; music system scanner and modem are not used.
- The hard copy of the document uses less as much as possible. Evaluate and modify documents on the screen and use print preview. Minimize the number of hard copies. Instead of printing, save information to disks.
- If you use a laser printer, don't turn your printer on until you are ready to print. Although minimize the use of laser printer. Instead of it using the ink ink-jet printer consumes 80-90 percent less energy.
- Instead of using a bright-colored display, choose a dark background screen display that consumes less power.
- UPS of computer doesn't keep always switched on. It can be done when the PC is using because when the user using the PC for sometime daily that's enough for charging the battery. With this practice, the battery is preventing from overcharging and also reduces the consumption of electricity.

8. CONCLUSION

In the coming years, lots of research work need to be done in the domain of GC and research can be concentrated around making data centers and cloud computing more energy efficient. GC has gained a lot of importance due to the rise in power consumption and its impact on the environment. Going green is very beneficial as it helps various industries to manage their E-waste efficiently so that the surrounding may not be affected. This paper suggested some beneficial tips that we should follow from today or even from now for a greener tomorrow.

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Challenges Faced & Strategies Adopted by Physical Retail Stores to Counter the Online Competition in India

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Abstract:

Purpose: To gain insight into the different competitive strategies of retailers which are active in the electronic product market and to explain the drivers which may underlie them.

Research Methodology: The data collected from the top five leading retailing physical stores in Delhi, for the period 2016-2018, was analyzed using factor analysis. The sample for the study was covering major physical retail stores that have 3000 to 5000 sq fit areas. Stores manager or floor in charge was the respondents of the study. A structured questionnaire was using for collecting responses from the respondents. The result of the study was analyzed by using EFA and CFA to identify the competitive strategies.

Findings: The study has revealed that the Indian consumers are price sensitive they always compare the price of products before actually buying them. In this case online products are very less price and physical retailer offer products comparative to little high price. This is the basic reason in Indian market online shopping to become more popular. Now physical retailers need to reframe their competitive strategies to encounter online competition and gain consumer faith at given price.

Limitation/ Future Research: The study is limited to organized physical retail stores, with a sample size of 150 stores of top 5 leading organized physical retail stores. There is huge scope for future research on competitive strategies in other retailing firms.

Research Implications: This paper broadens the scope of previous research work and marketing practices to the Indian retailing sector to encounter online competition.

Originality/Value: The study extends the literature by examining the competitive strategies of organised physical retail stores in India.

Keywords: online shopping, competitive strategy, physical retail

1. INTRODUCTION

Retailing in India is one of the most important part of economic activity in the growth of the economy. The total

value of retail sector is US \$600 out of top five-retail market in the world. As of 2003 Indian retail sector has emerged as one of the most dynamic and growing industries due to the entry of new leading firms. According to ASSOCHAM total consumption expenditure is expected to increase by US\$ 3, 600 billion in 2020 that was US\$ 1, 824 billion in 2017. It shows 10 percent increase in GDP and 8 percent of the employment. India is world's fifth largest economy for retail space.

This growth rate is possible by many factors such as rising income, changing lifestyle of middle class and increasing digital connectivity. According a report published by Deloitte the overall market is expected to growth at 12 percent per annum, modern trade would expand twice as fast at 201 percent annum and tradition trade at 10 percent. In the financial year 2017, organised retail sector contributed 7 percent of the total sector. Online retail is expected to be high growth with physical stores in the next five year and has grown 23 percent to \$ 17.8 billion in 2017.

The Indian retail trading has also promoted by Foreign Direct Investment equity inflows. The rate of FDI is US\$ 1.42 billion during April 2000-June 2018, according to the Department of Industrial Policies and Promotion. With the rising need of Indian consumer for electronic products and home appliances, many retail firms have invested in the Indian retail space in the past few years. Supporting government policies of India has also taking various initiatives to promoting and improving the retail industry in India. Some of them are: FDI rules in food processing to permit e-commerce companies and foreign retailers to sell made in India consumer products, 100 percent FDI in online retail of goods and services through automatic route.

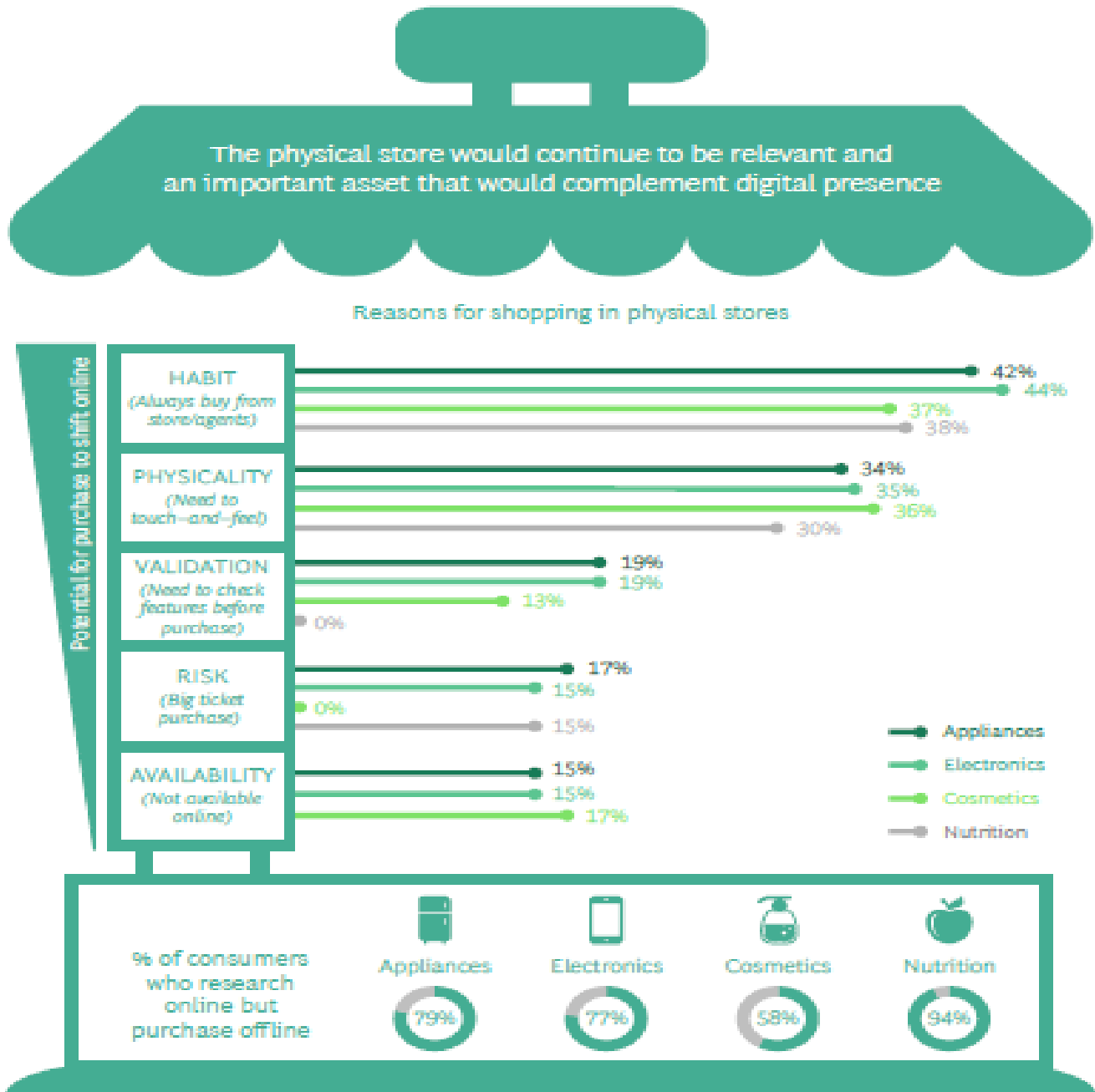
E-commerce is expanding gradually in the economy. Consumer have the ever increasing the choice of products at lowest prices. E-commerce creating biggest revolution the field of retailing, and growth rate of e-commerce in India is

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forecasted to reach US\$ 53billion by 2018 (Deloitte report 2017-2018).

Chu s., et al. (2016) explained that online and offline both channel use by the consumer. Some time online is used for searching information and order products than pick it form physical stores.



Source: Survey by BCG (Retail Association of India)

Some researcher try to find out the reason behind the shifting behavior of consumer. One of the basic reason is heavy price discount on online products but security issues are creating negative impact on consumerbehavior of online shopping.

Physical stores are still in demand due to their touch and feel policy McCabe, D. B. (2001). Modernization of retail stores increasing consumerism and consumer spending level. Trends of hyper mall are most common in big cities and the leading

players are Reliance digital, Future group, Birla group, Bharati retail having aggressive plan for retail format. The basic challenges face by the physical stores retailing is Indian consumer they are culture centric people, word of mouth impact, low income, price sensitive. Stores retailers need to plan their strategy according to Indian class level because common value in entire India is very few H. S. Cheema (2010).

It has been observed that researcher working in the field of online and offline retailing, working on O2O model but less research found on competitive strategies of physical stores retailing against online shopping. The need for research in this field arises, especially in India because organized physical retailing in India is very small but tremendous and it has not been explored sufficiently.

2. REVIEW OF LITERATURE

A noteworthy aspect that can be observed in the shortage of scholarly research in competitive strategy of organized physical stores retailing (OPSR) in India. despite having extensive literature in western countries and a few from developing countries. Some relevant literature pertaining to the phenomenon of competitive strategy based on porters five forced model and some are working on single competitive pricing such as pricing strategy, promotional strategy, differentiation strategy, channel management strategy and omnichannel strategy.

Porter five force model used by many researcher in different fields, Santos, A. T., & Gamboa, J. (2012) also using porter model in a case study, the basic purpose of this study to better understanding the local business community and the challenges faced by small family business. the focus of the study to examining the daily competition creating by big wholesale retailer and their impact on small own family business. recently retailing industry adopting more than two competitive strategy for effective organizational performance and excellence. Baroto, Abdullah & wan (2012) working on Hybrid strategy (cost leadership and differentiation) it has been implemented by the firm at international level. cost leadership offer best value in the market place, differentiation introducing new service, benefit with addition services in the market place. Marija, Panic & Matric (2011) noted that positioning strategy is most important to gaining competitive advantages at the market place. Retailers has been need to understand consumer behaviour and satisfied them more efficiently than competitor. Pricing strategy is also important to beating their competitor. Fratto et al. (2006) examining the price competition within price tiers in the retail industry with different retail format and brand. Price tiering is a channel of market positioning and it is successfully working with retail format and brand. Baroto and Abdullah (2011) working on three basic competitive strategy as on cost leadership, differentiation and hybrid has been

applied for broad range of products and service. Mega store retailing is a differentiation strategy, which focus on advance distribution channel and supply chain management. Hajmohamad & BehZad (2016) suggested a model of supply chain management in their case study. This study was based of jit model of retailing through mega store distribution channel, basically the whole concept was divide into two part i.e. independent on suppliers and dependent on suppliers. The distribution industry that was independent on suppliers using their own private channel of distribution and the dependent on supplier business model moving towards demand driven supply chain.

Different marketing strategies analysis by Aertsens et al. (2009) in a organic food market to find out the growth of market. the whole organic market divide into three parts according to product categories that was R1, R2, and R3. It was observed that R1 makes the real effort in selling organic products using different element and marketing mix, R2 makes no special effort to sale their products and the organic sale was declined last two years, R3 was focused on green line product strategy and its policy promoting environment friendly production and distribution. Kilinc, Oncu & Tasgit (2012) examined competitive strategies in airline industry and to find out the factors that was affected while forming these strategies. Competitive strategy formulated to focus on cost leadership, customer satisfaction, services quality, employee innovation and technologic change.

Store brand was continuously facing competition with changing retail format. The first aspect of competition of store brand was new balancing of vertical relation, second aspect of competition was evolution of private label policies, and the third aspect was possibility of collaborative relation. Survival of any firm requires continuous search for new and restructuring of the existing competitive environment. Butigan and Banic (2016) explore the determinants of capital integration among strategic alliances member firms in the retail sector. According to a report about retail intelligence (2014) in India Tier I and Tier II cities of Mumbai, NCR Delhi, Chennai, Kolkata, Bangalore, Pune, Hyderabad are the leading cities for retail as well as real state operation. A study done by Schrantz (2013) based on location strategy of retail competition and examined the impact of location on growth of retail shop. Procurement strategy is also important to beating the competition, Khan and Khan (2011) examined the procurement strategy of in the context of the competitive strategy. It shall include the purchasing merchandise, sourcing option and power relation in which procurement is done. Indian retail market has continuously changing with new trends and way of selling of products. unorganized market is very old way of shopping but still it is popular, organised market consisting big mall, hyper market and the third part is modern marketing which including both activities online and offline or O2O model based marketing. It can be explain

O2O= Online to online

O2O= Online to offline

O2O= Offline to Offline

Verma and Duggal (2015) working on retail sectors for construction on service dimensions by using exploratory factor analysis. The study was focused on need of managers, priorities of retail sector and marketing effort for uncovered quality dimension.

3. RESEARCH GAP

There are a few studies, that examined the competitive strategies of organized physical retail stores and impact of online retailing on physical retailing. However, there is stark absenteeism of documentation in case of the impact of online shopping on physical retailing and the strategies formulated by the physical stores retailers to encounter online competition. The present study identifies the competitive strategies of organized physical retail stores against online shopping. To identified the various strategies as a parameter for overcome competitive situation at the market place. Therefore, this study broadens the scope of previous research on marketing strategy and provides recommendation to organized physical retail stores.

4. OBJECTIVE OF THE STUDY

The study was conducted with objective:To identify the competitive strategies for organized physical retail stores to encounter online competition.

5. RESEARCH METHODOLOGY

Sample Unit

On the basis of the convenience sampling method, The sample for the study was major organized physical retail stores including (Croma, Reliance Digital, Sargam, Next, Hariom, Paradise and Vijay Sales) that have 3000 to 5000 sq fit store area. Data is collected through a semi structured questionnaire. Area of the study is NCR Delhi to covering all the organized physical retail stores with the help of google map. Total numbers of organized physical stores are 190 listed as Croma-26, Reliance digital-11, Sargam- 75, Next- 7, Hariom-26, Paradise-25 and Vijay Sales- 20. Out of 190 questionnaires, 100 were received while 90 questionnaires were not filled by the respondents.Stores manager or floor in-charge were the respondent of the study.The data was gathered for the period 2016-2018.Competitive strategies of organized physical retail stores are measured in terms of promotional strategy, positioning strategy, differentiation strategy and customer services strategy. These factors are selected from the review of

literature. Present questionnaire is based on five point Likert scale where, 1=strongly disagree to 5 =strongly agree.

Data and data sources

For the study a structured questionnaire was using for collecting responses from the respondents. The data was obtained from stores manager or floor in-charge which one is available. The secondary data was obtained from published annual report by retail association of India, IBEF, Euromonitor etc. to knew the current position of physical retail stores.

Pilot Testing and Refinement

The identified competitive strategies dimensions formed the basis for instrument development. The initial draft of questionnaire was share with marketing experts for getting their opinion or feedback on scale validity and structural properties. Further analysis, including content and face validity was also checked. The questionnaire of five respondents was given to check for language and other basic error. After taking suggestion of expert the correction was done and modified questionnaire was reframe and distributed to 150 respondents. The collected data were coded, tabulated and subjected to statistical analysis. This was necessary to establish internal consistency and reliability of data. The result of pilot study help to development of final questionnaire that including 19 items out of 21 items.

6. DATA INTERPRETATION

Exploratory Factor Analysis (EFA)

The result of data interpretation was accumulated by IBM SPSS 21 package. In the first part of result we discussed the reliability of scale by using Cronbach's Alpha coefficients. The result of reliability is shown in table 1. As per the result and findings of this study, the scales are reliable because theCronbach's Alpha values are .920, .889 and .667 which is reliability of scale. Exploratory Factor Analysis examines the factors extraction validity. The result of Kaiser-Meyer-Olkin is very high (KMO=0.819) based on Bartlett Test of Sphericity that was significant at .000. These test suggested that various competitive strategies are significantly related and value is suitable for factor analysis.

TABLE 1: Reliability Test

Factors	Cronch's Alpha value
Promotional strategy (F1)	.920
Differentiation strategy (F2)	.889
Positioning strategy (F3)	.667

The result of the study was measured by using principal component analysis (PCA) and a varimax rotation method. After using PCA it was found that 19 statements are grouped into four factors on the basis of Eigen values and scree plot. Eigen value was 1 and higher than selected the visibility of number of factors extracted and two items were deleted due to small coefficient value which is less than .50 (S18 and S23). Using PCA analysis three factors were extracted from 21 statements and these are as: F1 has high coefficient with 7 items and considered as promotional strategy, F2 has 8 items and considered as differentiation strategy, F3 has four items and considered as positioning strategy.

TABLE 2: Exploratory Factor Analysis

Rotated Component Matrix ^a			
	Component		
	1	2	3
POM3	.888		
POM5	.882		
POM6	.879		
POM4	.807		
POM2	.798		
POM1	.750		
POS1	.648		
POS4			
diff8		.847	
diff5		.793	
diff4		.751	
diff6		.743	
diff2		.725	
diff3		.724	
diff1		.712	
diff7		.664	
BR3			.676
POS3			.637
BR2			.595
BR1			.590
POS2			
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 4 iterations.			

7. IDENTIFYING COMPETITIVE STRATEGIES FOR ORGANIZED PHYSICAL RETAIL STORES

The variance associated with each of the factors is depicted by Scree plot. This plot reveals the presence of three factors present in the data. This is observable in figure 1, which shows that an elbow occurs after three factors. Exploratory factor analysis is an interdependence multivariate method on the data was conducted. Principal component with varimax rotation was used. The factor retention was guided by the scree plot and eigenvalue. Those factors with value more than one, loading higher than 0.5 and low cross loading retain for further processing. Factors with large eigen value (1 or higher) explain more variance and the factors with small or negative eigen value were omitted for the study Verma and Duggel (2015). The name of these competitive strategies based on variable loading. The presence of multiple factors indicated that competitive strategy is not one dimensional but multi dimensional.

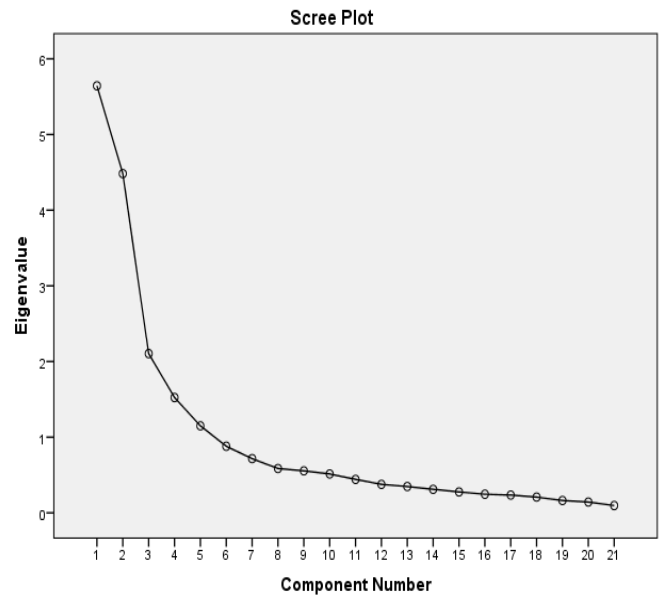


Fig. 1. Scree Plot

8. RELIABILITY ANALYSIS

The components derived from the factor analysis and their dimensions are depicted in table number 2. This retail competitive strategies developed on the basis three dimensions was subjected to reliability analysis to check its consistency. Table 2 shows the components along with their factor loading and reliability coefficients. Cronbach's alpha was used to assess the internal consistency between items and reliability of the scale. As the rule of thumb Cronbach's alpha of more than 0.60 is considered as the perfect level for exploratory research (Nunnally, 1978).

TABLE 3: factor loading

Factors	Items	Factor loading	Reliability Coefficient
Factor 1	1 Retailers need to give high priority to coordination of in store promotion and mass media to beat the online competition	.888	.920
	2 Retailers need to built strong store image to attract the customers	.882	
	3 Retailers need to introduce customer retention strategy to retain the customer at stores purchasing rather than online buying.	.879	
	4 They have to improve marketing effectiveness by planning and restructuring the promotion of tools	.807	
	5 Stores retailers need to use efficient inventory management to provide right goods to the consumer	.798	
	6 Retailers need to Improve customer satisfaction by offering different services	.750	
	7 The store must have wide range of products to attract the new consumer	.648	
Factor 2:	17 Retailers need to hire skilled and well Behave of stores staff that helps consumer by providing information about product and service.	.847	889
	19 Retailers need to make their store visually attractive from the inside and welcoming from the outside.	.793	
	20 They must to solve Service related issues by offering advance services	.751	
	24 Stores Retailers need to know their exact target audience to create their niche market	.743	
	27 Retailers sell their products at discounted price during festival season	.725	
	28 Store retailers need to use social media to promote their products	.724	
	30 Retailers need to organize point of sale for promoting new products.	.712	
	32 Contacting with consumers through mail or telephone after sale of the products	.664	
Factor 3:	13 The store retailers also need to attract upper-class consumers by providing high quality product and services	.676	.667
	14 Store Retailers need to sell well known local brands to increase the number of consumer	.637	
	15 Store Retailers also need to sell well known foreign brands for attracting upper class consumer	.595	
	16 Retailers need to create healthy consumer presence for increasing store purchasing	.590	

9. FINDING AND DISCUSSION

This study aimed to explore and identify the competitive strategies of organized physical retail stores in India. It was found that the competitive strategies of organized retailer against online shopping consisted of three factors. These three factors were considered as competitive strategies mainly- promotional, positioning and differentiation that was

formulated by the organized physical retailers against online competition. The items that was load on factors provide information about the formation of these factors. Factor labeling was done based on domain representativeness. Through this process, the name of factors was assigned. Table 4 shows the extracted factors list with their name, explanation and managerial implication.

TABLE 4: Extracted Components

Extracted Components	Explanation	Managerial Implication
Promotional strategy (F1)	aspect related to promotion of products through mass media, to improve marketing effectiveness by planning and restructuring the promotional tools, inventory management, to improve rate of customer retention	use of mass media, advancement in promotional tools and inventory management
Differentiation strategy (F2)	factor related to differentiation in their functioning such as creating niches, hiring skill staff, increasing store space and introducing new service concepts	niche market, skill staff, store space, new service dimensions
Positioning strategy (F3)	creating strong brand positioning by offering different brand	improving branding concept

The first factor promotional strategy refers to use of advance promotional tools such as use of mass media, by designing web page, also offering products through online channel. Second factor, differentiation strategy identifies the different and unique concept in their retailing. It includes aspect such as hiring well behave skill staff that will guide and help to human being in shopping, increasing area of stores for attractive visual display of products and creating niche market. Third factor entitled positioning strategy related with sold of products and goods in the stores and cover many concepts like brand, quality, price, variety and range of products for creating strong brand positioning in the market place.

The present study attempted to develop competitive strategies for organized physical retail stores in India to encounter online competition. The result revealed that three competitive strategies were identified by using exploratory factor analysis. This extraction could be explain by the advancement of technology and changing consumer behavior towards their shopping pattern.

10. LIMITATION AND FUTURE RESEARCH

There are some limitation of the study, first it is based on a sample of retail stores that was located in NCR Delhi, India. The questionnaire was self design so some possibilities of deformation. Future researcher can study of another area with different retail format. Identification of competitive strategies was focus of the study and only a few study was conducted by the other researcher so, due to lack of guidance through review process there is possibilities of some mistake. Hence, the scale may need further modification and adoption. Finally, the present study is only preliminary investigation. Future researchers should further explore the relative importance and type of the competitive strategies.

Online shopping is very popular in Indian market. People give more preference to online and mobile shopping due to this reason offline or physical store retailers are suffering from loss or consumer rejection of purchasing due to high price as comparing to online retailers. Indian consumers are price sensitive they always comparing the price of products before actual buying. In this case online products are very less price and physical retailer offer products comparative to little high price. This is the basic reason in Indian market online shopping to become more popular. Now physical retailers need to reframing their competitive strategies to encounter online competition and gaining consumer faith at given price. This is a research paper mainly focus on competitive strategies of leading physical retail stores of electronic products. The sample for the study is 150 retail stores that have 3000 to 5000 sq fit areas. Stores manager or floor in charge are the respondent of the study. A structured questionnaire is using for collecting responses from the respondents. The result of the study is analyzed by using EFA and CFA to identify the competitive strategies. This research is useful and insightful information to retailers or developers to reframe their competitive strategy.

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Effect of Covid-19 on the E-Commerce Industry

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Abstract: *The life of every person and different businesses have come to a halt since the pandemic has started. Each country's economy has been hit severely due to the disruptions caused in the supply and demand chain and covid imposed restrictions. Each person is trying to change with these trying times and adapt to the new lifestyle choices caused by the pandemic while taking all the measures to remain safe.*

This research paper aims to focus on the E-Commerce businesses which are struggling during this pandemic and on those businesses which are also benefiting the most from this pandemic and have become the new staple of consumers. The paper will also talk about how consumer behaviour has changed pre and post covid and how these businesses are trying to adapt to these changes.

1. INTRODUCTION

The purchasing and selling of goods or different services with the internet as a facilitator and the transfer of money to complete the purchase is known as E-Commerce. The different types of businesses that comprise in **E-Commerce** are :-

1. **Business to Government (B2G)**
2. **Mobile Commerce (M-Commerce)**
3. **Business to Business (B2B)**
4. **Consumer to Consumer (C2C)**
5. **Business to Consumer (B2G)**

The mindset of customers in India has always been a mix of the traditional and novel way of purchasing items. Before the pandemic, the products that people bought online varied depending on what they were purchasing. People preferred to buy things like furniture, medicines, electronics etc from physical stores because they felt a sense of satisfaction when they can check and hold the item themselves before buying it, but Covid has severely disrupted this because its main way to spread is through human contact so even the purchase of these kind of products has majorly now shifted towards online marketplaces.

E-Commerce businesses are seeing their best quarterly results with record sales as the consumer base has increased exponentially due to covid restrictions. As movement has been

restricted and curfews have been put in place, people have no choice but to order their day to day groceries from apps such as Grofers, Big Basket etc. This has led to the much needed trust creation which India has been lacking as many consumers in India had a traditional mindset of going to stores and buying items hand to hand.

But the new normal has become a threat to kirana stores or physical stores as a study has noted that it takes an average of 66 days for a person to form a new habit and many consumers have been shopping for supplies from the past 6 months or more, so it is a great possibility that post-covid many kirana stores might permanently see a drop in their customers and sales. Due to this period of uncertainty, expensive purchases made by consumers has reduced as the majority of people are facing a cash crunch and people are holding onto their money in case their family members or themselves get affected by Covid-19, so the most difficult task of many companies has been to successfully navigate their way out of this pandemic and to come up with ideas to lure customers into purchasing items.

Major E-Commerce players are thriving in this lockdown due to the large influx of customers and they have come up with new ideas to grow their businesses. For example, ITC and Reliance (**Jio Mart**) have incorporated kirana stores into their websites because of their distribution network. India still has a large untapped market in rural areas and the only way to make progress in these areas is by using the distribution networks of kirana stores which these businesses have strategically analyzed and used them to their benefit and the kirana stores are also benefiting from these strategies as they are able to sell their inventories which was not possible before.

2. OBJECTIVES OF THE STUDY

1. Analyze the behaviour of consumers in India pre and post Covid-19.
2. To predict the trend of consumers after the disruption of traditional commerce due to Covid-19.

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3. LITERATURE REVIEW

According to moneycontrol, between April-November 2020, spending on essential and non-essential items have changed. From 35%, the share of spending on non-essential items has dropped to 15% in April and since April it has varied between 15-35 percent.

Groceries, sanitizers, gloves, masks and dairy products etc. are in extremely high demand and people buying it online are facing issues like late delivery or shortage of stock due to their low supply as the industry is not being able to cope up with the supply-demand mismatch. Currently, deliveries are taking upto 4-5 days to reach people as many orders have piled up and everything is going slow but people don't have any choice as the pandemic has worsened and people are trying to have minimal contact with anyone.

According to India Infoline News, coronavirus has deeply affected the supply chains, upcoming and established businesses and has put many businesses on the verge of shutting down. Most sectors which include automobile, travel, construction etc have faced losses due to reduced consumer spending and movement restrictions. The IT sector on the other hand has greatly benefitted from this pandemic as most companies had their employees work from home and clients also became greatly dependent on these IT firms to get their work done.

Indian E-commerce has been on the verge of a revolution and Covid-19 paved the way for it. With an exponential increase in shoppers, low data prices and sizeable investments done by companies to ease and improve the experience of customers it is expected that in the next five years, the E-Retail market will see nearly 300-350 million users shopping on online websites taking the Gross Merchandise Value to about 120\$ billion.

A report published by Economic Times, a survey led by Bain and Co. of nearly 3000 households indicated that there was an increase of 40% in online shopping. They identified six elements that were crucial in winning the majority of market share in an online marketplace, these are :-

1. **Merchandising** - Companies need to redesign their products to better poise themselves for online needs. For example, many FMCGs have taken up initiatives to reduce their carbon footprint and have reduced the use of plastic in their packaging to make it more cost- efficient to ship these products.
2. **Ready Supply Chains** - Trust and customer satisfaction are the two major factors which help in retaining customers for a company. A highly flexible supply chain with no disruptions is extremely necessary as customers appreciate a speedy delivery of items during this time

3. **Digital Marketing** - As most people have been staying at home due to the pandemic, usage of phones has increased and with it the use of social apps such as Instagram, Twitter, Facebook etc has also increased. Companies should use this opportunity to personalize their products using advertisements, social media posts and sponsored listings.

4. **Higher Online Conversion** - Conversion rate is the number of visitors who complete their desired purchase after visiting a website. Companies can improve their conversion rates by optimising the three important things that every website must have: **pricing, visibility of the site and the display page which shows the product.**

5. **Digital Execution** - A market leader is differentiated by its ability to adapt to the changing times. A customer service which rapidly responds to customer reviews, prices should be tweaked from time to time and they should keep refreshing their content to add freshness to the website.

6. **E - Commerce Backend** - A website is only good as its backend, so the backend must be well coded and robust. Online businesses become successful only if they identify the customers priority accurately, so, the data analysing and data decision making systems should be well optimised.

Unicommerce is a SaaS startup which has helped in bringing relief to many online sellers. By focusing on the digital revolution and use of omni channels for delivery etc. customer buying experience has been greatly improved. As India is home to many languages, E-commerce sites are looking to penetrate more into different areas by enabling support of different languages so that accessibility improves and audiences of different segments can be easily targeted. (Peerzada.2020)

According to a Study by Deloitte, below is a graphical representation of the changes experienced by consumers in shopping before the pandemic and currently during it :

4. OBSERVATIONS

It has become very clear that the pandemic has altered the behaviour of consumers and businesses alike to a great extent. The first priority of consumers has become to keep themselves safe from Covid-19 and to take appropriate measures for that. During the start of the pandemic, like any other industry, the E-Commerce industry also took a big hit and lost a lot of business but it has caught up quickly and adapted to the changed lifestyle choices and behaviour of consumers with innovative ways to improve customer experience and customer retention.

Below listed are some observations made by various researchers and studies: -

1. Due to the large influx of demand and low supply, the start of the pandemic was difficult for E-Commerce companies to deal with.
2. Safety has become the number one priority for people, so, now consumers prefer online shopping rather than having direct contact with shopkeepers.
3. Allocation to essential items i.e household necessities has increased substantially in comparison to luxury items.
4. The demand for items related to office use has also increased as the majority of people are working from home and many companies have also started using work from home as a permanent alternative as it has shown to increase the efficiency of workers.

5. SUGGESTIONS

1. In this hour of need, companies should not think about maximizing their profits but should create ways to gain the trust of people, so that they become permanent online shoppers,
2. Efficient work is done in a specific environment and due to work from home restrictions, many employees become less efficient so incentives and ways to motivate the workforce should be the priority of companies.
3. To create a seamless experience from adding items to cart and checking out, payment options should not be limited to just credit/debit cards but more options such as UPI, EMI etc. should be added for better customer experience.
4. To meet with the pent up demand, a robust supply chain model is must for deliveries and other verticals.
5. Companies should invest in equipment that improves the safety of its labour force so that there is no disruption in the supply side and late deliveries are avoided.

6. CONCLUSION

It has been a long time since India has been waiting for its E-Commerce revolution and this pandemic has only accelerated the growth of the E-Commerce Industry in India. The new behaviour of consumers induced by Covid-19 might not be permanent and many people might go back to the old way of purchasing goods and services but as E-Commerce firms have so graciously adapted and come up with ideas to tackle this behaviour change, it will not be a surprise if they manage to keep the upward trend of contactless purchases and deliveries.

The after-effects of Covid are going to be there for a long time and the major task of all these businesses is to successfully navigate through it and become market leaders or to at least win a sizable portion of the market while providing an excellent experience to the customers and keeping their needs above everything.

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NEP 2020: An Effort Towards Transforming India's Education Landscape

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Abstract: For any developing country, education is one of the most vital needs. For India too, ranked at 33rd position for its education system in the world as of 2020, education is of the utmost priority. With the dynamicity of technology and the world around with developments such as COVID-19 and expanded globalization, the future of work in all spheres is transforming and the education models too need to be reassessed to keep up with the global needs. According to an estimate, India will have the highest population of students between the ages of 18 to 22 in the world by 2025. This further calls for the need to revamp the education system. With the objective of creating a nation which is more productive and cohesive, the government of India announced the newest National Education Policy (NEP 2020) as a landmark reform in July 2020. Through this paper, the background of the policy and the various transformations introduced at different educational stages has been elaborated. This is followed by a discussion on the key initiatives of the policy towards addressing the challenges for women in education and a critical review of the implementation of NEP-2020.

Keywords: Education, NEP-2020, Pedagogy, Policy, Research, Teaching

1. INTRODUCTION

The educational institutes of any country have the responsibility to empower and liberate its citizens and education therefore serves as a critical instrument towards bringing about social change [1]. For India to live up to its rich history and education culture, and to rise as a knowledge hub in the present world, it is further needed to strengthen innovation and quality research in the established educational institutes.

Since 2015, efforts have been ongoing for a new education policy in India. After multiple consultations from all education sector's stakeholders on the draft NEP of 2019, the National Education Policy was unveiled by the Ministry of Human Resource Development (MHRD) on 29th July 2020. It has resulted from the democratic exercise of taking in suggestions

from lakhs of villages, districts and all the states and union territories in a bottom up approach [2]. After 34 years of the last policy being implemented, this is India's first education policy that was introduced in this century and the third policy since our independence. The need and relevance of NEP-2020 can be assessed from this very fact [3].

The released NEP document of 66 pages covers all the aspects of education and is very inclusive in its approach. The coverage is impressively wide, well in time and very futuristic, having the potential of transforming India's education landscape [4]. In keeping with Indian government's national programs like Skill India, Make in India, Atma-Nirbhar (self-reliant) India, NEP-2020 also addresses India's need for robust solutions for its economic growth and development [3]. Under NEP-2020, the emphasis is on developing essential 21st century skills of problem solving, creative and critical thinking, digital literacy, experimental learning and encouraging competency among students such that they become ready to actively contribute to the society and the industry [2].

2. MAJOR INTERVENTIONS

Some of the major changes introduced in NEP-2020 are:

- MHRD, the Ministry of Human Resource Development is renamed to Ministry of Education in India, for directing the focus towards education alone, instead of considering it merely as human resource development's next step.
- Establishing Higher Education Commission of India (HECI) as a single central academic regulator and accreditor for HEIs (higher education institutes), instead of having separate AICTE (All India Council for Technical Education) and UGC (University Grant Commission) bodies [3].
- As shown in figure 1, the educational stages from school to higher education have also been revised in NEP-2020. Schools' education structure of '10+2' has been replaced

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with the '5 +3+3+4' design, drawing more focus on hands-on learning and improving the teaching learning outcome quality by introducing vocational education in the form of internship to teach skills from an early phase in life for a holistic development of the student [5].

- By strengthening the infrastructure facilities across all dimensions, NEP-2020 envisions the access level of education to all, as measured in gross enrolment ratio (GER), to increase from the current 28% at school level and 5% in higher and professional education to 50% and 20% respectively by 2030 [6].

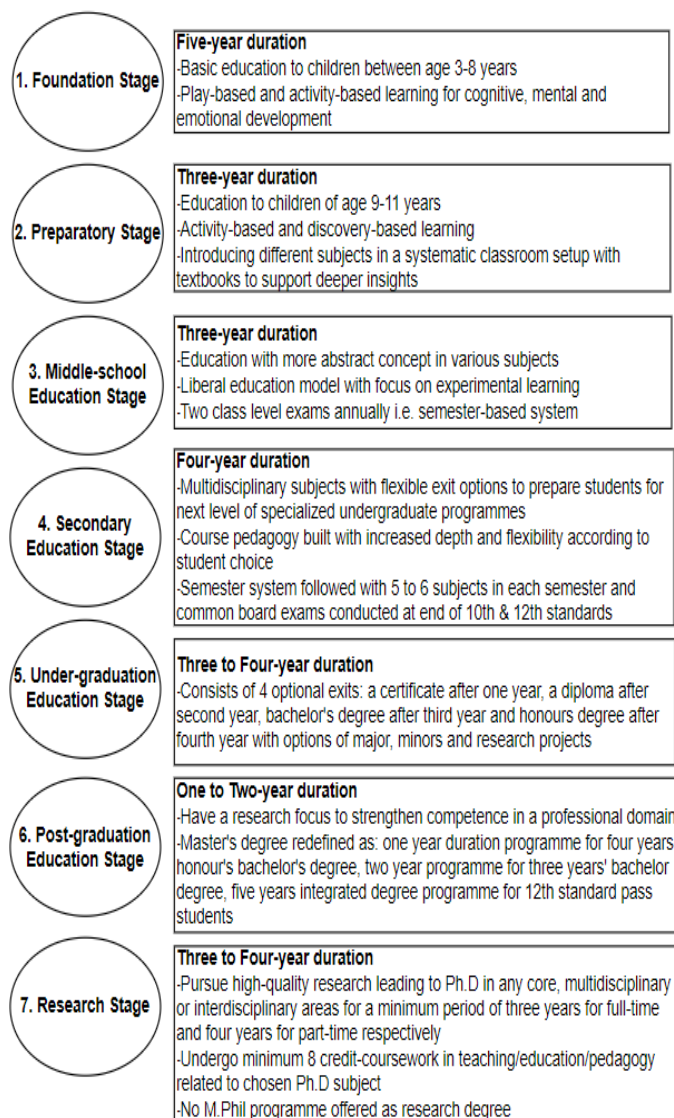


Fig. 1. Educational Stages in NEP-2020 [5]

3. SCHOOL EDUCATION SYSTEM

Besides introducing changes in the structure of school education as discussed in previous section, the pedagogy and curriculum have also been updated in NEP-2020 [5]:

- Generation of digital or electronic contents (e-content) is promoted.
- Remote access to labs i.e. setting up of virtual labs for computer-based experimentation of practicals.
- Encourage participation in sports and related physical activities.
- Push for more involvement in conduction and participation of co-curricular and extra-curricular activities.
- Providing counselling to students for imparting valuable life lessons and help them work through personal or academic problems.
- Training sessions for teachers of over 50 hours in use of technology aids for teaching-learning and pedagogy.
- Training of parents to better understand and deal with the students' needs.
- Maintaining not more than 25:1 pupil to teacher ratio for effective teaching-learning.
- Specialized educators for teaching divyangs (students with disabilities).
- Arrangement for providing breakfast along with the on-going mid-day meal scheme.

4. HIGHER EDUCATION SYSTEM

Presently, the higher education system is very fragmented, having a strict separation among disciplines, narrowing down the students' study areas according to their specialization, early on in life. There is also low emphasis on learning outcomes and cognitive skills' development for students. The faculty has unsatisfactory mechanisms for career progression and encounter lack in proper research funding. HEIs too face issues like having limited autonomy, suboptimal leadership and regulatory system. Some highlights from NEP 2020 in this regard are [7]:

- Renewing the curriculum, teaching pedagogy and methods of assessment.
 - Making flexible-structured degree programmes offering different designs and durations.
 - Following a graded accreditation system to support and encourage colleges in a transparent manner.

- Focusing on establishing innovative technology development centers and incubation centers providing more links between industry and academics.
- Making available counseling and support centers for ensuring emotional and mental well-being of students.
- Setting up multi-disciplinary institutes and universities for providing increased access, more inclusion and supporting cross-disciplinary research.
 - Phasing out single stream HEIs over time and all HEIs to become multi-disciplinary by 2040.
 - Increasing GER in HEIs, having exposure to vocational education, to 50% by 2035.
 - Incorporating STEM i.e. science, technology, engineering and mathematics with arts and humanities for a holistic development in undergraduate education.
 - Running HEIs as ODL (Open Distance Learning) or in a blended mode, optionally.
 - Extending financial aids and merit incentives to needy students.
- Giving autonomy to institutes with a single regulator and independent boards governing the HEIs.
 - Outlining and stating of the curriculum framework with the help from the four verticals of HECI (the autonomous umbrella body); and functioning of HECI in the manner of transparent public disclosure [8].
 - Replacing the complex nomenclature of HEIs like 'affiliating technical university' or 'deemed to be university' by simply 'university', if criteria is fulfilled according to the set norms.
 - Moving gradually towards full administrative as well as academic autonomy.
- Awarding faculty promotions and appointments based on teaching merit, research work and service records.
 - Providing basic facilities like sufficient teaching supplies, proper labs, latest educational tools and technologies to enable better teaching-learning outcomes.
 - Providing online training to teachers through technology platforms and offering mentoring through creation of a large pool of exemplary senior faculty members.
 - Granting autonomy along with accountability.
 - Offering positions of leadership, and not letting them remain vacant.
- Increasing inclusion and equity in the higher education system.
 - Promoting and preserving India's cultural wealth, offering cultural identity to students right from young age by using Indian local languages as the programmes' instruction medium.
 - Offering cultural identity
 - Conducting outreach programs for various scholarships and higher education opportunities.
 - Ensuring gender-sensitization and enforcing no discrimination rules.
 - Developing bridge courses for students who fall behind because of disadvantaged background.
- Providing funding for peer-reviewed research and pushing for active research initiatives to be taken up in colleges and universities.
 - Recognizing outstanding contributions and progress in research work and mentoring institutes in all disciplines of research.
- Controlling the rise in commercialization of education
 - Encouraging private HEIs to adopt fee determination systems having a progressive structure.
 - Urging private HEIs to offer more scholarships.
 - Developing transparent methods of determining fee for institutes and fixing upper limits too, based on the institute type and accreditations.
- Internationalization
 - Getting more international students to enroll and study in Indian institutes and universities.
 - Encouraging high ranking universities from India to establish their campuses in other countries, and also facilitate high performing universities of the world to in India.
 - Permitting the credits earned in foreign universities to be counted towards awarding a degree in an Indian HEI [1].

5. PROFESSIONAL EDUCATION

Highlights of professional education stage in India as per NEP 2020 are:

- Institutes offering general or professional courses are to gradually grow into universities/clusters by 2030.
- Reviving agricultural education with associated disciplines in order to revive enrolment in agricultural universities.

- Setting up technology parks and promoting technology's use and integration, as education and technology share a bidirectional relationship.
- Boosting innovative research by linking academics with industry/market. Fostering such closer collaboration in technical education fields of architecture, engineering, hotel management etc. for building skilled graduates and technicians.
- Offering bilingual law education in English and the state's regional language for future advocates and judges to embrace best practices and technologies.
- Integrating healthcare educational programmes with the role requirements and aiming at both preventive as well as community medicine.
- Using school campuses and public library spaces after working hours and on weekends/ days off to educate non-enrolled adults. Community members who are qualified can volunteer at such AECs (adult education centres).
- Focussing on teaching-learning crucial life skills like healthcare awareness, financial literacy, some vocational skills and engaging in holistic development at AECs.
- Expansion of institutes/universities that put in efforts towards preservation and study of classical Indian literature and languages. Digitally documenting all Indian languages and associated culture and arts and offering scholarships to people studying arts and culture.
- Developing e-content in regional language and uploading on online platforms creating digital repositories accessible to all students. Adapting to and incorporating new technologies including AI (artificial intelligence), smart boards, educational hardware and software tools etc., i.e. teaching initiatives based on ICT (information and communication technologies).
- Coordinating rigorous trainings on effective pedagogy and online content creation, and use of online examination tools encompassing rubrics and standard assessments [5].

6. WOMEN AND EDUCATION

Improving the literacy levels in females has been known to have extensive impacts on their health and economic independence. This further enhances the whole community's prospects since research has shown that women invest their income more towards their family, educated women can communicate better about their domestic life and health conditions, and also show more civic participation. Decrease in population growth, that significantly leads to addressing of environmental issues, can also be attributed to educating women, who constitute nearly half of the country's population. Because of these far-reaching effects of women's education, neglecting their education, and empowerment in general, does

not bode well for any nation's development, and that is why India also needs to stress more on alleviating the gender inequalities in the education sector and ensure the provision of quality education for all.

A. *Current Predicaments*

In India, a higher percentage of girls as compared to boys do not attend any educational institute because they are engaged in either household duties or begging or are dependents who aren't working. Following are the main barriers to women's education and thus their development and empowerment in India [9]:

- Lack of proper infrastructure and no toilets in schools-the poor state of sanitary facilities is unfavorable for girls' school attendance as open defecation poses psychological and physical challenges.
- Economic constraints- poor financial conditions force females to drop out of education institutes.
- Gender stereotyping- deep rooted societal barriers based on gender profiling and segregation, and biased curriculum which is inclined for women to take up programmes relating to their domestic roles instead of more scientific and productive roles.
- Other traditional taboos- parents are reluctant in sending their daughters to school, particularly considering the shortage of female teachers, and some pull them out of school early to have a helping hand in household chores or to marry them away young or simply because of societal norms which suggest that investing in a girl's education doesn't earn them any returns.

The literacy rates across the country are not uniform and there is a severe discrepancy in access levels to education for men and women amongst rural and urban areas also. In recent years, through the government initiatives of RTE (Right to Education) and Samagra Shiksha Abhiyan, India has improved its elementary education enrolment rates. However, it fails to address the primary issue of young girls dropping out to be engaged in unpaid household or agricultural work, as there are no provisions in the law banning this. McKinsey's 2018 report on gender parity [10] presented that a massive 770 billion USD can be added to India's GDP by 2025 by promoting females' education and participation in the workforce. Education will aid women in paving their own path and to contribute more towards the economy and the society as a whole, curbing the vicious cycle of negative typecasting. Towards this, NEP 2020 puts forward the following solutions:

B. *Solutions offered by NEP 2020*

- Undertaking initiatives to limit the dropout rates, bring back dropped out children back into the education system

and preventing further students from dropping out with the goal to achieve 100% GER up to secondary stage by 2030:

1. Providing adequate infrastructural facilities for all children to have safe and efficient access to school level education. Re-establishing government schools' credibility by upgrading existing schools, developing new schools, facilitating hostels and safe conveyance, for females especially. Building additional state-of-the-art education centers with the assistance of civil authorities for ensuring enrollment of migrant and local laborers' dropped out kids back into the education system.
2. Tracking the students' learning levels to make sure they are attending school, can re-enter if they dropped out, or have opportunity to catch-up if they have fallen behind, thus achieving universal participation in schools. Systems facilitating this foundational education would be established.

- Constituting a Gender-Inclusion Fund that will foster government's ability of providing quality education for both girl and transgender students. The set-up fund will equip the states for implementing the center's priorities of providing bicycles, sanitation facilities etc. and for other interventions for supporting local community issues on participation and access to education.
- Building free, accessible and safe boarding facilities for students coming from far off places or from economically weaker sections, thus further expanding and strengthening the existing Jawahar Navodaya Vidyalayas and Kasturba Gandhi Balika Vidyalayas [11].
- Setting up of more KVs (Kendriya Vidyalayas) and Jawahar Navodaya Vidyalayas in disadvantaged areas as well as SEZs (Special Education Zones) for growing opportunities for quality education. Further provisions for covering early childhood care along with education for at least one year for socio-economic disadvantaged groups at KVs and other primary schools of the country.

7. IMPLEMENTATION OF NEP 2020

The document of the policy is just in its skeletal form, the resources and strategies for actually making it happen are still left to be formulated [12]. The implementation of NEP 2020 will involve all the different government bodies- MHRD CABE (Central Advisory Board of Education), NTA (National Testing Agency), NCERT (National Council of Education Research and Training), state and union governments, regulatory bodies of HEIs and schools, with their review plans and timelines, following the principles of:

- Proceeding in a phased manner

- Prioritizing issues
- Inclusive implementation
- Synchronized planning, monitoring and functioning at the centre and the states
- Timely employing the requisite infrastructure, finances and human resources

Experts on different subjects will form committees to cooperate with the different ministries at state and central levels to consult them on development of detailed plans for implementation of NEP 2020 for every aspect, in keeping with these stated principles. Figure 2 represents the approach to be followed for implementation of NEP 2020 [5].

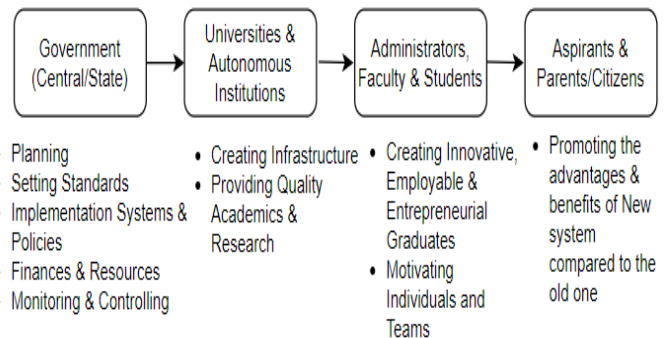


Fig. 2. Approach for implementation of NEP-2020

Examining the policy, reviewers have criticized its portrayal of Indian education system as an entity which is homogeneous, utterly failing to recognize the diversity in the state of education across different states/regions, and poorly capturing the complexity of the operative system in these different regions/states [4]. India certainly does not have a single common education system in place across all states, and for a policy to be truly considered as national, the states need to align themselves cooperatively and identify some ownership with it; otherwise it remains simply as the centre's policy [12]. NEP 2020 seems to fall short in recognizing this diversity and expressing a plural outline for implementation such that it takes into perspective the progress in different states rather than having standard nationwide guidelines. For effective implementation, a policy that is accommodative and cohesive is needed at the national level [4].

Mapping out the future education landscape of India requires the policymakers to not be completely held back by the present quandaries and rather be visionary and atypical. This however does not mean that they are downright ignorant of the economic capabilities and the social limitations, and set unrealistic goals. As is the case with NEP 2020, it is not wrong to expect that only promises that are deliverable should be

made [4]. With the worsened GDP (gross domestic product) since the advent of pandemic, and shift in the priorities for spending more on health and defense sectors, it is unclear as to where the additional resources needed to support NEP 2020 in the next few years would come from [12]. India, in the current phase, needs an education policy which first deals with the present needs of the existing system, and then promises of a futuristic world-class system [4].

8. CONCLUSION

Through this paper, the national education policy of 2020- its background and the major modifications it intends on introducing in various aspects of the education system have been highlighted. It is indeed a step in the direction of building and strengthening the nation's growth, a longstanding reform in the sector of education. However, the envisioned roadmap for India's education landscape may sound achievable, but it has a few implementation challenges of its own. Nonetheless, NEP 2020 offers a lot of opportunity and potential for transforming India into a global knowledge superpower having an education system at par with the best in the world.

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Faramers Act 2020 Myth vs Reality

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Abstract: *The present Farms Act 2020 gave rise to big unrest among the States, farmers and various other stakeholders. The various Socio economic, legal and political issues are involved with these Acts. Agriculture is a state matter. Parliament has encroached the powers of the state legislative by enacting these farm Acts, which is unethical and dangerous for the federal system.*

1. INTRODUCTION

The farmers Act was passed by the Parliament on 20th September 2020 but the farmers are protesting against these acts described these as anti-farmer laws.

There is a wide confusion among the people or the stakeholders. The various opinions are-

Government is unnecessarily harassing the farmers. Whether the protesters are farmers or not it is one of the question? When the act is passed for whole of the country why only Punjab and Haryana are protesting against these laws. Some critics also pointing out that these Acts are unconstitutional. Another aspect is that Government will treat farmers Act as they have made the industrial policy in 199. Now the matter also become political and it is very difficult to understand the politics which party is in favour and who is in opposition one cannot find out. Supreme court has suspended the bills for 18 months. Efforts are made to find the truth and myth regarding the farms Act.

2. BACKGROUND OF THE ACTS

Actually in 2016 in a speech at Raibareilly our Prime Minister has said that by the year 2022 Govt. will double the income of farmers but how it will be done was a question? There must be certain points in the mind of prime minister at that time. One point may be to link production of agriculture to the open market. He wants that farmers should come out of the traditional methods of agriculture or farming and adopt the open market system so that their income can be increased if anybody likes to work in a professional world or in capitalism world or in the competition world he has an option either way.

The farmers Act 2020 passed by the parliament on 20th September 2020

The present farmers act farmers act 2020 is mainly consist of three Acts.

1. The Farmers Produce Trade and Commerce (Promotion and Facilitation) Act 2020
2. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act 2020
3. Essential Commodities (Amendment) Act 2020

3. OBJECTIVES OF THE STUDY

This paper will discuss all the aspects of the farmers Act with reference to

1. Constitutionality of these Acts.
2. Main provisions of each Act
3. Reality Vs myth associated to Act.

Constitutionality

Constitutionality of any act can be challenged on the following grounds:

1. content constitutionality and Procedural constitutionality

Content constitutionality

Any act passed by the Parliament will become unconstitutional only if:

1. When it is against the fundamental rights or it is in violation of the article 13 of the Constitution.
2. When it is against the Basic structure of constitution.
3. Whether Parliament is competent to enact the law.

Whether Acts violates the provisions of Article 13?

Fundamental rights are mentioned in the article 13 of the Constitution which says any law which is inconsistent with the fundamental rights before or after the commencement of the Constitution shall be void to the extent of its contravention. As far as the farmers act is concerned they these are not against the fundamental rights in any respect. The present farmer's law

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are not violating the provisions of Fundamental rights in any manner.

Against the basic structure of the Constitution

In the light of the judgement of Kesavananda Bharati 1973 case where Supreme Court of India ruled that if any amendment made by the Parliament and which is against the basic structure of the Constitution then it will not be called as the amendment but rewriting of the Constitution. What is basic structure of constitution? The basic structure of constitution means the cooperative federalism. Whether the Parliament has worked against cooperative federalism?

Under the seventh schedule of the Constitution there are three lists namely Union list, State list and Concurrent list. Article 246 of the Constitution defines subject matter of laws made by Parliament and the states. Union list under seventh schedule does not provide any power to Parliament to legislate on agriculture items even though in special circumstances. Parliament has misused the article 249 to bring extraordinary ordinance in normal circumstances. The nature of article 249 is of temporary nature where any ordinance will remain enforceable only for a limited period of six months.

If we look into the State list at entry number 14, 26 and 27 combined together then we can conclude that to form any Act in respect of agriculture and areas related to agricultural activities, and according to Doctrine of Ancillary powers given by Supreme Court rests with state. It means Parliament has no power to enact agriculture reforms. But this will be a very weak defense. Original version of Constitution had these powers along with article 369 of the Constitution. Centre has misuse the entry number 33 of Concurrent list which deals with trade and commerce of foodstuffs. Parliament can legislate on the matters like levy of taxes etc. This is against the good spirit of cooperative federalism. Now the question of contradiction arises whose law will prevail?

When inconsistency between law made by Parliament and the law made by the legislative of state then the law made by Parliament shall prevail according to Article 254 of the Constitution

Constitutionality in reference to procedure

Whether the bill was passed according to the procedure established by law? If any procedural manipulation is found then act will become void automatically.

On 5th June 2020 when country was under lockdown due to Covid-19, Government of India promulgate the ordinance about Farms Law. Parliament was not in session and even there was no emergency, using the provisions of article 123 of the Constitution. Under article 123 President has power to

promulgate ordinance during the recess of Parliament. The ordinance shall have the same force and effect as an act but shall be laid before the Parliament within six months.

To get the ordinance pass by Parliament, government need majority votes which the government has in Lok Sabha. Rajya Sabha was managed by ruling party and pass the bill by voice vote. . The voting on the bill could not be possible because members were following the covid protocol and maintaining social distance were not in seated on allotted seat. The opposition parties demand that Bill should be referred to a select committee but demand was turned down by chairman of the house. Opposition parties wants to challenge the proceedings of Rajya Sabha in the Supreme Court but according to article 122 the Constitution court cannot enquire into Proceedings of Parliament on the ground of irregularity of procedure. Concluding that these Acts are constitutionally valid. Yes on ethical grounds one can say not.

4. THE FARMERS' PRODUCE TRADE AND COMMERCE (PROMOTION AND FACILITATION) ACT, 2020

If we look into the name of the act then we will find the three basic words first farmers produce second trade and commerce third promotion and facilitation.

Farmers produce means whatever a farmer will grow in his field including wheat cereals pulses flowers fruits dairy products fisheries animal husbandry etc. it includes all produces of farmers.

Trade and commerce means activities related to sale purchase transportation packing etc are in the ambit of trade.

Promotion and facilitation Means helping the farmers in providing such a platform where farmers can sell their produce and get best price outside the notified APMC trade areas. .

5. APMC ACT

Background

What is APMC Act? What are their benefit ,problems and reforms?

Agricultural Produce Market Committees (APMC) are marketing boards established by state governments to combat farmer exploitation by middlemen, where farmers were forced to sell their produce at excessively cheap prices. The state is divided geographically by these market places, each mandi has its jurisdiction. Traders are granted licences to operate within a market. Mall owners, wholesalers, and retail merchants are not permitted to purchase vegetables directly from the farmers. All crops must be brought to mandi, and sales are conducted through a recorded auction. APMC is nothing but KrishiSamiti, Bazar Samiti, Mandi in common language.

Benefits of APMC

Farmer can sell its produce through APMC only. Nobody can purchase his produce directly from the farmers. it will be a criminal offence. it is mandatory for the farmers to come to the APMC to sell his produce.

In APMC farmers produce are sold on notified price known as MSP. MSP is declared or notified by government for certain produces at present for 23 crops.

APMC has an established system. it has registered commission agents(ADTIYA), auction halls where bids are given and to avoid malpractice all bids are recorded.

Commission agents are registered licensee and he belongs to the same area in which APMC is situated and known to the farmer. Farmers trust on them and agent also help farmers in their difficult times so the chances of malpractice is negligible.

Drawbacks of APMC act*Monopoly*

Healthy competition makes the things better but APMC has a monopoly that farmer are left with no option except to sell his product through APMC only.

Cartelization

Formation of cartels. Cartelization is the big problem of APMC they exploits the farmers by fixing the very low rate of commodities.

Cascading effect

From producer to the ultimate consumer the product goes through multiple stages and attracts various kinds of expenses, commissions, profits margin of middleman resulting the increase in prices. In Punjab farmer has to pay market fees @3%, rural development fee @3%, agent commission @2.5% beside the other expenses after that the wholesaler has his own profit margin then retailer and then it will reach to the consumer.

Politics

Generally in the Market Board the members are near and dear of politicians they want that their monopoly will remain.

Reforms

The reforms in APMC act started in 2003 when central government asked the state governments to work on APMC model Act and provide certain reliefs to the farmers like they can sell their produce outside the notified APMC trade areas and to the other states. They have also exempted certain commodities like fruits vegetables flowers from APMC Act.

Almost all states have mentally prepared and convinced to these new APMC model 2003 by the year 2015. There are some interesting experiments of Bihar and Maharashtra State

To dismantle the monopoly of APMC Maharashtra government issued licences to 18 Private markets and 1100 Direct Market License. The interested parties can apply for the permission after fulfilling the terms and conditions like minimum 5 acre of land etc to establish his own market. There are certain buyers whose requirement is very large e.g. Reliance fresh, Big Basket, Big Apple etc. they want to purchase directly from the farmers. DML is issued to them. These DML licensees opens their collection centres near the farmhouses where the farmers can sell their produce and payments are made at the spot.

When the system was implemented then there was a huge cry that APMC will be abolished but if we look into the previous year business transactions at APMC centres was Rs. 48,000/- crores and of Private Market and DML combined together make the business of Rs.11,000/- crores only. Which is only 22% of the total transactions.

Maharashtra experiment proves that if an open competition comes in a regulated manner then there should not be hesitation in welcoming.

Bihar experiment Bihar shows a different picture on APMC. APMC is not successful in Bihar state. Majority of farmers are small or marginal land holders they cannot afford to sell their produce in APMC trade areas because of transportation cost become significant when quantity is small. Secondly farmer has to make arrangement for transport after that he to bear the APMC fees, commissions, taxes and then waiting period of 3-4 months for realization of payment. On paper it is said that payment is made immediately but in actual practice it is not, to avoid these hurdles he sell his crops below MSP price to the nearby agent who will make the payment at the spot and takes away the produce from his farm. So we can conclude that there is no APMC in Bihar even then the work is going on and there is a parallel market in Maharashtra even then revenue collection is more of APMC.

6. MERITS OF THE ACT*Possibility of higher price realization.*

Farmer can sell his produce in other states. Under one India one agriculture market will reduce the regional disparities in demand and supply of agriculture products.

There will be scope of innovation oriented for young ones.

The healthy competition among the private players will increase the profit margin and cost cutting of farmer

Demerits of the Act

Fear of abandonment of APMC

The main source of APMC income is licence fees commission charged from the farmers produce. When the other trading areas are exempted from this kind of licence fee and taxes they can compete more easily with APMC and can offer more over the MSP to the farmers. slowly the farmers will switch over to other trading area resulting the slow death of APMC. When APMC will not be there the facilities associated with the APMC also will not available. It is a matter of concern for the farmers .there are so many persons and employees who are working in APMC their survival is a question. There must be some provisions for rehabilitation of these associated persons.

7. THE FARMERS (EMPOWERMENT AND PROTECTION) AGREEMENT ON PRICE ASSURANCE AND FARM SERVICES ACT, 2020

In common Man language this act is known as contract farming act. The objective of this act is to protect and empower the farmers in respect to the sale and purchase of farm produce. Farmers can have a written agreement with the companies/buyers for sale purchase and services related to farmers produce. . Now the provisions of APMC will not be applicable.

Main provisions are:

Farming agreement: Now farmers can enter into agreement with sponsors for mutually agreed terms and conditions for farm produce its quality standard, price, delivery mode and related to services. There will be two parties in the contract Farmer and other is Sponsor. Sponsor can be individual/private firm /company or limited liability firm etc. The sponsor means with whom the farmer will enter into a contract. The subject of agreement will be farms produce and services. Farmers produce means whatever farmer will grow in his field and service means services hired by the farmer in bringing out their produce. There are certain agencies/persons or companies which provide certain kinds of services either free of cost or chargeable. These services can be agriculture education, bio-pesticides, utilisation of fertilizers/pesticides, seed supply or soil testing etc. Please note that this is happening first time in India

Period of agreement: Parties can enter into agreement for a minimum period from one crop season to maximum of five years and in case of animal husbandry/ livestock it will be from one production cycle or breeding cycle to maximum five years

Price fixation mechanism: Farmer can sell his product on mutually agreed price in case of farmers feels that price will vary then the agreement must include minimum guaranteed

price plus some flexible price in the form of bonus or premium The method of determining the guaranteed price and additional price will be mentioned in the agreement.

Delivery and payment mechanism: It is mandatory to mention the mode and time of delivery, the time of quality check, mode of payment in the agreement. Payment will be made on the day of delivery. If some procedural problem arises then three days grace period is provided.

Regarding the ownership of farmers Land: Farmers land cannot be a part of agreement in any form like lease, mortgage, sale or for recovery of dues. If in any case as the need of the business the sponsor erects some kind of permanent structure at the farmers land the same can be done with due consent of the farmer up to the period of agreement. The day on which the agreement obligation is over or seized then it is the responsibility of the sponsor to remove such kind of structure at his own cost, non-removal of that structure will be treated as the property of farmer.

Exemptions from existing laws: Farmers produced under this act will be exempted from all state acts like APMC Act, Essentially Commodities Act.

Dispute settlement mechanism: Act provides three tier system: Conciliation Board, SDM and Collectors. Time limit is 30 days at each tier. Civil court has no power under this act.

Penalties: 1.5 Times the defaulted amount on sponsors. There will be no penalty on farmer. Farmer has to compensate only that much amount which the sponsor spent.

8. THE ESSENTIAL COMMODITIES (AMENDMENT) ACT, 2020

The principal Essential Commodities Act 1955 was also enacted through entry number 33 of concurrent list to regulate or prohibited the production, supply and distribution, trade and commerce of essential commodities. It was the demand of the nation at that time. India was not self-sufficient in food grains to avoid black marketing and profiteering Essential Commodities Act was enacted in 1955. Now India is self-sufficient in food grains or even we are net exporter of food grains. The Essential Commodities (amendment) Act 2020 will regulate the supply of food stuffs only in the following two situations:

1. In extraordinary circumstances like war, famine and natural calamities.
2. If retail price rises more than hundred percent in comparisons of previous year for perishable goods like vegetables, flowers and fruits and 50% rise for non-perishable goods like cereals and oilseeds.

Exceptions:1. Food processing units can procure the produces to their installed capacity of the plant.

2. Export oriented companies can procure to the extent of their export order only

Critical analysis

Constitutionality of the acts

Agriculture is a state subject and state has the powers to make laws regarding the agriculture produce their sales and distribution but entry 42 of the Concurrent list the Centre regulates the interstate trade and commerce whereas intrastate commerce is listed under entry 26 of the state list. The government has infringed the rights of states by using the provisions of entry 33 of the concurrent list. Under this entry Centre has power to make laws on the state matters and central law will prevail. The way government has passed these bills without consulting this concerned stakeholders was not appreciated. Every government has misused the entry 33 of the Constitution so the present government also.

Need to remove misconceptions regarding the MSP and contract farming regarding the minimum support price the government should come forward with an open heart and give guarantee to the farmers that MSP regime will prevail.

Regarding the APMC future government should either remove the tax of APMC or impose taxes in the new farms law. The platform should be equal for competition.

Regarding the contract farming the government shall provide the model contracts perform'a's. Only the name, value and name of crop is to be filled by the parties.

Regarding the regulation for the buyers, the buyers must be registered at certain kind of security must be deposited in the government treasury so that chances of fraud can be avoided.

Regarding the dispute settlement mechanism the government has not provided the adequate platform SDM and Collectors are the employees of the government. They cannot take independent decisions and can be easily influenced by the government. Government should set up a tribunal which is headed by a judge.

Way forward

The crux of the discussion is miss conception. The way Government come with the ordinance without taking into confidence the concerned stakeholders and the way the bill was passed and the way the government treats the protesting farmers at different borders shows the bad intention of the

government. If government removes certain doubts, discuss the matter with concerns then farmers. Will accept the farms Act 2020

In the present global scenario the agriculture reforms are equally important as it was industrial reforms in 1991. The government should control its speed and the way.

Farmers must make up their mind for the reforms. Reforms are necessary in agriculture sector today not by tomorrow keeping in view the international scenario. The distributive justice within the farmers should apply. Distributive justice is necessary and it is also necessary within the farmers. It is necessary to understand that in farmers community the high medium and low income farmers exist so high and middle income farmers should not have the sole right.

Problems with subsidies to be resolved judiciously if government gives merit subsidies which have the long-term effect the farmers should accept. The long-term effect subsidies in fertilizers, in research and development, in seed development, agriculture education etc. Farmers should not run after the temporary nature subsidies. Government must come up with certain proposals with the clean intentions of agriculture reforms because it is the demand of the time but they should not exploit the situation like pandemic. The Punjab and Haryana farmers protest is genuine as their economy is based on MSP. If government discontinues MSP their economy will be vanished in one shot. So government should think judiciously before taking any decision regarding the MSP. I personally feel that the problem will be solved amicably as according to Lord Buddha Madhya Marg is always better.

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3. THE ESSENTIAL COMMODITIES (AMENDMENT) ORDINANCE, 2020 NO. 8 OF 2020 An Act further to amend the Essential Commodities Act, 1955. BE it enacted by Parliament in the Seventy-first Year of the Republic of India as follows:— 1. (1) This Act may be called the Essential Commodities (Amendment) Act, 2020. (2) It shall be deemed to have come into force on the 5th day of June, 2020. 2. In section 3 of the Essential Commodities Act, 1955, after sub-section (1), the following sub-section shall be inserted, namely:— ‘(1A) Notwithstanding anything contained in sub-section (1),— (a) the supply of such foodstuffs, including cereals, pulses, potato, onions, edible oilseeds and oils, as the Central Government may, by notification in the Official Gazette, specify, may be regulated only under extraordinary circumstances which may include war, famine, extraordinary price rise and natural calamity of grave nature; <http://egazette.nic.in/WriteReadData/2020/222039.pdf>

4. PART XI RELATIONS BETWEEN THE UNION AND THE STATES CHAPTER I.—LEGISLATIVE RELATIONS Distribution of Legislative Powers 1. Extent of laws made by Parliament and by the Legislatures of States. —(1) Subject to the provisions of this Constitution, Parliament may make laws for the whole or any part of the territory of India, and the Legislature of a State may make laws for the whole or any part of the State. (2) No law made by Parliament shall be deemed to be invalid on the ground that it would have extraterritorial operation. <http://legislative.gov.in/sites/default/files/COI-updated.pdf>

5. 246. Subject-matter of laws made by Parliament and by the Legislatures of States.—(1) Notwithstanding anything in clauses (2) and (3), Parliament has exclusive power to make laws with respect to any of the matters enumerated in List I in the Seventh Schedule (in this Constitution referred to as the “Union List”). (2) Notwithstanding anything in clause (3), Parliament, and, subject to clause (1), the Legislature of any State 1*** also, have power to make laws with respect to any of the matters enumerated in List III in the Seventh Schedule (in this Constitution referred to as the “Concurrent List”).

(3) Subject to clauses (1) and (2), the Legislature of any State has exclusive power to make laws for such State or any part thereof with respect to any of the matters enumerated in List II in the Seventh Schedule (in this Constitution referred to as the “State List”). (4) Parliament has power to make laws with respect to any matter for any part of the territory of India not included 2 [in a State] notwithstanding that such matter is a matter enumerated in the State List. <http://legislative.gov.in/sites/default/files/COI-updated.pdf>

6. Article 254 in The Constitution Of India 1949

254. Inconsistency between laws made by Parliament and laws made by the Legislatures of States

1. If any provision of a law made by the Legislature of a State is repugnant to any provision of a law made by Parliament which Parliament is competent to enact, or to any provision of an existing law with respect to one of the matters enumerated in the Concurrent List, then, subject to the provisions of clause (2), the law made by Parliament, whether passed before or after the law made by the Legislature of such State, or, as the case may be, the existing law, shall prevail and the law made by the Legislature of the State shall, to the extent of the repugnancy, be void

2. Where a law made by the Legislature of a State with respect to one of the matters enumerated in the concurrent List contains any provision repugnant to the provisions of an earlier law made by Parliament or an existing law with respect to that matter, then, the law so made by the Legislature of such State shall, if it has been reserved for the consideration of the President and has received his assent, prevail in that State: Provided that nothing in this clause shall prevent Parliament from enacting at any time any law with respect to the same matter including a law adding to, amending, varying or repealing the law so made by the Legislature of the State. <https://indiankanoon.org/doc/1930681/>

7. Article 123 in The Constitution Of India 1949

123. Power of President to promulgate Ordinances during recess of Parliament

1. If at any time, except when both Houses of Parliament are in session, the President is satisfied that circumstances exist which render it necessary for him to take immediate action, he may

promulgate such Ordinance as the circumstances appear to him to require

2. An Ordinance promulgated under this article shall have the same force and effect as an Act of Parliament, but every such Ordinance

(a) shall be laid before both House of Parliament and shall cease to operate at the expiration of six weeks from the reassemble of Parliament, or, if before the expiration of that period resolutions disapproving it are passed by both Houses, upon the passing of the second of those resolutions; and

(b) may be withdrawn at any time by the President
 Explanation Where the Houses of Parliament are summoned to reassemble on different dates, the period of six weeks shall be reckoned from the later of those dates for the purposes of this clause

3. If and so far as an Ordinance under this article makes any provision which Parliament would not under this Constitution be competent to enact, it shall be void
 CHAPTER IV THE UNION JUDICIARY
<https://indiankanoon.org/doc/1090693/>

8. Article 122 in The Constitution Of India 1949

122. Courts not to inquire into proceedings of Parliament

1. The validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure
2. No officer or member of Parliament in whom powers are vested by or under this Constitution for regulating procedure or the conduct of business, or for maintaining order, in Parliament shall be subject to the jurisdiction of any court in respect of the exercise by him of those powers
 CHAPTER III LEGISLATIVE POWERS OF THE PRESIDENT
<https://indiankanoon.org/doc/1283667/>

9. Entry List II—State List No. 14. Agriculture, including agricultural education and research, protection against pests and prevention of Plant diseases. 15. Preservation, protection and improvement of stock and prevention of animal diseases; veterinary training and practice. 16. Pounds and the prevention of cattle trespass. 17. Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of entry 56 of List I. 18. Land, that is to say, rights in or over land, land tenures including the relation of landlord and tenant, and the

collection of rents; transfer and alienation of agricultural land; land improvement and agricultural loans; colonization. 21. Fisheries. 26. Trade and commerce within the State subject to the provisions of entry 33 of List III. 27. Production, supply and distribution of goods subject to the provisions of entry 33 of List III. 28. Markets and fairs. 30. Money-lending and money-lenders; relief of agricultural indebtedness. 32. Incorporation, regulation and winding up of corporations other than those specified in List I, and universities; unincorporated trading literary, scientific, religious and other societies and associations; co-operative societies. 45. Land revenue, including the assessment and collection of revenue, the maintenance of land records, survey for revenue purposes and records of rights, and alienation of revenues. 46. Taxes on agricultural income. 47. Duties in respect of succession to agricultural land. 48. Estate Duty in respect of agricultural land. 50. Taxes on mineral rights subject to any limitations imposed by Parliament by law relating to mineral development. 52. Taxes on the entry of goods into a local area for consumption, use or sale therein. 53. Taxes on the consumption or sale of electricity. 54. Taxes on the sale or purchase of goods other than newspapers, subject to the provisions of Entry 92A of List I. 58. Taxes on animals and boats. 59. Tolls. 60. Taxes on professions, trades, callings and employments. 63. Rates of stamp duty in respect of documents other than those specified in the provisions of List I with regard to rates of stamp duty
<http://interstatecouncil.nic.in/wp-content/uploads/2015/06/CHAPTERXIV.pdf>

10. Entry List I—Union List No. 28. Port quarantine, including hospitals connected therewith; seamen's and marine hospitals. 42. Inter-State trade and commerce. 43. Incorporation, regulation and winding up of trading corporations, including banking, insurance and financial corporations but not including co-operative societies. 44. Incorporation, regulation and winding up of corporations, whether trading or not, with objects not confined to one State, but not including universities. 45. Banking. 47. Insurance. 51. Establishment of standards of quality for goods to be exported out of India or transported from one State to another. 52. Industries, the control of which by the Union is declared by Parliament by law to be expedient in the public interest. 56. Regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest. 57. Fishing and fisheries beyond territorial waters. 59. Cultivation, manufacture, and sale for export, of opium. 63. The institutions known at the commencement of this Constitution as the Banaras Hindu University, the Aligarh Muslim University and the Delhi University; the

University established in pursuance of article 371E; any other institution declared by Parliament by law to be an institution of national importance. 64. Institutions for scientific or technical education financed by the Government of India wholly or in part and declared by Parliament by law to be institutions of national importance. 65. Union agencies and institutions for— (a) professional, vocational or technical training, including the training of police officers; or (b) the promotion of special studies or research; or (c) scientific or technical assistance in the investigation or detection of crime. 66. Co-ordination and determination of standards in institutions for higher education or research and scientific and technical institutions. 69. Census. 81. Inter State migration; inter State quarantine. 82. Taxes on income than agricultural income. 97. Any other matter not enumerated in List II or List III including any tax not mentioned in either of those lists. <http://interstatecouncil.nic.in/wp-content/uploads/2015/06/CHAPTERXIV.pdf>

11. 246. Subject-matter of laws made by Parliament and by the Legislatures of States.—(1) Notwithstanding anything in clauses (2) and (3), Parliament has exclusive power to make laws with respect to any of the matters enumerated in List I in the Seventh Schedule (in this Constitution referred to as the “Union List”).
12. 249. Power of Parliament to legislate with respect to a matter in the State List in the national interest.—(1) Notwithstanding anything in the foregoing provisions of this Chapter, if the Council of States has declared by resolution supported by not less than two-thirds of the members present and voting that it is necessary or expedient in the national interest that Parliament should make laws with respect to 5 [goods and services tax provided under article 246A or] any matter enumerated in the State List specified in the resolution, it shall be lawful for Parliament to make laws for the whole or any part of the territory of India with respect to that matter while the resolution remains in force.

13.

List III—Concurrent List 9. Bankruptcy and insolvency. 17. Prevention of cruelty to animals. 17A. Forests. 17B. Protection of Wild animals and other birds. 18. Adulteration of foodstuffs and other goods. 20. Economic and social planning. 23. Social security and social insurance; employment and unemployment. 25. Education, including technical education, medical education and universities, subject to the provisions of entries 63, 64, 65 and 66 of List I; vocational and technical training of labour. 29. Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants. 30. Vital statistics including registration of births and deaths. 33. Trade and commerce in, and the production, supply and distribution of,— (a) the products of any industry where the control of such industry by the union is declared by Parliament by law to be expedient in the public interest, and imported goods of the same kind as such products; (b) foodstuffs, including edible oilseeds and oils; (c) cattle fodder, including oilcakes and other concentrates; (d) raw cotton, whether ginned or unginned, and cotton seed; and (e) raw jute. 34. Price control. 38. Electricity. 45. Inquiries and statistics for the purposes of any of the matters specified in List II or List III. <http://interstatecouncil.nic.in/wp-content/uploads/2015/06/CHAPTERXIV.pdf> 21 Entry [33. Trade and commerce in, and the production, supply and distribution of,— (a) the products of any industry where the control of such industry by the Union is declared by Parliament by law to be expedient in the public interest, and imported goods of the same kind as such products; (b) foodstuffs, including edible oilseeds and oils; 1. Ins. by the Constitution (Forty-second Amendment) Act, 1976, s. 57 (w.e.f. 3-1-1977). 2. Subs. by *ibid.*, for entry 25. 3. Subs. by the Constitution (Third Amendment) Act, 1954, s. 2 (w.e.f. 22-2-1955). 220 (c) cattle fodder, including oilcakes and other concentrates; (d) raw cotton, whether ginned or unginned, and cotton seed; and (e) raw jute.



IoT Risk and Security Challenges

Dr. Menal Dahiya*, Itisha Gupta, Sharmon Chahal**

Abstract: In today's world there are so many new technologies and because of that there are so many smart devices surrounding us. These new technologies are making our lives easier and simpler. As the technology evolves, threats and cyber-attacks are also increasing. And there is always a risk to our confidentiality. In the research paper, we are going to talk about the uses of IoT and the security risk in it.

Privacy and security are the biggest challenges in IoT. Improper device upgrades, e-customer shortages and robust security systems, user ignorance, and device preferences are some of the challenges facing IoT. IoT has three layers: Perception layer, Network layer, and Application layer. This paper addresses problems related to security inside and outside of these layers.

1. INTRODUCTION

The IoT collects connected devices, services, objects and people that can work together, sharing information and knowledge to achieve targets in a variety of regions. Internet of Things can be done in a variety of areas like health, traffic monitoring, hospitality, water supply, agriculture, smart grid and energy saving and other areas also that require Internet collaboration to do business intelligently without personal participation. Devices connecting to IoT usually follow the Identity Management (IM) method which will be identified in a group of comparable and different devices. The IoT areas can be explained with the help of an IP address, but inside that area every business has a different identity. Approximately 26.67 billion of IoT devices are present in this world [1].

The best part of IoT is that all visuals can be communicated and accessed online. Due to the high cost of the Internet, a large amount of devices is united to the Internet. In 2008, the number of devices which were united to the Internet was higher than the number of people in the world. According to research, there were around 4.49 billion devices which were connected to the Internet and hike in 2016 is likely to be increased by 30%. By 2020 to hit 50 billion. These devices lead to the location of the attackers. There are various characteristics of IoT given below:

1. Connectivity: Everything that happens on IoT and hardware, with sensors and other technologies and

systems needed to connect and control must be interconnected at different levels.

- 2. Items:** Anything marked or connected as it is designed to connect. From sensors and markers to livestock. Devices that may contain sensors or sensors may be connected to devices and objects.
- 3. Communication:** Connected devices are able to communicate data and that data can be analyzed. Communication can be short distance or long distance or very long distance. Examples: Wi-Fi technology, LPWA network like LoRa or NB-IoT.
- 4. The power of intelligence:** Sensing on IoT devices and intelligence collected from big data analytics / machine learning.
- 5. Action:** The result of ingenuity. This can be a hands-on activity, an event-based conversation (Example: In smart factory decisions) and automation, often the most important part.

2. APPLICATIONS OF IOT

The IoT has many applications and many of them can be seen in our surrounding also. And few are following:

A. Environmental Monitoring

The environmental protection is done with the help of sensors and observing the atmospheric conditions such as quality of air and quality of water is also done with the help of sensors. Flora-and-fauna is also being observed to find out where they live.

B. Infrastructure Management

The process of observing and controlling the operation of infrastructure such as bridges, railway tracks, and roads etc. is the main application. Modification of structural conditions can put security at risk and increase risk, which is why IO infrastructure management can be considered.

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C. Production

The effectiveness of actual production can be achieved. With the help of sensors and control systems the supply and production can be controlled. This can lead to faster production of new items.

D. Home Automation

Gas, water and energy information is directly conveyed to their respective service companies. Efficiency of resources can be increased using this process. Devices like AC, iron, windows, fans, TV, lights, refrigerator and washing machine can be controlled with the help of home automation process.

E. Transportation

IoT technology has been used for the first time in this field. It is using the combination of GPS, GSM and light sensors. The vehicle can operate as an organization and be connected to road infrastructure. Sensors in cars can also be used for avoiding collisions and to control vehicles to provide the parking.

3. ARCHITECTURE OF IOT

In Internet of Things (IoT) structure, each and every layer is illustrated with their purpose and the devices present in the layer. There is a different belief regarding the layers present in the Internet of Things. But after many researches it is found that IoT actually have three layers only: Perception layer, Network layer, and Application layer. Each IoT layer has its own internal security problems [6]. The diagram below shows the basic structure of the three IoT layers with the technologies and devices used in them.

Perception layer: This layer is also called as the "Sensors" layer. Perception layer is used to gather data of the surrounding with the support of nerves. Perception layer monitors, gather, and uses data from the sensors and transfers the data to the next layer that is network layer. The perception layer can also create a combination of IoT nodes for local and short-distance networks [2].

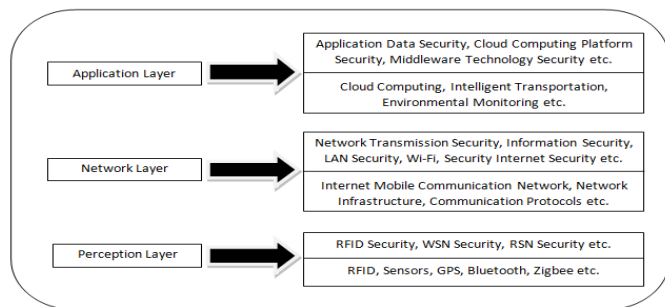


Fig. 1. Architecture of IoT

Network layer: This IoT layer accomplish the function of data transfer and conversation on various IoT ports and devices via the Internet. In network layer, internet gates, switches, and routes etc. works and operate practicing other technologies such as Bluetooth, Zigbee, 3G, Wi-Fi etc. to supply scattered network services. Network gates present as a link in the middle of various IoT sites for compiling, cleaning, and sending data to various sensors [3].

Application layer: This layer ensures the confidentiality, authenticity and integrity of the data. Creating intelligent environments is the main goal of this layer.

4. SAFETY VULNERABILITIES IN EACH LAYER IN IOT

Each IoT layer is controlled by security risks and attacks. This may work, or may be, and may be obtained from external sources or from an internal network attacked by an insider. Active attacks cause them to stop the service / application while the partition type looks at the IoT data network without blocking their service. In each layer, IoT devices and services are highly sensitive to Denial of Service (DoS) attacks, making the application, service or network inaccessible to the authorized users. The security issues for each layer are described below given a brief overview of these types of problems related to each layer in IoT.

Perception Layer:

In the IoT perception layer there are three types of security issues. Influence of wireless signals is the first issue in this layer. With the help of wireless technology significant signals are transmitted between the IoT sensors whose performance can be weakened by vibrating waves. Second issue is that the attack can easily happen not only by the owner but it can be done by the attackers also on the sensor node on the IoT devices because IoT nodes often operate on external surfaces, leading to physical attacks on sensory and IoT systems where the attacker may touch hardware components of the device. Next

problem is the status of the dynamic network model as IoT nodes are often installed in different locations. The visual field of IoT in particular has sensors and RFIDs, due to its lethal storage, power consumption, and limited calculation capabilities that make it responsive to a variety of risks and attacks.

Perception layer encryption can be misused by Replay Attack which can be done by spraying, changing or copying the details of one of the devices on IoT. Or by updating the time required to execute the encryption the attacker can get the encryption key, this is called as Timing Attack. Another secret attack is when the attacker takes the space below and takes all

the details and data from the real Node Capture. An attacker can attach new node to a network that threatens the visibility of the information in the detection layer by sending harmful data. This can lead to DoS attacks, by exploiting the existing nodes in the system and removing them from sleep mode used by energy saving sites. The security issues listed above in the acquisition layer can also be treated with encryption (either point or end point), authentication (sender authentication) and access control [5].

Network layer:

This IoT layer is also controlled by DoS attacks. In addition to the DoS attack, the enemy may attack the privacy and confidentiality of network installations by checking traffic, listening, and monitoring. This attack is most likely due to remote access to data exchange devices. The network layer is largely controlled by the Man-in-the-Middle invasion. And if device key tools are removed, the secure connection will be completely weakened. The IoT key exchange system should be protected to prevent anyone from entering the hearing, and then stealing identity information.

Application layer:

As IoT still has comprehensive policies and standards for communication and performance improvements, so there are many safety-related issues. Different applications and software have different authentication methods, making their integration more difficult to ensure data privacy and identity verification. A large number of data sharing devices will create a huge increase in data analytics applications, which can have a significant impact on service proximity.

5. IOT SAFETY CHALLENGES

IoT has brought great benefits to users. However, there are other challenges as well. The dangers of cyber security and secrecy are the main concerns of identified researchers and security experts. The two create a major problem for many business organizations and community organizations. The most prominent cyber security attacks have proven to be a threat to IoT technology. This danger is due to the fact that network communication with the Internet of Things (IoT) brings access to an anonymous and unreliable Internet that requires security solutions to this novel.

And the important thing is that of all the known challenges, none has a greater impact on IoT compliance, such as privacy and security. However, it is unfortunate that users often do not have the necessary acknowledgment of the security consequences until such time as the violation occurs, causing serious damage such as loss of important information. As a result of ongoing security violations that endanger user's privacy, consumers desire for less security has now

diminished. In a recent review of security and privacy, the level of Internet consumers did not work well. There have been many defects in modern automotive systems.

Challenges in security of IoT are broadly divided into two categories: Technical and security resistance [3]. The technical challenges come as a result of the unique and widespread nature of IoT devices, while security breaches are related to ethics and usefulness that should be used to protect a secure network.

Keeping private: The most important thing is to make sure that the information is secured and protected and can be accessed by authorized users only.

Integrity: IoT is based on the sending and receiving of data and information among many devices connected to each other, that's why it is very important to make sure the correctness of data and the data received must be correct and data should not get changed during the transfer process.

Availability: The idea of IoT is to make many smart devices to join as possible. IoT users should have the access to view the data whenever it is needed. However, in IoT data is not only the single module used in it. And also, the devices and services should have the accessibility in a timely manner to fulfill the requirements.

Proof of Authenticity: Everything in the IoT should be smart to verify certain things clearly. However, this process can be tested due to the behavior of IoT, several organizations are assorted like services, people, devices, service providers and processing units. And sometimes things are needed to interact with each other for the first time. [4] In view of all of this, there is a need for more corporate governance in all IoT communications.

Data Integrity: The correctness of the data and the information transferred between the sender and receiver is the main problem. Therefore, it is important to make sure the correctness of the data.

6. ATTACKS ON IOTTECHNOLOGIES

1. *Wireless Sensor Networks*

It contains many small cells called sensor nodes and computer programs called actuators. Key features that help you hear, process data and communicate. The health care system, housing rent, military use, resource management, environmental monitoring and forecasting etc. are few WSN applications in IoT. WSNs have been attacked due to broadcast transmission. The main threats to WSN are:

Physical Attacks: Everything should have a sense of accomplishment. It is very difficult to stop physical access for unauthorized users. The signal can modify the node / sensor data, so that the entire network's performance sensor is compromised.

Replication of nodes: In this type of attack, the existing location is duplicated to the sensor network. And because of duplicate packets of incorrectly transmitted nodes, incorrect sensor readings are detected or network cuts occur. Therefore, the network performance of the sensor is interrupted.

Selected Forwarding: In WSN, referral sites receive messages / notifications on the go. A dangerous node transmits packets to this attack. Some messages can be discarded without continuing to send them. Package conversion from certain nodes is done and the message is transmitted to other nodes. Therefore, it is not easy to know who the attacker is.

Wormhole Attack: It is a censorious attack where the packets are recorded in a particular network area and then returned to the any other location. This process can be done particularly.

2. Radio Frequency Identification Technology:

Radio-frequency identification (RFID) has multiple RFID tags and one or more RFID readers. The tags are specified with an address and this is added to the items. These tags serve as a distinctive identifier for that object. These RFID Tags are used to know the production, monitor food and moisture quality, monitor patient health parameters, purchase, track animal movements etc [7]. There are various types of attacks on RFID technology. Some of them are following :

Modification of physical data: Tags are physically available and details are subject to change. Error inserting or writing memory is used for modification. The process of converting the data when the data is processed or written is known as error importing. Recording of memory can also be done with the help of some tools such as a small charged needle or laser cutting microscopes. This attack leads to the incorrect marking information. For example, a manufactured product with the RFID tag attached to it gives incorrect information for that product. Additionally, the tag cannot be tracked.

Tag Cloning: Tag cloning is the process of putting the first marker in a new location and copying the first id to it. Software and tags are accessible in the market. An attacker can easily insert a real marker and insert a new

one, if the RFID tags do not use any physical access protection.

Tag Swapping: Marking is bringing out by marking two products that are different from one another. In the retail stores, these types of attacks can be easily occurred where an expensive tag is swapped for a lower price. The most expensive item is bought at a lower price.

Denial of Service Attack: If data is required of the RFID reader from the mark, then the id identification tag is accepted. Then compare it with the database stored id. If the tag failed to transfer ownership to the reader during the DOS attack, the connection between the reader and the tag will be unstable and the service will get suspended.

7. CASE STUDY

Amnesia:33 — Critical TCP/IP Flaws



Cybersecurity investigators have identified a number of widely used TCP / IP errors affecting more than a million devices from communications and medical services in an industry control system that an attacker can use to manage a targeted system.

The term "AMNESIA: 33" by Forescout investigators, a collection of 33 risks affecting four opensource TCP / IP sources - IP, FNET, pico TCP, and Nut / Net - widely used on the Internet - IoT and embedded devices.

As a result of improper memory control, active exploitation of errors can damage memory, and allow attackers to access devices, create malicious codes, attack DoS, leak important and sensitive information, and damage DNS cache.

These types of attacks can be played out in a variety of ways: disrupting the power of the power station leading to the extinguishing or switching of smoke alarms and offline temperature monitoring systems using any DoS threat. Errors, which will be clarified at the Black Hat Europe security

conference, are identified as part of Project Memoria's Forescout program to study the security of TCP / IP stacks.

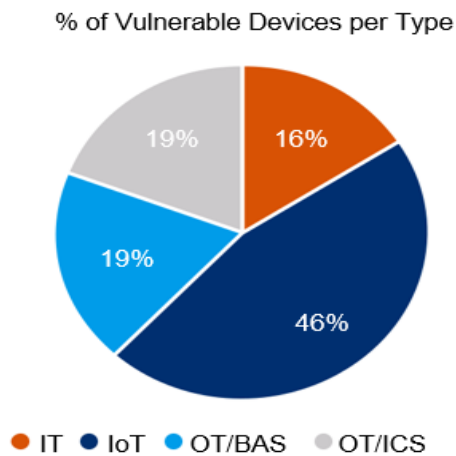


Fig. 2. Percentage of Vulnerable Devices per Type

Forescout Device Cloud and online devices for devices have also shown potential impact on many industrial processes, where government, health care, services and manufacturing have the greatest exposure. The increase in this risk means that more organizations around the world could be affected by AMNESIA: 33. Failing organizations minimizing this risk leaves the door open for attackers to use IoT, OT and IT devices across their organization [8].

8. THE FUTURE OF IOT

Currently, objects and programs are enabled for network communication and are enabled on computers to communicate with the same connected devices. Increasing the capacity of the network in all potential areas will give our lives purpose and helping us in saving money and time. However, connecting to the internet also leads to potential cyber threats. Products allowed on the Internet become victims of cybercrimes.

Over the next decade, from 2020 to 2030, IoT devices will grow from 75 billion to more than 100 billion, and improvements from 4G to 5G and IoT expansion are crucial. Today's 4G network can support up to 5500 to 6000 NB-IoT devices in a single cell. With a 5G network, up to a million devices can be controlled by a single cell.

9. CONCLUSION

This paper aims to provide the reader with an overview of the basics of IoT security challenges. It has major security and privacy challenges due to its apparent growth. The IoT framework is in at risk and each layer is under attack. There

are many threats and security requirements that are needed to be addressed. Researchers at IoT are very focused on ensuring and controlling access for unauthorized users, but as the technologies are speedily growing it is important to integrate new communication rules such as IPv6 and 5G to achieve continuous development of IoT topology. While we continue to focus on safety and prevent major accidents.

IoT is turning out as an important technology. Data sent from sensors or RFID tags may contain important data that should be saved from the users who are not authorized. IoT connection between nodes are not protected and security for IoT devices should not be limited to supply and capture. To secure communications, IoT should provide services such as access control for real-time infrastructure protection, end-to-end encryption and sensitivity. It is a challenge for researchers to be in advance of the attackers. In the coming years, more security for smart devices will be needed and the IoT communication's privacy process will grow which will permit the users to use these technologies and can easily perform the tasks. The data protection strategies, ethical practices and high confidentiality will help in gaining the trust of the users.

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We follow a double blind peer review system and carry out two rounds of review process. In the first round, all the submitted papers are first reviewed at editorial board level and assessed on the basis of their technical suitability of the paper for the journal, scope of work, plagiarism and other ethical compliances. If selected by the editorial board, the paper shall be subjected to a fair and unbiased double blind peer review by referees on the basis of their originality, novelty, clarity, completeness, relevance, significance and research contribution.

Guidelines for Preparing Article:

1. Article Preparation

An original article would normally consist of **5000-7000** words (excluding figures, tables and references), although high-quality articles which exceed 7000 words may be considered.

All articles must be written in UK English. If English is not your first language, please ask an English-speaking colleague to proof read your article.

Submissions may be formatted in single or double spacing, preferably in Times New Roman size 12 font. All accepted articles will be correctly formatted for publication. The text of the article should include the following:

- title
- abstract
- keywords
- introduction
- methodology
- results and discussion
- conclusion and future scope
- references and biographical notes

Please make sure that authors' names are *not included* in the document/file properties.



2. Conference Papers

If your article is based on a conference paper which may have been published elsewhere, it is important that you observe the following:

The submitted article must have been substantially revised, expanded and rewritten so that it is significantly different from the conference paper or presentation on which it is based. The article must be sufficiently different to make it a new, original work. As a guide, you should aim to have more than 50% new material. This is a matter of judgment and will be based on a comparison of the submitted article with the original conference paper.

The original conference paper should be supplied by the author with the expanded article for the purpose of comparison.

All such articles will be subject to the same review process as any other submitted article.

Please include the statement '*This article is a revised and expanded version of a paper entitled [title] presented at [name, location and date of conference]*' in the online system when you submit your paper, using the "Notes for the Editor" field.

If the original conference paper on which the extended paper is based has been published elsewhere, or the copyright has been assigned to the conference organisers or another party, authors should ensure that they have cleared any necessary permissions with the copyright owners. Articles will not be accepted, post-review, for publication unless such written permissions have been provided along with author copyright forms.

3. Title, Abstract, Keywords, Addresses, Biographical Notes

Please assist us by following these guidelines:

- **Title:** as short as possible, with no abbreviations or acronyms.
- **Abstract:** approximately 100 words, maximum 150.
- **Keywords:** approximately 10-15 words or phrases. **Keywords are important for online searching;** please click here for further keyword requirements PDF).
- **Address*:** position, department, name of institution, full postal address and email address for each author.
- **Biographical notes*:** approximately 100 words per author, maximum 150.

* Author details should not be included in the article, and are only required when completing relevant sections of the online submission form.

4. References and Notes

The references in the reference list should follow the standard IEEE reference style of the journal and citation of a reference.

The Numeric Referencing System with numbers in the text and a numerical list of references at the end of the paper, e.g. ...*Smith's* [1] *research supported*....

Formats for references

Journal articles

Print

Williams, P and Naumann, E. (2011) 'Customer satisfaction and business performance: a firm-level analysis', *Journal of Services Marketing*, Vol. 25 No.1, pp.20 - 32 [Journal titles should be given in full]



Online only

Demers, A. (2009) 'The war at home: consequences of loving a veteran of the Iraq and Afghan wars.' *The Internet Journal of Mental Health*, 6(1) [online]

http://www.ispub.com/journal/the_internet_journal_of_mental_health/volume_6_number_1_45/article/the-war-at-home-consequences-of-loving-a-veteran-of-the-iraqand-afghanistan-wars.html

(Accessed 15 July 2010).

Books

Smith, A. and Brown, D. (2005) *Quantitative Data Analysis with SPSS for Windows*, 2nd ed., Routledge, London.

Edited books

Casson, M. et al (Eds.), (2006) *The Oxford Handbook of Entrepreneurship*, Oxford University Press, Oxford.

Book chapters

Estrin, S., Meyer, K.E. and Bytchkova, M. (2006) 'Entrepreneurship in transition economies', in Casson, M. et al (Eds.), *The Oxford Handbook of Entrepreneurship*, Oxford University Press, Oxford, pp.693–725.

Ebooks

Lowry, R. (2009) *Concepts and Applications of Inferential Statistics* [online]. Vassar College, Poughkeepsie NY. <http://faculty.vassar.edu/lowry/intro.html>. (Accessed 21 February 2009).

Theses

Godfrey, K.B. (1993) *Tourism and Sustainable Development: Towards a Sustainable Framework*. Unpublished PhD thesis, Oxford Brookes University, Oxford, United Kingdom.

Government publications

Department of Culture, Media and Sport, and Department of Business, Enterprise and Regulatory Reform. (2009) *Digital Britain: the interim report*. DCMS and DBERR, London. (Cm 7548). Department of Culture, Media and Sport, and Department of Business, Enterprise and Regulatory Reform (2009). *Digital Britain: the interim report* [online]. DCMS and DBERR, London. (Cm 7548).

http://www.culture.gov.uk/images/publications/digital_britain_interimreportjan09.pdf

(Accessed 1 February 2009)

Conference papers

Unpublished:

Vaughan, R., Andriotis, K. and Wilkes, K. (2000) 'Characteristics of tourism employment: the case of Crete'. Paper Presented at the 7th ATLAS International Conference North South: Contrasts and Connections in Global Tourism. 18-21 June 2000. Savonlinna, Finland.

Published:

Jackson, C. and Wilkinson, S.J. (2009), 'An evaluation of the viability of photovoltaics in residential schemes managed by UK registered social landlords' in *COBRA 2009:*

Proceedings of the RICS Foundation Construction and Building Research Conference, RICS Foundation, London, England, pp. 396-410.



Reports

Printed

Halliday, J. (1995) *Assessment of the accuracy of the DTI's database of the UK wind speeds*, Energy Technology Support Unit, ETSU-W-11/00401/REP.

Online

Liu, R and Wassell, I.J. (2008) *A novel auto-calibration system for wireless sensor nodes*. [online] Technical report UCAM-CL-TR-727, Computer Laboratory, Cambridge University, Cambridge. <http://www.cl.cam.ac.uk/techreports/UCAM-CL-TR-727.pdf> (Accessed 18 September 2011)

Standards

International Organization for Standardization (2008) ISO 9001:2008: *Quality management systems -- Requirements*. Geneva, ISO.

Online papers, preprints

Chandler, D. (2009) *Semiotics for beginners*.

<http://www.aber.ac.uk/media/Documents/S4B/sem02.html> (Accessed 26 July 2010).

Blogs

Shah, V. (2011) 'Capitalism - what comes next?' *Thought Economics* [online] 1 September. <http://thoughteconomics.blogspot.com/2011/09/capitalism-what-comesnext.html> (Accessed 14 September 2011).

Web sites

Apache Jakarta Project. [online] <http://jakarta.apache.org/> (Accessed 21 September 2007).

5. Figures

All illustrations, whether diagrams or photographs, are referred to as Figures. If any figures appear in colour, please note that they will only appear in colour in the online version; in the printed version they will be in black and white. If the quality of the colour figure supplied is not suitable to be produced in colour, it will also be shown in black and white in the online version. Figures should ideally be black and white, not colour, and numbered sequentially. However, if colour is essential to the figure please send a good quality colour image. Please place them interspersed in text.

6. Units of Measurement

MSI Journal of Research follow the Système International (SI) for units of measurement. Imperial units will be converted, except where conversion would affect the meaning of a statement, or imply a greater or lesser degree of accuracy.

Guidelines for Submitting Article:

There is no submission deadline. Papers can be submitted any time of the year. Before submitting the article:

1. Have a look at our Author guidelines.
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3. The paper need to be submitted along with plagiarism report with inclusive limit of 15%.

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