



Digitalization of Indian Economy-An Analytical Study

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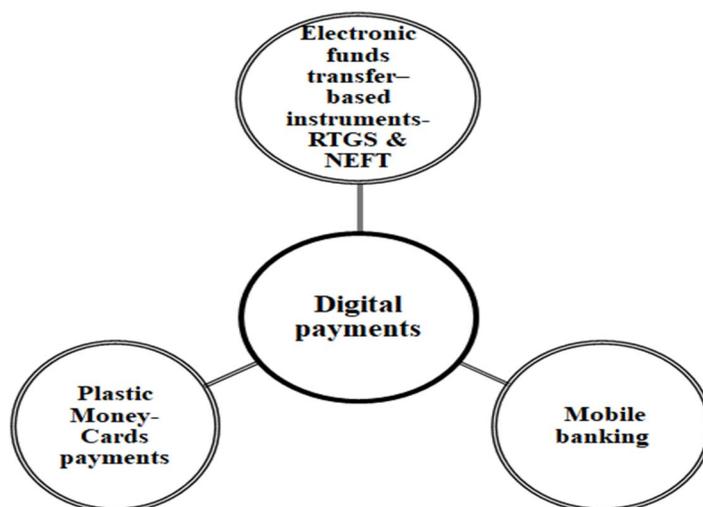
Abstract: Digitalization of payments is the shifting of cash payments to some form of electronic or digital payment, with the rapid expansion of innovative payment options and digital technologies with internet access, increasing usage of mobile phones for apps-based payments, cards payments etc makes the digital payment expanding rapidly. The study is based on secondary data which has been collected from website and published sources. Quantitative analysis was conducted

Keywords: Digitalisation, digital payments, technology, Apps based payments, RTGS, mobile banking.

INTRODUCTION

Digitalisation may help to synchronize all systems (production, distribution, services and banking) in a substantial manner to attain economic progress. Digital financial services assist in inclusion of indispensable economic activities as well as help to advance through arranging knowledge solutions, electronic fund transfer and bill-payment connected services. Industry 4.0 integrated with physical, digital and biological spheres with the realm of new technical knowhow and free flow of information dissemination through technical support. Indian IT companies are now at the forefront of developing applications using artificial intelligence (AI), machine learning (ML), robotics, and block-chain technology. Artificial intelligence based tools can connect consumers as well as producers to provide tailor-made goods and services. Block-chain technology is to database system

that acts as record-keeping tool and store transactions every transaction happen in the database is called block and this block contains details such as transactions details, time of detail and previous transaction link no one can alter information on any transactions. It acts as applying public ledger through a decentralized process that benefits the masses in different sectors of the economy. The digital economy can facilitate to attain efficient financial arrangements and payment systems between producers and consumers. In the financial and the banking sectors, electronic banking and digitization were introduced. Thus, digital infrastructure has helped a lot to strengthen India's position in all the sectors. This research paper focus on digital payments methods used by people in their business activities during the last 6 months from April 2020 to September 2020. The most frequently digital payment options used by people are-



- **Electronic funds transfer-based instruments:** These are direct (that is, account-to-account) credit transfers and direct debit transfers. As account-to-account payments, these instruments can be processed fully electronically with the support of internet banking by using RTGS, NEFT and IMPS
- **Mobile banking-E wallets-Paytm, Phonepe, Google payApps-** The use of wallets has been implemented at a very large-scale. Even petty shop owner like *chaiwallahs* and other roadside vendors, vegetable vendors, hawkers, pedlars are accepting payment by using Paytm or Phonepe or google pay apps
- **UPI** – Unified payments Interface another payment options followed by people for payment of utility bills and so on
- **Plastic Money** – Debit and Credit Cards

1. Objectives of Study

- 1) To study status of digital payments
- 2) To understand how digital payments act as a financial inclusion to attain sustainable development

2. Methodology of the study –

- a. **Sources of data:** The study has used secondary data
- b. **Plan of analysis:** Data is presented in the form of tables, charts and trend percentage has been used as a tool to understand the results better

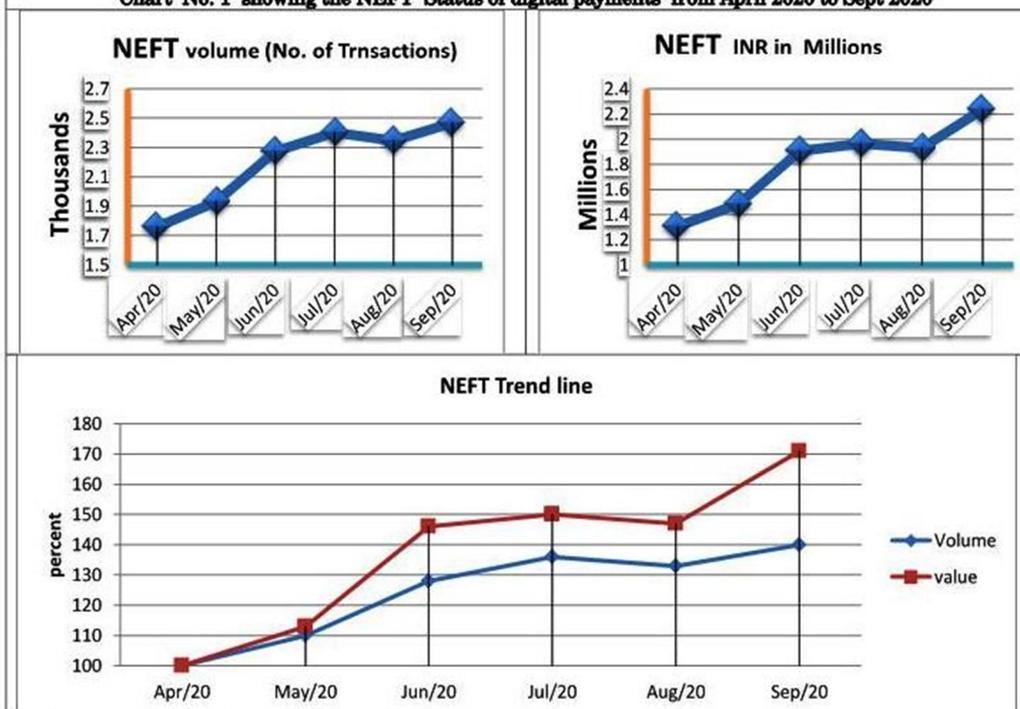
3. Discussion

- 1) To study status of digital payments from April 2020 to September 2020



		April 2020	May 2020	June 2020	July 2020	Aug 2020	Sept. 2020
NEFT	No. of Transactions	1759.8	1929.4	2274	2401	2346.1	2468.3
	Amount (Rs. Lakhs)	1306406.4	1481749.5	1906586.1	1963113.4	1930552.3	2235389.0
Trend Percent volume (April 20 taking as base)		100	110	128	136	133	140
Trend Percent value (April 20 taking as base)		100	113	146	150	147	171

Chart No. 1 showing the NEFT Status of digital payments from April 2020 to Sept 2020



(Source: RBI website)

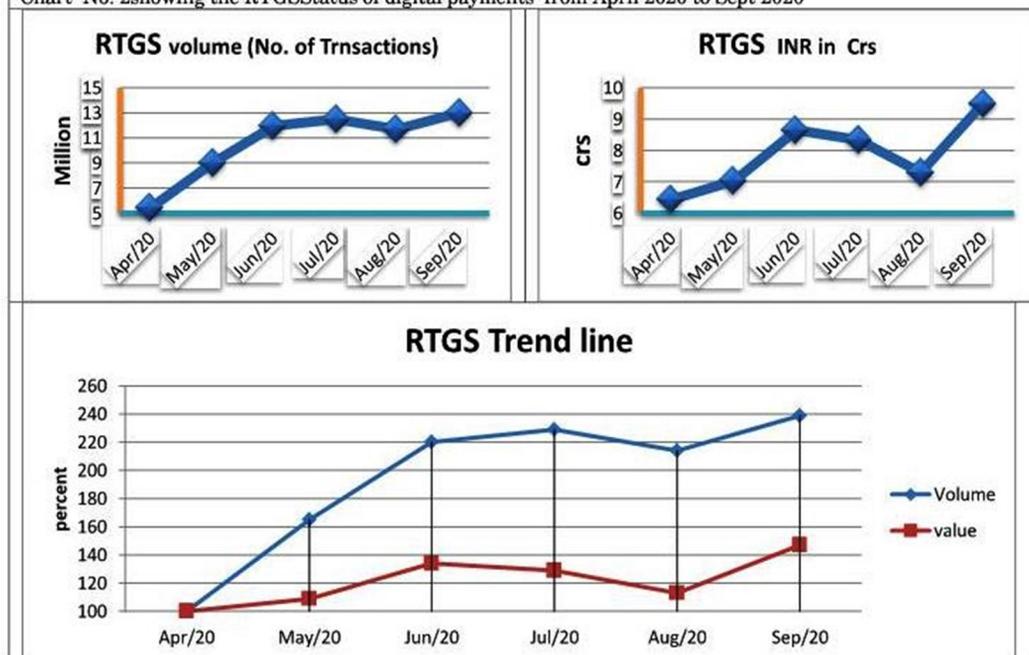
Analysis

The study observed that the NEFT(National Electronic fund Transfer) both volume and value have significant increasing from April 2020 to Sept. 2020. The trend percent shows increasing trends over the period of time. This implies that banking sector encourages customers go for digitalisation in turn more number of people added to financial inclusion



		April 2020	May 2020	June 2020	July 2020	Aug 2020	Sept. 2020
RTGS	No. of Transactions	5434644	9003796	11967828	12476268	11677166	13010503
	Amount (Rs. Crs)	6443653.11	7041869.36	8651977.72	8335279.05	7292379.7	9489065.8
Trend Percent volume (April 20 taking as base)		100	165	220	229	214	239
Trend Percent value (April 20 taking as base)		100	109	134	129	113	147

Chart No. 2 showing the RTGS status of digital payments from April 2020 to Sept 2020



(Source: RBI website)

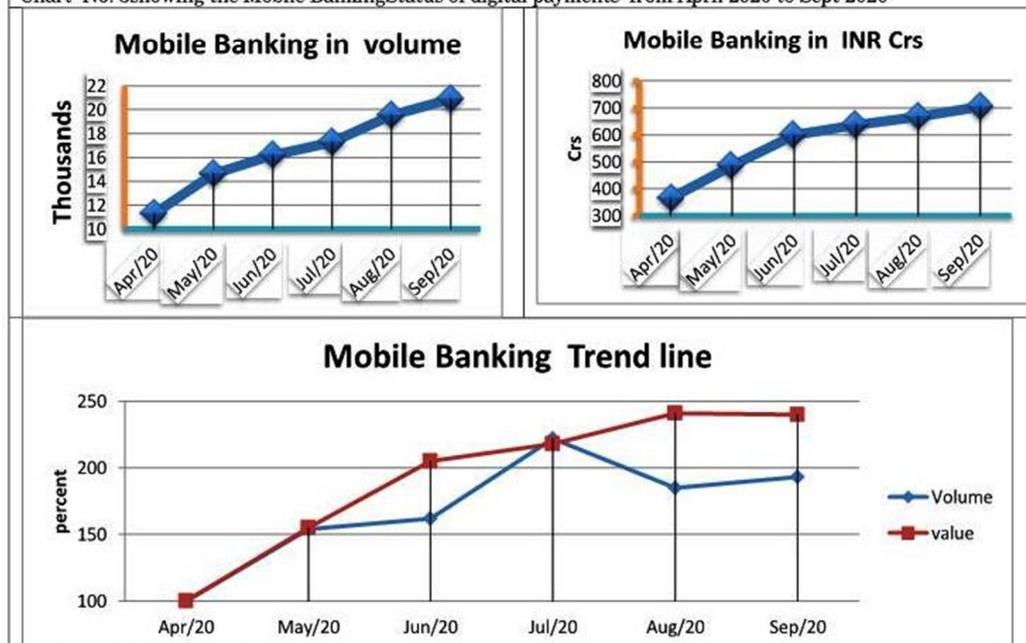
Analysis

The study observed that the RTGS (Real time Gross Settlement) both volume and value have significant increasing from April 2020 to Sept. 2020. The trend percent shows steadily increasing over the period of time. This implies that more transactions in number as well as in value is digitalises



		April 2020	May 2020	June 2020	July 2020	Aug 2020	Sept. 2020
Mobil Banking	No. of Transactions	11276.04	14622.04	16187.99	17281.26	19521.47	20919.08
	Amount (Rs. Crs)	364031.12	485512.77	599380.93	637488.73	667278.79	704108.61
Trend Percent volume (April 20 taking as base)		100	130	143	153	173	185
Trend Percent value (April 20 taking as base)		100	133	165	175	183	193

Chart No. 3 showing the Mobile Banking Status of digital payments from April 2020 to Sept 2020



(Source: RBI website)

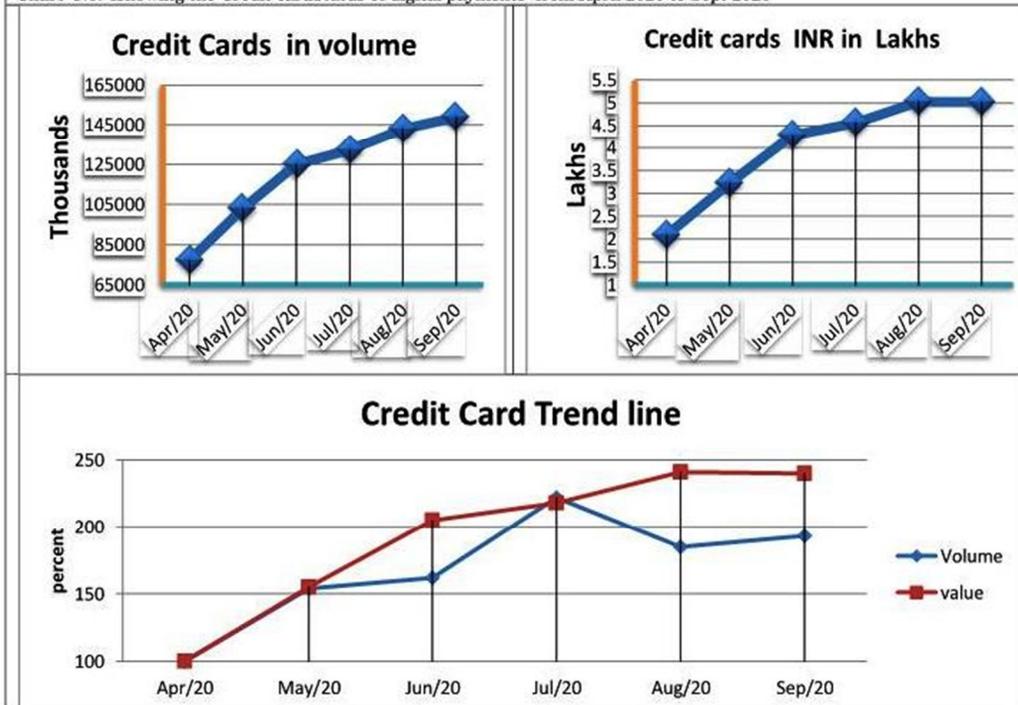
Analysis

The study observed that Mobile banking both volume and value have significant increased from April 2020 to Sept. 2020. The trend percent steadily increased over the period. This implies that people use apps-based payment for executing the transaction in turn added to financial inclusion.



		April 2020	May 2020	June 2020	July 2020	Aug 2020	Sept. 2020
Credit Card	No. of POS Transactions	77124451	103129469	125170869	132321200	142898722	149059215
	Amount (Rs. Lakhs)	2085817.49	3227086.26	4281813.30	4556763.80	5031906.29	5013966.88
Trend Percent volume (April 20 taking as base)		100	154	162	222	185	193
Trend Percent value (April 20 taking as base)		100	155	205	218	241	240

Chart No. 4 showing the Credit card Status of digital payments from April 2020 to Sept 2020



(Source: RBI website)

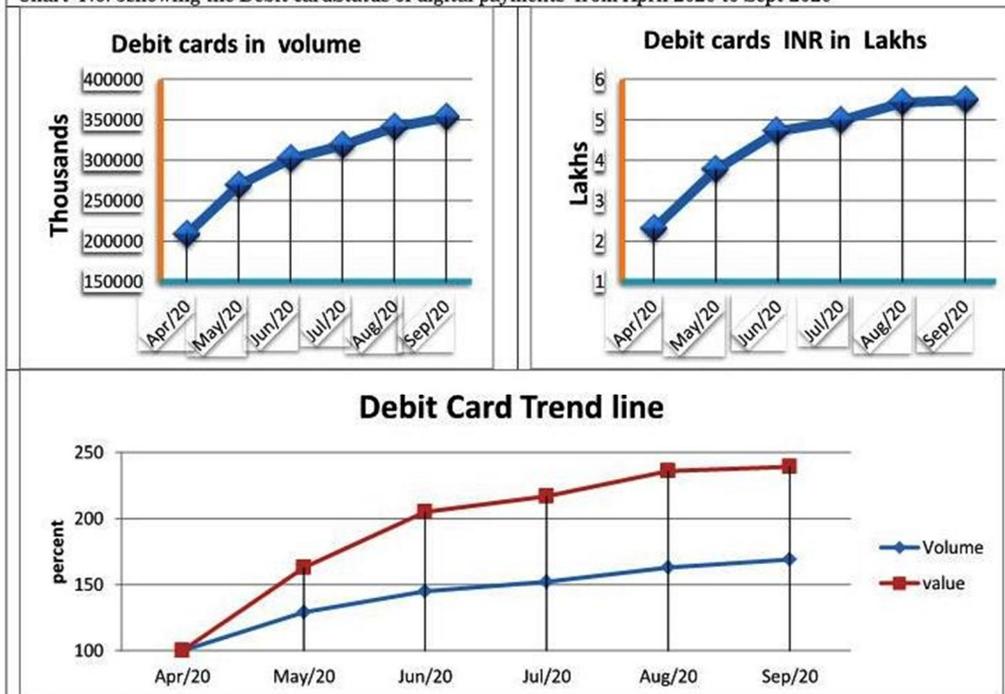
Analysis

The study observed that the credit card transactions both volume and value have significant increase from April 2020 to September 2020. The trend percent slightly fluctuated over the period. This implies that people use credit card payment for executing their transactions in turn adding to financial inclusion.



Debit Card	No. of POS Transactions	April 2020	May 2020	June 2020	July 2020	Aug 2020	Sept. 2020
	Amount (Rs. Lakhs)	208271816	268563775	302088132	318383225	340869732	352878514
Trend Percent volume (April 20 taking as base)		100	129	145	152	163	169
Trend Percent value (April 20 taking as base)		100	163	205	217	236	239

Chart No. 5 showing the Debit card Status of digital payments from April 2020 to Sept 2020



(source: RBI website)

Analysis

The study observed that debit card transactions both volume and value have significant increase from April 2020 to Sept. 2020. The trend percent steadily increased over the period. This implies that people uses debit card payment for executing their transactions

4. Findings of the study

- ❖ The opportunity for driving financial inclusion.
- ❖ The usage of physical cash has come down drastically.
- ❖ Shrinkage in the size of shadow economy.



- ❖ Reduction in circulation of black money in the system.
- ❖ Enhanced transparency, accountability, and cost of savings.
- ❖ Usage of technology in making payments has increased over the period.
- ❖ Awareness about digital payment apps and their benefits among people.

4. Conclusion

The above study reveals that majority of the transactions even for dailies are executed by using different digital platforms. During the study period most of the people followed digital platform for various transaction instead of physical cash. The study was limited to digital payment relating to Apps based payment, internet banking, mobile banking, credit, and debit cards used at POS only in India during the months of April to September 2020. The scope for further study can also be extended for artificial intelligence, block chain technologies which are widely applicable to banking sector.

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Education on Digital Leadership using Social Media

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Abstract

Digital technology has changed organizations in an irreversible way. Like the movable type printing accelerated the evolution of our history, digitalization is shaping organizations, work environment and processes, creating new challenges leaders have to face. Social media application as a tool for positive social change. The number of users on applications from Facebook to Twitter and Instagram continues to increase in all demographics. These tools are being integrated into our daily activities and challenging boundaries, roles and even possibilities globally. Currently, there exists a gap in developing competent leaders capable of leading change using social media. Digital leadership requires reflection on online self-awareness and congruence, grappling with the controversy that comes with cyber civility and how to be a digital citizen prepared to inspire positive social change. Social media has the potential to change a leaders' pathway. Our job is to make that path one of social change. Leaders do not have a choice in joining the online conversation and more importantly, must take responsibility for the actions and education of future leaders. The current article focuses on the usage of social media in our society, especially among teens and young adults, and the potential that leadership educators have in shaping their digital reach, as well as that of their students. Provides a comprehensive contribution of studies on leadership and digitalization, identifying patterns of thought.

Keywords: e-leadership, digital competencies, digital technology, Social Change, Social media

Introduction

The emergences of information and communication technologies have impacted greatly on organizations and subsequently their leaders. The virtual context in which many leaders now operate both provides opportunities and poses challenges. The virtual environment, demands that leaders develop some different practices but this is not to say that traditional leadership has no place in the new virtual environment. Rather, the traditional leadership theories and leadership styles studied previously conceptualized by researchers and scholars enhance

electronic leadership (e-leadership). Leadership is needed to fix many of the problems created by the information age.

About Social Media

Facebook is currently the most active social networking site with 1.28 billion users as of May 2014 (www.facebook.com). Another popular platform, Twitter (2013), has 230 million monthly users producing 500 million tweets per day (www.twitter.com). In addition to Facebook and Twitter, there is a growing list of social media sites such as Instagram, Vine, Pinterest, SnapChat, and LinkedIn. The ability of leaders to stay attuned to emerging social media



platforms and digital trends is a crucial capacity that must be integrated into leadership education and practice. Further, "Educators have a responsibility to help students wield social media as a tool that educates, strengthens commitments, and contributes to social change".

Leadership development model is composed of three levels including individual, group, and community, and is primarily used in higher education to train college students to become agents of social change. Leadership is based on "concerns with effecting change on behalf of others and society". Socially responsible leadership should have seven values as follows it frames social change model. It is a collaborative, value-based process set for all, not just those in leadership positions.

Individual level

1. Consciousness of Self
2. Congruence
3. Commitment

Group level

4. Common Purpose
5. Collaboration
6. Controversy with Civility

Community Level

7. Citizenship

"The interaction of all the above seven values contributes to an individual or groups knowledge, skills, and beliefs related to socially responsible leadership". Individuals and groups dynamically move through these values, until arriving at values capable of citizenship.

For leadership educators to include conversations with students about how social media can aid in social change. Recognizing that social change can also be supported with digital tools equips

individuals to be leaders in all arenas, developing leadership skills required in our digital world.

Digital Leadership

Ribble, Bailey, and Ross (2004) developed nine digital citizenship elements, which include digital etiquette, communication, access, literacy, commerce, law, rights and responsibilities, health and wellness, and digital security. Leaders who are positive social change agents can make use of social change model framework.

The ten competencies of a digital leader are as follows:

1. Awareness of Emerging Technology Tools and Platforms.
2. Digital Content Analysis, Sorting Accuracy and Quality from False or Misinterpreted Information.
3. Online Self-Awareness and Reflection of Digital Profile (Consciousness of Self).
4. Establishing Personal Virtual Boundaries including Privacy, Time Management, and Overall Wellness (Congruence).
5. Cultivating Professional, Strategic, and Career Oriented Online Branding (Commitment).
6. Building a Personal Learning Network (Collaboration).
7. Integration of Digital Technologies into Leadership Presence (Common Purpose).
8. Cyber Conflict Resolution and Mediation (Controversy with Society).
9. Digital Decision-Making Strategies based on Positive, Authentic, and Constructive Activity (Citizenship).
10. Using Social Media for Social Good (Citizenship).

The value of Controversy with Civility is viewed as "an inevitable part of the group interaction which can reinforce the other



values in the model if it occurs in the atmosphere of civility” (HERI, 1996, p. 60). Through this critical value, leaders can consider cyber conflict resolution and mediation skills.

Digital Leadership among students

Students need the ability to develop their leadership abilities to direct their own lives and improve the lives of others. Most important step in developing and supporting student’s digital leadership skills in a distance learning environment is by setting and modelling digital citizenship expectations. Incorporate a set of common standards for digital citizenship, such as those authored by the International Society for Technology in Education (ISTE), into your classroom environment. Model the expectations in interactions with students and their families. Have students reflect on their choices. All of these are important first steps in supporting their digital leadership skills. One of ISTE’s standards for students is to “engage in positive, safe, legal, and ethical behaviour when using technology, including social interactions online.” When set those standards or better yet, collaborate with the students to determine what those requirements look like for your classroom culture, students are prepared to take the next step. Guide the students about how to compose an initial post, how to respond in a critical yet positive manner, how to avoid academic dishonesty when posting. With this preparation, students will be ready to self-monitor and potentially lead one another in engaging appropriately within the course. Digital leadership skill development becomes more powerful when those skills transfer to benefit the community at large. Distance not stops our students from developing the skills they will need to

lead in a digital world. We can engage students in core leadership skills that will always be needed, such as digital citizenship, communication, and community participation and involvement. When you find ways to support those core skills, powered by LMS and other edtech tools, students will learn to lead and help bring us into a better future.

Conclusion

Social Change Model allows leaders and educators to address immediate competency gaps as technology changes quickly. At the heart of the model is change, calling on leaders to use a creative and collaborative process to make a better world. In order for leaders to address and embrace change, emerging technologies are critical to building competence. Social media can address the calls of the Social Change Model to aid in social change. But it is not as simple as signing up for a Twitter account, creating a blog, or sharing a photo on Instagram. Use the model to guide digital decisions and awareness of how social media fits into leadership capacity and global impact. Digital leadership is trending now; focus on how to infuse leadership based on social responsibility, building collaborative efforts toward social change, with the aid of communication tools like social media. If leadership development programmes that are delivered in the virtual space are well designed, they can be just as effective as conventional face-to-face learning.

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The role of E-governance initiatives in agricultural development in Karnataka

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Abstract

The agriculture sector plays a pivotal role in economic development of any nation as it is considered as primary occupation, source of livelihood, providing food security, fodder to animals and indirectly helps to the growth of industrial and service sector in an economy. Agricultural activity involves the processing, production, marketing, distribution and consumption of product by adopting innovative methods of cultivation in the society. The agriculture development needs availability of fertile land, weather condition, water availability, better quality seeds, proper planning and finally government role in upbringing the production and extension of activities. The agricultural intensification and extension need the efficient, effective governance system in allocating land, information on weather, farm inputs, credit, marketing facilities and better agricultural prices to enable the farmers to follow as their main occupation and contributing to GDP. This paper attempts to study the e governance initiatives of the Karnataka state government in upbringing agricultural development and how far new technology-based organizational mechanism enabling farmers providing information related to farming activities.

Key words: *E-governance initiatives, ICT, agricultural development*

Introduction

The agriculture sector plays a pivotal role in economic development of any nation as it is considered as primary occupation, source of livelihood, providing food security, fodder to animals and indirectly helps to the growth of industrial and service sector in an economy. Agricultural activity involves the processing, production, marketing, distribution and consumption of product by adopting innovative methods of cultivation in the society. The agriculture development needs availability of fertile land, weather condition, water availability, better quality seeds, proper planning and finally government role in upbringing the production and extension of activities. The agricultural intensification and

extension need the efficient, effective governance system in allocating land, information on weather, farm inputs, marketing and agricultural prices to enable the farmers to follow as their main occupation and contributing to GDP.

In the global economy agricultural activities has become the agri business where we need the proper channel of information for the overall development of agriculture. The E-governance is a means to accomplish the goal to attain the agricultural development disseminating information through electronic means can enhance the production and bring ever green revolution in an economy.



NATIONAL E-GOVERNANCE PLAN

Government of India National E-governance plan (2006): The NEGP is a comprehensive programme of government of India implementing ICT in all the fields and for promoting good governance in the country. NEGP was formulated in the year 2016, 18th may by the government, the plan consisting of 27 mission mode projects and 10 components. This plan aims at digitalization of all the departments. Vision of the NEGP-"Make all government services accessible to the common man in his locality, throughout common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man". The A- MMPs are implemented at the central, state and local government levels. The A-MMP mainly focus on the area concerning to Agriculture such as providing information to the farmers on pesticides, insecticides, seeds, soil health, farm machinery, weather forecasting and agro-met advisory. The government also implement the services to the Agricultural labourers such as marketing infrastructure, irrigation infrastructure, information on prices, arrivals, crop loans etc.

RESEARCH GAP

The literature review studies provide a comprehensive overview of theoretical foundation of the concept, challenges in rural areas, agricultural e-governance initiative of the government and new dimension in the sustainable development of an economy.

1. Earlier studies focus on the e-governance initiatives of the government but no study has done on the role of E-governance initiatives in providing timely and relevant information to the farmers.

OBJECTIVES

1.To study the role of e-governance initiatives undertaken by the government in agricultural development of an economy.

2.To examine policies and programmes, institutional framework helpful to the farmers in enhancing production in the study area.

HYPOTHESIS

1.The E-governance initiatives of the government helps in the agricultural development

in aneconomy.

METHODOLOGY

The secondary sources of data are collected from the various sources for the research work. The secondary sources of information are gathered from the sources such as journals, magazines, periodicals, newspapers, and web site sources.

SCOPE OF THE STUDY

The study has been confined to E-governance initiatives of the government of Karnataka related to agricultural development, the secondary sources of data collected and analysed.

GOVERNANCE

Governance refers to the policies and programmes initiated by the



government to bring social and economic welfare of the community as a whole. The development of a nation and welfare of community depends on the good governing system where appropriate policies are formulated and implemented.

The concept governance includes corporate governance, international governance, national governance, local governance, private governance and public governance. Under the Public governance, the economic and political governance are vital concept to accomplish the goal of development. Political governance includes policy framework, public administration, delivery of services, public management, civil service reforms, proper channels to implement the policies are considered and in economic governance, policy formulation, target towards higher national income, proper allocation of resources, fiscal policy, community welfare programmes, rule of law, accountability, transparency in the administration etc.

THE ROLE OF GOVERNANCE IN AGRICULTURAL DEVELOPMENT IN AN ECONOMY

The concept governance we come across during the period of Greeks where the state role was confined to internal and external security of the citizens regarded as police state. In modern times the role of the government has changed not only priority has been given to internal and external security of the citizen, the state has diverse function like extending basic facilities, policies and programmes for the overall development of the nation and community welfare are the target to fulfil the goal of democracy. The agricultural sector is known as the

primary sector as it feeds the industrial and service sector, government intervention is required for the sustainability and bring ever green revolution in an economy.

1. The better management of the land resources means equal distribution of lands among the people to maintain social harmony and maintaining proper records to get accuracy in the land management systems rest in the hands of the government.
2. The facilitating basic agricultural inputs like seeds, pesticides, chemical fertilizers, and machines at a favourable price to the farmers.
3. The finance is the pillar to any developmental activities financial institutions must be established in the rural areas to mobilize the rural savings and credit facilities at a right time.
4. The extending warehousing and good marketing facilities for the farmers is the responsibility of the government otherwise exploitation of the farmers from private individuals and middlemen.
5. The reasonable price to the agricultural produce of the farmers and Minimum support price to the farm produce are the necessary steps to protect the interest of the farmers and look into the well-being of the people.
6. Providing adequate and appropriate information on weather condition, prices at International, national and local markets etc needed by the farmers at a right time.
7. Protecting and conserving the fertility of the soil pre-requisite condition for raising production, testing of soil and suggestion given on the usage of manure, crops grown



etc are the role played by the government in enhancing production.

THE CONCEPT OF E-GOVERNANCE

Electronic governance is the process of decision making, policies implementation and public service delivery through electronic means in order to bring efficiency, effectiveness, transparent, accountable and responsive administration system as a tool of good governance in an economy. In short, e-governance refers to the delivery of government services through electronic means as a part of restructuring the administration structure and strategic reforms. It is a new way of public management system in the 21st century reforming the governing function for citizen friendly and participatory approach to bring efficiency in the system.

HISTORY OF E-GOVERNANCE DEVELOPMENT IN INDIA

The IT revolution emerged in India during 1970's as the new wave of technological innovation adopted initially in the defense areas. The setting up of National Informatic Centre in 1975 by the central government stepping stone in application of electronic services in all the departments and administration set up. In the early 90's development of world wide web inductive for the IT sector development and ultimately peak in the economy. From 1987 onwards the adoption of ICT in the administration set up for the faster delivery of services, for efficient and effective management of the system NICNET and DISNIC constituted to computerize the district offices in the country. In the later stage of development due to the faster public delivery services, transparency, efficiency

the system government started applied ICT in all levels of government. Some of the acts promoted for the development of e-governance initiatives in India, IT Act 2000 and Right to information Act 2005. In the administrative system reforms were introduced to improve the efficiency in the system, administrative reforms of 2005 recommended for the digitalization of all the administrative departments. Another important step in the advancement in the ICT sector was initialization of National e-governance plan in 2006 to upgrade all the department with ITC.

THE ROLE OF E GOVERNANCE IN AGRICULTURAL DEVELOPMENT

In an under developed and developing countries, the government initiates several programmes and public policies for the rural and agricultural development of an economy. But due to corruption, delay in services, illiteracy, non-participation of the people, leakages in the administrative set up, non-accountability, the benefits are not really reached to the targeted groups of people. The bottom -up approach is required for the government to include all the farmers to adopt modern methods of cultivation and agricultural practices in enhancing farm production.

In a developing country like India, the agricultural development needs an initiative for capacity building, internal development, sharing information, disseminate the information, participation in policy making and decision-making processes in the organizational set up is essential for the inclusive growth. E-Governance ensures a change in the administration system and restructuring the



organizational set up, it intends towards people oriented and beneficiary farmer-centric model for development. Information and communication technology have been considered as one of the tools to empower the farmers in India where agricultural information prerequisites in the changing scenario of farming sector. Earlier information is provided to the farmers through Radio, Television Pamphlets at the local level etc. Now the government has introduced at the village level telecentres where directly interact with the local people try to solve the problems of farmers and sharing of information by that government is extending G2C services.

➤ Under this system information on agriculture are provided by the government with adoption of new method of science and technology.

➤ Earlier information is provided to the farmers through Radio, Television Pamphlets at the local level etc. Now the government has introduced at the village level tele centres where directly interact with the local people try to solve the problems of farmers and sharing of information by that government is extending G2C services.

➤ Empowering farmers with relevant and timely information on weather condition, different kinds of soils in the pre- cultivation strategies.

➤ Information on cultivation techniques, fertilizers, pesticides and insecticides, water usage, provided to the farmers on proper time basis.

➤ The information on crop insurance, subsidies, marketing, agricultural prices are accessible through digital mode of communication.

➤ Recently the government of India launched Mygov as a e governance initiative to facilitates

participatory governance in the country providing a common digital platform, where citizens can share their views on government programmes and schemes.

➤ The Direct benefit transfer scheme of the government enables transfer of government benefits to the bank account beneficiaries directly in the rural areas.

➤ The knowledge sharing or sharing of information brings out economic growth and upbringing of the rural economy.

E-GOVERNANCE INITIATIVES OF THE KARNATAKA GOVERNMENT

Bhoomi Project

As a part of public services reform in the rural areas and to bring transparency in the land record system the Karnataka government launched Bhoomi project in 2002 under the guidance of Rajiv chawla, the additional secretary of revenue department. The government spent 20 crores on computerization of land records project and 10000 officials trained to work under kioniskscenterat the village level to give services in rural areas covering 31 districts of 20 million land records. The farmers can get RTC/RC by paying Rs.15 in the kionisks center established at the local level, it enhances faster delivery of services, less cost, accuracy, accountability and transparency in the land record system, avoiding unnecessary confusion in the land ownership, malpractice, quarrel in the land distribution in the rural areas.

Rashtriya e-Market Services (ReMS) is established as a joint venture of Government of Karnataka (India) and NCDEX spot exchange limited with



equal shareholding. It was intended to blend public interest with the initiative of a private enterprise for establishing, operating, managing a specialized electronic trading platform called Unified Market Platform (UMP) for auctioning of farmer's produce. Department of Agricultural Marketing, ReMS and the Markets, work in close coordination to implement the reforms guided by the state government. e-NAM is the central government sponsored online marketing facility extended to all state governments integrating all the farmers in a single platform offering trading activities.

Bhoochetana Government of Karnataka initiated a project under Rashtriya Krishi Vikas Yojana (RKVY) called 'Bhoochetana' to improve the livelihoods of dry-land farmers in the State by increasing the agricultural productivity of rain-fed agriculture. The main focus of Bhoochetana is revival of soil fertility, improvement soil fertility status and the project was initiated in May 2009. The basic purpose of the project is to increase average productivity of major rain-fed crops by 20% in all 30 districts in a phased manner over 4 years by undertaking stratified soil sampling, analysis of soil samples & preparation of GIS-based soil fertility maps in all the districts and capacity building of dry land farmers. The major crops covered are maize, groundnut, ragi, soya bean, red gram, black gram, green gram, bengal gram, sunflower, jowar, rain-fed paddy, cotton & bajra.

Krishi Yantra Dhare—The adoption of technology in the farming can reduce labour cost, time, quality enhancement in production etc. The Farm Machinery Custom Hire Service Centres is a boon to Small & Marginal farmers who cannot afford to purchase the Farm Machinery

even with subsidiary rates. Under this scheme farmers have a golden opportunity to avail hi-tech and advanced farm machineries at nominal charges at their door step, which helps in taking up timely agricultural operations.

CONCLUSION

The E-governance is the key Endeavour to achieve the agricultural development and stability in the economy. The actual development always lies with the economy where the government initiatives, proper implementers and participation of the people. The grass root level development of agriculture needs the ICT inclusion in the farming sector. The rural sector digitalization is essential to change their social, economic dimension with the overall development will be possible. The government of India launched the Digital India programme to transform the economy as digital economy. Digitalization in the rural areas can solve the farmers problems and helpful for them to engage in agricultural extension activities.

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Role of E-Commerce in improving Customer Satisfaction in India

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ABSTRACT

With the rapid growth of e-commerce in India, this country is the biggest e-commerce market. This paper aims to examine the degree of customer satisfaction with e-commerce system in India. The findings indicate that customer satisfaction with e-commerce system was affected by customer expectation, e-commerce service quality and perceived value. In addition, perceived value was affected by customer expectation and e-commerce service quality, while e-commerce service quality was affected by customer expectation. The findings suggest that e-commerce service quality is main key element affecting customer satisfaction with e-commerce system which is accordance with Indian online customers who have more concerns on e-commerce service, particularly related to security and payment method.

Keywords: Customer expectation, Customer Satisfaction, E-commerce, Perceived quality, Service quality

Introduction

India one of the greatest countries with a strong economic system and purchasing power. Therefore, the increase in Internet consumption has been attributed to the rise in the use of electronic commerce (e-commerce) system is booming globally and locally, leads to e-commerce spending in India. Although there is positive growth in e-commerce development, India is facing several issues regarding information communication technology (ICT). Consequently, they may affect the e-commerce system satisfaction among its consumers. For example infrastructure problem related to ICT affects the online service, particularly, issues related security and payment method cause the dissatisfaction with the e-commerce system.

In the e-commerce context, customer satisfaction is one of the issues

frequently discussed by researchers. Customer satisfaction with the e-commerce system is a crucial issue because of the fact business depends on its customers. Therefore, retaining and maintaining customer is inevitable due to the fact customer means profit to the business. In addition, the importance of satisfaction with the e-commerce system, which is believed to influence customers to repeat purchasing via the system. Frequently examining and analyzing customer satisfaction with the e-commerce system should be the main agenda included in business strategy for every e-commerce practitioners.

Although there are many discussions on examining the factors affecting customer satisfaction with the e-commerce system, in the context of India, especially from the online customers' perspective, a few have been found in discussing this issue. In particular, this paper discusses the issue by adapting the



American customer satisfaction index (ACSI). Thus, this study takes an opportunity to examine the role of Ecommerce in improving customer satisfaction. This study aims to examine the factors influencing customer satisfaction with the e-commerce system in India.

Need for the Study

The development of e-commerce activities, of which the traditional way of trade has led to a fundamental change in the status of the consumer and made a fundamental shift, from the previous passive consumers to active status, not only through the network to find the required fast product information, but also can it easily turn any of the merchants. Therefore, in Internet time, compared to traditional enterprises, to make customers satisfied and to cultivate customers' loyalty for e-business is much more important. Thus, this study attempted to know how customers are satisfied with the E-commerce system.

Objectives of the Study

1. To know the conceptual framework of E-commerce towards customer satisfaction.
2. To know the role of E-commerce in improving customer satisfaction.
3. To identify the problems of customers regarding E-commerce.
4. To study the awareness of e-commerce in customers.

Research Methodology

The data is collected from secondary data. Secondary data are the data already exist and readily available for processing collected through media channels like the internet, textbooks, advertisement, newspapers, magazines, etc.

Limitations of the Study

1. Since it is relevant convenient for us to collect data and help to further research.
2. Due to the limitation of time, unfortunately not able to make a detailed survey from the respondents.

Features of E-Commerce

1. A new marketing channel.
2. A transaction medium server covering the whole world.
3. Storage of large amounts of information on different virtual locations.
4. Powerful means of searching, organizing and disseminating information.
5. Ability to provide information on demand.
6. E-Commerce technologies reduce information collection, storage, communication and processing costs.
7. The accuracy and timelines of information, making information more useful and important than ever.
8. It allows for two-way communication between merchants and consumer.
9. This leads to personalization by targeting their marketing messages to specific individuals.
10. This leads to customization by changing the product or service based on user's preferences or prior behaviour.
11. Relatively low entry and establishment costs for sellers.

Advantages of E-commerce

1. Being able to conduct business 24 x7

E-Commerce can operate all day every day physical storefront does not need to be open for customers and suppliers for doing business electronically.



2. No Middleman

There is a direct contact with customers in e-commerce through internet without any intermediation. Companies can now focus more on specific customers by adopting different one to one marketing strategy.

3. Improved and better customer service

Since there is a direct contact with the customers, it is possible to solve their queries regarding price, quality, additional features of the product, etc and thus resulting in a better improved customer services. Response time is reduced more quickly between the seller and the buyer.

4. Advertising of goods and services

A business firm can easily promote its product its product on the website by giving the complete required information over the internet. One of the tools of e-commerce is sales promotion from where not only the firm gains but also the customer are benefited.

5. Higher profits

A very great amount of reduction in cost is measured in doing e-commerce in terms of various kinds of commercial transactions i.e., no manual handling of the transactions, paperless exchange, easy payments from customers, no transporting except in the case of tangible products and higher profit margins from higher sales volume. Also business over the internet attracts every customer from all over the world and exposure in the new markets enhances the profits of the business firm.

6. E-Payment system

The electronic payment system on the internet is facilitated by payment gateways between the business firms and customers and between business firms for assuring the payments from the customers. E-payments are made without any loss of time but security is to be

insured when using this system because customers are sending their detail related to credit card numbers.

7. Compute platform-independent

Customers are not limited by existing hardware systems. Computers have the ability to communication via the internet independent at operating systems and hardware.

Categories of E-Commerce

1. Business to Consumer (B2C)

Business to consumer applies to the business or organization that sells its products or services to consumers over the internet. Consumers from anywhere can browse and order goods and services online anytime. In B2C, sellers sell products and services directly to the customers. Buyers are individual customers. Thus each transaction under B2C represents an individual buying online. The critical success factors are database marketing, customer intimacy, global reach, reputation and high reliability, delivery support, value added services at a single contact point. B2C in addition to online retailing include services such as online banking, travel services, online auction, real estate service etc. Examples of B2C websites are rediff.com, fabmart.com, amazon.com etc.

2. Business to Business (B2B)

Business to Business involves online transactions between business. B2B implies that both the sellers and buyers are business corporation. It refers to e-commerce activities between businesses. It covers an application that enables the business to form e-relationships with their distributions, suppliers and other partners. It is also known as e-business where companies of all sizes and types are mutually buying and selling products and services on the internet.



The B2B transactions include supplier management, inventory management, distribution, and channel and payment management. It is an effective media for managing the supply chain, telemarketing and procurement, intermediary, J-I-T delivery, networking

with business partners, networking between head office and subsidiaries and online services.

Difference between E-commerce and Traditional commerce

Basis for Comparison	Traditional Commerce	e-Commerce
Meaning	Traditional commerce is a branch of business which focuses on the exchange of products and services, and includes all those activities which encourages exchange, in some way or the other.	e-Commerce means carrying out commercial transactions or exchange of information, electronically on the internet.
Processing of Transactions	Manual	Automatic
Accessibility	Limited Time	24×7×365
Physical inspection	Goods can be inspected physically before purchase.	Goods cannot be inspected physically before purchase.
Customer interaction	Face-to-face	Screen-to-face
Scope of business	Limited to particular area.	Worldwide reach
Information exchange	No uniform platform for exchange of information.	Provides a uniform platform for information exchange.
Resource focus	Supply side	Demand side
Business Relationship	Linear	End-to-end
Marketing	One way marketing	One-to-one marketing
Payment	Cash, cheque, credit card, etc.	Credit card, fund transfer etc.
Delivery of goods	Instantly	Takes time

3. Consumer to Business (C2B)

Consumer to Business (C2B) involves reverse pricing model or reverse auctions that enable buyers to determine their own prices for specific products and

services. These are the sites where consumer set prices and companies bid to offer products and services. This model uses the internet to reverse the normal buying process where consumers dictate what they are willing to pay and business



decide whether to accept it or not. This is due to the two way interaction on the internet that has connected a large group of people together and also the decreased cost of technology that has made it possible for the individuals to use it that were once only used buy the large companies.

4. Consumer to Consumer (C2C)

Consumer to consumer refers to exchanges involving transactions between and among consumer. It enables customers to directly deal with each other through classified ads and auctions. The world's largest personal online trading community is ebay which allows consumers to offer their goods directly to other consumers in the auction format. In C2C, no third party involvement is there, direct dealing between customers.

Example: auction sites. If one has something to sell, then he can get it listed at an auction site and other can bid for it.

Suggestions

- E-Commerce websites must increase the speed and efficiency of user feedback, improve user satisfaction with the service quality of E-commerce.
- E-commerce websites should accelerate the reaction speed of the network.
- They should provide a solution to the problem of web site image integrity.
- E-Commerce websites should construct secure payment systems and transaction security.
- They should enhance communication with consumers
- E-commerce websites should invest in more advertisements on social media as this is the activity both the countries participant engaged more.
- E-commerce websites provide more information and innovative techniques.

Conclusion

Customer satisfaction with e-commerce websites helps to build customer trust, enhances favorable word of mouth, leads to repeat purchase, and predicts purchase behavior. The study indicated that four proposed dimensions of online shopping quality, including web site quality, e-service quality, trust, and personalization have different influences on customers' satisfaction. The key dimensions of online shopping quality, that significantly influence online satisfaction levels are connected with trust and personalization. Trust in online relation between company and customers is ranked as the most critical and important facets of online shopping quality, and has the strongest influence on customer's perception of e-commerce quality.

The results of the study suggest that there is a need for e-commerce companies to place emphasis on their web site attribute connected with the security of the online transaction, customer data protection, web site content, personalization, and recommender application. For e-commerce companies, providing online shopping with good service quality involves much more than creating an excellent website for customers. The traditional e-service quality dimension such as reliability or convenience has a significant influence on customers' satisfaction, but the influence is not strong compared to the influence of factors connected with trust and personalization. Online companies need to pay attention to the building of trust in online relations, which can help to improve their customers' satisfaction level. By personalizing the e-commerce site for each user, the company signals them that it cares for the interests and needs of its users and creates an



emotional connection because personalization is targeted at fulfilling a special customer requirement.

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Impact of e-HRM performance on satisfaction of employees in manufacturing industry

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INTRODUCTION

In this Internet world the advancement of technology is one of the powerful driving forces for business activity. The communication pattern is reshaping the entire business world. The digitalization in human resource management activities improves a tremendous in cost effectiveness and enhances performance. The phase that organizations perform their task associated with contemporary concepts such as Digital business, e-commerce, customer relationship management, human resource management. At present, digital business services are being considered as pertinent and prominent parts of the organization. In other words, the trend of business in the service industry is moving towards knowledge and technical internet driven economy. Human resource management is a crucial part of every organization as it deals with a vital resource. For the last 10 years HRM went through a transformation adopting technological tools to improve its performance. Since two decades, every organization shifting the traditional activity to the technical activity in the name of Industry 4.0. Gradually the role of human activity is coming down because of technical support from different aspects. It's very difficult to change the mindsets of employees'' towards the technical phenomenon in an industry. The

understanding of several theoretical perspectives from different discipline such as industrial psychology, strategic management, strategic human resource management, organizational behaviour, global human resource management. The present study developed on perception based approach to examine the challenges and possibilities that employees' perceptions will be associated with the organizational changes. Specifically this research study focusing on examine the relationship between E-HRM performance and employee satisfaction.

REVIEW OF LITERATURE

Bondarouk T et al., (2015) "DOES E-HRM LEAD TO BETTER HRM SERVICE?", the researchers argued that the focus of HRM content that shared through IT that aims to make HRM practices with distinctive and consistent, efficient and greater long term opportunities with new vision. This E-HRM drives in the web based process with replacement of cabinets in organizations. The E-HRM enables the process of HRM with accurate and secured but lesser the relationship between HR people.

Winarto (2018) "ELECTRONIC HUMAN RESOURCE MANAGEMENT (E-HRM) ADOPTION STUDIES: PAST AND FUTURE STUDIES", the researcher studied the conceptual



background of E-HRM and proposed different models for industries towards E-HRM adoption. This paper proposed foundation towards the development of theoretical framework for implementation of E-HRM and developed the conceptual model which reflects the nature of E-HRM. In this article the researcher found some factors which affecting the human relationship in India.

Berber Nemanja et al.,(2018)“ELECTRONIC HUMAN RESOURCE MANAGEMENT (E-HRM) A NEW CONCEPT FOR DIGITAL AGE”, in this research study the researcher tried to integrate the HRM tasks with Integrated IT support. The aim of the study was to provide high quality data for the academic, public and private sectors. The researcher analysed the three variables like use of E-HRM, use of self service system for managers and employees’. This research was based on the data of the Cranet research. This emphasized that the mere introduction of E-HRM concept is not without challenge, finally this research concluded that E-HRM process is an integral part of the wider business process.

Nadiailhaq Nurshabrinaand et al., (2020), “THE EFFECT OF E-HUMAN RESOURCE MANAGEMENT (E-HRM) ON COST EFFICIENCY AND PRODUCTIVITY OF EMPLOYEES IN THE COMPANY,” the study mainly focused on the significant relationship between E-HRM activities such as E-Recruitment, E-Selection, E-Training and Development, E-performance appraisal with employee productivity. This study belongs to quantitative using SEM-PLS¹⁾ method. The researchers found that E-performance appraisal have positive

relationship and impact on cost efficiency. E-Training and development have a significant influence on employee productivity. E-Recruitment and E-Selection practices do not have significant effect on cost efficiency and employee productivity.

RESEARCH GAP

There is also a knowledge gap in terms of the applicability of E-HRM in developing industries. The literature has represented rich foundation to understand adoption of E-HRM, usage, benefits, and outcomes, lack of research on perception of employees on the part of Manufacturing industry while transition from conventional to E-HRM policies.

STATEMENT OF THE PROBLEM

The study is to ascertain the E-HRM practices in manufacturing companies in Karnataka. several studies has been conducted such as E-HRM in banking sector, public and private sector industries, hotel industries, service industries, and in different universities, but not in Manufacturing industries. Therefore the study aims at examining perception of employees on E-HRM practices in manufacturing companies in Karnataka. Hence, this empirical study is directed towards manufacturing companies regarding E-HRM practices and its outcome to trigger thoughts in the minds and find solution to face the future challenges.

OBJECTIVES OF THE STUDY

To study the existing E-HRM practices adopted in the Manufacturing industry.



- 2) To examine the relationship between E-HRM performance and employee satisfaction.

HYPOTHESES

Hypothesis 1

H₀: There is no positive relationship between E-HRM performance and employee satisfaction.

H₁: There is a positive relationship between E-HRM performance and employee satisfaction.

Hypothesis 2

H₀: There is no positive relationship between employee satisfaction and E-HRM productivity.

H₁: There is a positive relationship between employee satisfaction and E-HRM productivity.

Hypothesis 3

H₀: There is no positive relationship between employee satisfaction and cost efficiency.

H₁: There is a positive relationship between employee satisfaction and cost efficiency.

SCOPE OF THE STUDY

This study confined to vital concepts of E-HRM Practices and Six

major companies selected on the basis of number of employees. The companies with more than 1000 permanent employees have been identified. The empirical data gathered from the different sample units are used to suggest methods and practices in manufacturing companies.

SIGNIFICANCE OF THE STUDY

This is a contribution to the present knowledge in the E-HRM practices in the Manufacturing industry and this leads to further research to bring behavioral change in the area of employees perception regarding technological changes and shape the employees behaviour towards enhance their knowledge in technical mindset. This also include satisfaction of employees regarding E-HRM performance which influence on E-HRM productivity and cost efficiency. This present study gives the researcher the opportunity to understand and gain deep knowledge in the E-HRM practices and employees' perception and satisfaction.

Study Model of Employees' perception and satisfaction regarding E-HRM

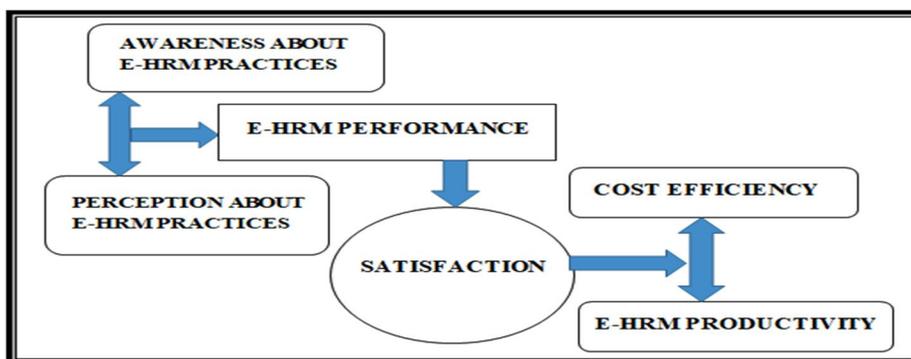




Figure reveals that employees' awareness and perception towards E-HRM practices. Every individual employee think about their survival in industry. The main important task for management is to convince the employees and make them to change their mindset regarding E-HRM practices. They must clearly communicate the roles and responsibility after implementation. The perception is depends on the demographic factors such as Age, Gender, Designation, length of services and qualification. Perception of employees depends on several factors. If organization provides more opportunity to every employee then automatically employees focus on changes. The performance of E-HRM influencing on satisfaction of employees and greater satisfaction directly effect on E-HRM productivity and cost efficiency.

ANALYSIS OF DATA AND INTERPRETATION

Reliability test of constructs related to questionnaire administered to E-HRM practices

Sl. No.	E-HRM practices statements	Coefficient alpha	No. of items	Reliability level
1	Employees' perception.	0.836	24	Good
2	Employees' satisfaction	0.869	10	Good

(Source: Primary data)

Table depicts that reliability coefficient attained by all constructs is satisfactory as they are above 0.60. This proves that questionnaire is consistent and reliable.

Correlation between employee satisfaction and E-HRM performance

Correlations		Employee Satisfaction	E-HRM Performance
Employee Satisfaction	Pearson Correlation	1	.214**
	Sig. (2-tailed)		.000
	N	862	862
E-HRM Performance	Pearson Correlation	.214**	1
	Sig. (2-tailed)	.000	
	N	862	862

** . Correlation is significant at the 0.01 level (2-tailed).

(Source: Primary data)

The above table represents that there is a positive relationship between employee satisfaction and E-HRM performance in the Manufacturing industry. Correlation coefficients is 0.214 and p value 0.000 which is less than 0.05. There is a significant and positive relationship between E-HRM performance and employee satisfaction. Hence, the null hypothesis is rejected and alternative hypothesis is accepted.



Independent variable	Employee Satisfaction		
	Standardized Beta	t	p
E-HRM performance	0.214	6.428	0.000
Adjusted R ²	0.45		
F value	41.319		

Regression analysis between E-HRM performance and Employee satisfaction

(Source: Primary data)

The regression analysis shows that the relationship between E-HRM performance and employee satisfaction. The standardized beta identified 0.214 which means 21.4% of the total variance in satisfaction could be explained by E-HRM performance. F- Ratio was 41.319, which is a significant with p value 0.000, which is less than 0.05. The result indicated that the E-HRM performance has a positive and significant influence on employee satisfaction. Hence, the null hypothesis is rejected and alternative hypothesis is accepted.

Regression analysis between employees' satisfaction and E-HRM productivity

Independent variable	E-HRM Productivity		
	Standardized Beta	t	p
Employee satisfaction	0.192	5.731	0.000
Adjusted R ²	0.036		
F value	32.841		

(Source: Primary data)

Regression analysis shows that the relationship between employee satisfaction and E-HRM productivity. The standardized beta identified 0.192 which means only 19.2% of the total variance in productivity could be explained by employee satisfaction. F-ratio was 32.81, which is significant at p value 0.000 which is less than 0.05.

The regression equation of employee satisfaction was significantly related to E-HRM productivity F- 32.81, for every one unit increases in the employee satisfaction, there is a 0.192 unit increases in E-HRM productivity, while keeping other variable constant. The result indicated that the employee satisfaction has a direct and significant effect on E-HRM productivity. Hence, the null hypothesis is rejected and alternative hypothesis is accepted..

Regression analysis between employees' satisfaction and E-HRM Cost efficiency

Independent variable	E-HRM Cost efficiency		
	Standardized Beta	t	p
Employee satisfaction	0.162	6.576	0.000
Adjusted R ²	0.049		
F value	45.638		

(Source: Primary data)



The regression analysis shows that the relationship between employee satisfaction and cost efficiency. The standardized beta identified 0.162 which means only 16.2% of the total variance in cost efficiency could be explained by employee satisfaction. F-ratio was 45.638, which is significant at p value 0.000, which is less than 0.05.

The regression equation of employee satisfaction was significantly related to E-HRM cost efficiency F- 32.81. For every one unit increases in the employee satisfaction, there is a 0.162 unit increases in E-HRM cost efficiency, while keeping other variable constant. The result indicated that the employee satisfaction has a direct and significant effect on E-HRM cost efficiency. Hence, the null hypothesis is rejected and alternative hypothesis is accepted.

FINDINGS OF THE STUDY

1. The study reveals that there is a significant and positive relationship between employees' satisfaction and E-HRM performance. Correlation 0.214 with p value 0.000, which shows a significant and positive relationship. Employees' satisfaction is most important to execute the E-HRM practices at every level of management. If employees are satisfied with new innovation in HRM practices, there will be a success for the organization. (Table No. 5.93)
2. The study identified that there is a positive and significant influence of E-HRM performance on employee satisfaction. The beta value 21.4% influence on employee satisfaction with significant p value 0.000 ($p < 0.05$). (Table No. 5.94)
3. The study identified that there is significant and positive relationship between employee satisfaction and E-

HRM productivity with p value 0.000. The employees satisfaction directly influence (19.2%) on E-HRM productivity and E-HRM cost efficiency (16.2%). Satisfied employees willing to work with enthusiastically with new technology. The changes in technology with user friendly increases the satisfaction of employees and this will proceed to E-HRM productivity and cost efficiency in the organization.

CONCLUSION

In this E-HRM, the administrative staff providing more accurate and timely data for decision making in recruitment, promotion, training and development and performance appraisal. Organizations moving towards E-HRM practices are focusing on speedup the services and transaction process with effective tracking system. E-HRM enables the organization to execute and improve the efficiency of HRM practices.

In case of E-Recruitment, E-Selection, E-Training and Development, E-HRM plays a vital role in the Manufacturing industry. The business world is suffering from a shortage of skilled manpower and companies are struggling to retain manpower, this influence the organizations to induce the candidate to apply for the job through web based technology. The Manufacturing industry has ability to attract the potential human capital which is considered as a competitive advantage. To keep pace with the technological development most of the organization concentrate on recruitment through web portal of the organization.

HRM is a multi-dimensional activity which consists of different ways of learning in an organization. In recent years E-Training is more attractive for



every learning process. In this industry 4.0 every individual looking for E-training. These web based learning for employees' enable them to learn anywhere any time. This E-training practices reduced the cost and time saving in organization. E-training provides consistent and worldwide training, quick delivery of training any time anywhere, convenient to trainees at lower cost.

The Manufacturing industry updating employees' knowledge, skills and abilities and better prepare them for the challenges as Manufacturing industry has turned into the industry 4.0 which is the technological era. E-HRM is a standardized phenomenon and this required enhancement of employees' skill in technological. E-HRM focuses on accuracy, and time saving, cost saving and impartial decision for everyone. In manufacturing industry E-HRM pushes the use of HR functions with good pace.

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The emergence of DNA barcoding and ideokar in karyotype studies of earthworms

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Abstract: The study of chromosomes of Earthworms reveal the evolution of polyploidy, it is because of this nature karyotype finding is carried out. Number of chromosomes their arrangement, length, position of centromere, banding pattern, any differences in autosomes and allosomes and any other physical characteristics among the chromosomes is the karyological studies. Ideokar software forms a digital Avenue for the earthworm karyotype studies. In par with this studies DNA barcoding of earthworms has emerged as a successful promising tool for accurate taxonomical identification of adult, juveniles and fragmented specimens. Short stretch of mtDNA COI as a genetic tag is used for identification and circumscription of different species of earthworms and has become a handy tool to stream line identification and assign earthworms into their respective taxa.

Key words: *Earthworms, Karyotype, Ideokar, DNA Barcoding, and Molecular tools.*

INTRODUCTION:

Earth worms are Invertebrates, oligochaete annelids; are harmless ecosystem's engineers, contributing to a wide range of nutrient cycling and geochemical processes in the ecosystem and molecular markers as tools to study earthworms diversity. Earth worms are the soil Engineers are best known for their accumulation of Xenobiotics and are widely employed as Biomarkers or Bio indicators of soil contamination. Among soil organisms Earthworms deserves particular interest because of their ecological role in soil Bio cenosis. (svendnsen et.al 2004) Chromosome analysis is an essential part of systematic studies of any group of organism, and can play an important role especially in such a complicated genera suffering a strong taxonomical deficit Taxonomically these species show differences in morphological

characteristics like colour, size and presence of clitellum and anatomical structures such as gonads, spermatheca etc. Cell nature chromosome structure, molecular diagnosis, copy number gene, genome, base pair sequences and the type of protein synthesis by DNA (as DNA is found within the chromosomes) have two functions 1. DNA replication and 2. Protein synthesis. The study of chromosomes of Earthworms reveal the evolution of polyploidy, it is because of this nature karyotype finding is carried out. A karyotype study removes the confusion which might arise during systematic or taxonomic studies. Number of chromosomes their arrangement, length, position of centromere, banding pattern, any differences in Autosomes and allosomes and any other physical characteristics among the chromosomes is the karyological studies. **Ideokar software forms a digital Avenue** for the



earthworm karyotype studies. It is a diagrammatic representation of the chromosome showing their relative size, homologous groups and chromosomal land marks. It is the **semi-automated karyotype analyzer and ideogram generator software user friendly web interface to visualize genome and chromosomal information**. In par with these studies a reliable and practical identification of Earthworms species in eco-toxicology tests is also recommended preferably by combining DNA bar coding with other species -specific traits (eg. Vona otomo et.al.2009,2013a,b) The ringest illustrated that DNA bar coding of Earthworms is indeed a reliable and practical method. Further standardisation of this method for example by ISO, is advisable in order to keep a high quality standard. DNA bar code enables us to find out the **cryptic diversity** These Earthworms deserves particular interest because of their ecological role in soil Bio cenosis, found globally having greatest impact on environment. Soils probably represent one of the most diversified habitats of terrestrial ecosystems, with their biota comprising representatives of almost all major taxa and trophic groups that form terrestrial Biodiversity. (Decaëns T et al 2006) Oligochaeta is a class of segmented worms under the phylum Annelida and great **power of Adaptation** and that are characterised by the presence of tiny setae in each body segment. Earthworms; soil invertebrates are the main members, consisting of approximately 6200 species. Out of this we have only 3600 species identified. Their ecological importance is well known as they are the major soil macro-fauna; Aristotle had named them as "the intestines of soil". Classification of earthworms is a controversial issue since the introduction of modern

taxonomical system on earthworm by Michaelsen in 1921. This is mainly because conventional identification using morphological and anatomical characters are highly complicated and confusing. Chromosome analysis is an essential part of systematic studies of any group of organism, and can play an important role especially in such a complicated genera suffering a strong taxonomical deficit. Number of chromosomes their arrangement, length, position of centromere, banding pattern, any differences in Autosomes and allosomes and any other physical characteristics among the chromosomes is the karyological studies. **Ideokar software forms a digital Avenue** for the earthworm karyotype studies. Ideogram is the arrangement of chromosomes in descending order, from largest to smallest chromosomes and Karyogram is the representation of chromosomes of a particular species. Ideokar software a digital avenue for karyotype studies is a Ideogram are the diagrammatic representation of the chromosomes showing their relative size, homologous groups and chromosomal positions. This Ideogram is used on a regular basis in **Web Interfaces** to visualize genome and chromosomal information. Karyotype analysis involves measurement of characteristics such as chromosome number, size and symmetry as well as chromosomal landmarks such as centromeres, secondary constrictions and repetitive DNA types (Heslop-Harrison and Schwarzacher 2011). The characters are used to distinguish homologous chromosomes of different taxa. This parameter is taken into consideration to evaluate the structure, patterns and mechanisms of karyotype evolution and its significance for diversification and speciation (Weisschneeweiss et.al 2008).



Therefore Karyological (Chromosome number and position composition, development, genetics, genomics and evolution.). Karyogram is a powerful tool to identify species in earthworms and karyotype evolution. It has been carried out for the identification using **karyogram** and **Ideogram through ideokar software**. Even here it is not 100% accuracy in identifying its morphological, anatomical or the nature of the species at least genus level. The key diagnostic features such as the position and structure of the reproductive organs, (testis, ovaries and spermatheca) clitellum and the associated tubercular pubertatis are not always reliable, Especially in different developmental stages of juveniles In par with this studies **DNA barcoding (BOL of Earthworms)** of earworms has emerged as a successful promising tool for accurate taxonomical identification of both adult, juveniles and fragmented specimens. Short stretch of mtDNA COI as a genetic tag is used for identification and circumscription of different species of earthworms and has become a handy tool to stream line identification and assign earthworms into their respective taxa.

DNA barcoding has offered a potential solution, even at the levels of identifying the juveniles or cocoons. Several genes including mitochondrial cytochrome-c oxidase I, 16S, 18S and 28S ribosomal RNAs, and protein-coding histone H3 genes have been introduced in the taxonomy and phylogeny of earthworm. It is anticipated that DNA bar coding has helped conflicting taxonomy and further exploration of species diversity in India. (Lalthanzara H et. al 2018) Although it cannot completely replace taxonomy, the DNA barcode is a powerful tool for identifying species of

earthworms and provides a useful complement to traditional morphological, anatomical taxonomical identification. (Huang J et al 2007)

The existence of this taxonomic impediment is likely to be responsible for significant prejudices in all the domains of earthworm research relying on accurate species identification. One possible solution which we found here to address this constraint is the use of molecular approaches for species identification is DNA bar coding, the use of a standard genetic marker for species identification, has been increasingly used in this karyological studies of Earthworms of *Eudrilus euginea*, *Esenia fatida*, and *Polypheritma elongata*. The biodiversity of a range of biota (Hebert et al., 2003, 2004), and the potential of this approach to address the taxonomic impediment of soil fauna has been recently stressed by several authors (Chang, C.H., Rougerie, R., Chen, J.-H., 2009)

DNA BAR CODING

DNA bar coding is the use of a standardized region of 658 bp of the mitochondrial gene cytochrome c oxidase I(COI)for species discrimination (Hebert, P.D.N et al 2003). The advantages of the method are multiple:

- (1) It is a testable and reproducible system as a link is maintained between any bar code and a voucher specimen;
- (2) For the massive routine identifications it is in most cases faster and cheaper than traditional morphological identifications;



(3) It is accessible for everybody and in any place where sequencing facilities exist;

(4) It works for any life-stage and any kind of organic tissue types. The usefulness of DNA bar coding for the study of biodiversity (from species inventories to alpha taxonomy) at different levels of taxonomic resolution has now been revealed in a broad range of taxonomic groups of vertebrates and invertebrates. (Rougerie, R. Et al 2009)

On the other hand, some limitations and pitfalls of using a single genetic marker for species discrimination were pointed out (Rubinoff, D., Holland, B.S., 2005) The main caveats regard (1) potential false negatives, i.e. identical DNA bar codes in two actually different species due to short divergence time preventing the fixation of substitutions or to gene introgression; (2) potential false positives, i.e. different DNA barcodes between individuals belonging to the same species because of ancestral polymorphism or again genetic introgression.

One of the most serious issues is the potential amplification of non functional nuclear copies which can be overcome by a posterior quality control and prior laboratory techniques. (Berthier, K., 2011) (Calvignac, S et al, 2011). The best solution to overcome these pitfalls is to use DNA barcodes in combination with other sets of data such as morphology, additional nuclear genetic markers, or ecological, ethological and bio-geographical features (Rougerie, et al 2009) When these complementary data sets are not available, DNA bar coding should be used with the necessary

caution relative to the use of a single marker.

METHODS AND MATERIALS:

Field work has been under taken to procure the availability of different species of Earthworms and is collected during rainy season. Digging the soil for the worms is cautiously done. A careful handpicked worms are collected during rainy season, put them in a container along with its natural soil and grown them for future work. Standardization of the work is carried out depending upon the material obtained for the various work pertaining to the karyology. Collection, preservation and Identification is followed as per the standard procedure. A modified Air drying technique of *Chowdaih and Venkatachalaih 1987* is adopted for the preparation of chromosomes. This technique is most suitable for the extracting the chromosomes. Metaphase Chromosome plate is prepared by selecting fully grown adult earthworms were taken and the worm is treated with 0, 05% colchicines solution. This solution is injected in between head and clitellum in the ratio of 0.1ml: 1gm of the body weight and allowed it for 24 hours. Next day the worms were taken out and now ready for dissection, cut open on the dorsal side of the worm, the internal organs such as ovaries, seminal vesicle and testis are removed for meiotic slide preparation and gut and tail regions were taken for mitotic slide preparation.

Mitotic and Meiotic slides were prepared by subjecting the tissue to the 0.065% to 0.075% hypotonic KCL solution and allowed to settle down for about 1 to 1 1/2 hours. The tissue were treated with freshly prepared corney's fixative (3;1 methyl alcohol and glacial acetic acid) allowed to stand for 20-30



minutes giving 3-4 changes every time in fresh fixative. Later slides were prepared by tapping technique using air drying method according to Chowdaih and Venkatachalaih 1987 with little modification. The slides were stained with Acetic orcin or Giemsa stain and finally rinsed with distilled water and air dried.

The three different species *Eudrilus euginea*, *Eisenia fetida* and *Polypheretima elongata* were subjected to the chromosomal preparation and Metaphase plates were obtained under three focus in mitotic division and eight focus in meiotic division. (Michaelson

Centromere index (CI):

$$\text{Centromere index} = \frac{\text{length of short arm}}{\text{Whole length of chromosome}} \times 100$$

$$\text{Whole length of chromosome } \{S = (L+S)\}$$

Centromere index is calculated from chromosome images taken from the ideokar image cytometry.

Arm ratio is the length of the longer arm of the chromosome divided by the length of the shorter arm.

$$\text{Arm ratio (AR)} = \frac{\text{Length of long arm}}{\text{Length of short arm}}$$

Relative length is the length of the whole chromosome multiplied by 100 and divided by the total length of all the chromosomes in the haploid set including one being measured and expressed as a percentage.

$$\text{RL} = \frac{\text{Length of whole chromosomes}}{\text{Total length of all the chromosomes in the haploid set including one being measured}} \times 100$$

Total length of all the chromosomes in the haploid set including one being measured

RESULTS & DISCUSSIONS:

The length of the chromosomes was measured by using IDEOKAR SOFTWARE.

Relative lengths of the haploid chromosomes were measured. Sometimes it was difficult to make accurate observations on relative length of the

(1903) states that the only genus which successfully can oppose the disappearance of native worms is *Pheretima*, the youngest shoot of the *Megascolicidae*.) *E.foetida* is only species to have ornamental setae and it differs from other species in high rate of reproduction and embryo development therefore finds its extensive use in vermicompost. Morphometric analysis of karyotype of *Esenia foetida*, *Eudrilus eugeniae* and *polypheretima elongata* was carried out the following are results of chromosomal analysis at morphological and cytological level in the below table:

chromosome arms, therefore only gross differences in morphology and number of chromosomes were considered. We found that there was great difference in size of chromosomes in male and female meiosis, oogenesis and spermatogenesis slides. Though it was difficult to compare chaisma frequency between these three



species. The somatic cells from tail end and gut epithelial were taken and metaphase count was made by staining the slides with acetic orcein

KARYOTYPE AND IDEOGRAM OF CHROMOSOMES OF *Eisenia foetida* SPECIES

Centromere indices were calculated. All the haploid chromosome length is depicted in the following table and the same is shown in the histogram below comparison is made between three species for the centromere indices. The following type of chromosomes were seen, V= large and small V-shaped chromosomes

J= large J shaped chromosome with arm ratio lesser than 0.8.

I= medium sized I shaped chromosomes.
 L= medium sized L shaped chromosomes.

The Karyotype of *Eisenia foetida* revealed the presence of Chromosomes N=11, 2N=22 . The chromosomes are classified based the position of the centromere. 1. Metacentric (centromere in the centre), Submetacentric (ventromere is little away from the centre),Sub-telocentric (centromere is located at sub-terminal position of the chromosome), Telocentric (centromere is located at the terminal end) and Acrocentric (centromere is located at the end,where in the small arm becomes invisible).

**Table:1: Karyotype and Idiogram of the *Eisenia foetida*
 Idiogram prepared on the bases of decreasing length of chromosome pair number from one (1) to eleven (11)**

Chromosome pair number	Absolute length of (p+q) of the chromosome
1	2.32
2	2.00
3	1.83
4	1.76
5	1.63
6	1.56
7	1.45
8	0.94
9	0.64
10	0.51
11	0.33

Histogram of the Idiogram prepared on the bases of decreasing length of chromosome pair numbers from one to eleven

ORPHOMETRIC ANALYSIS OF THE KARYOTYPE OF *EISENIA FOETIDA* (N=11, 2N=22)

Chromosome Pair number	Mean Length of short Arm (p) in um.	Mean Length of Long Arm (q) in um	Absolute Length (p+q) Of the chromosome	Arm ratio q/p	Total complement Length %	Centromeric index	Nomenclature
1	0.86	1.46	2.32	1.69	7.68	37.06	Submetacentric
2	0.64	1.36	2.00	2.12	6.62	32.00	Submetacentric
3	0.66	1.10	1.76	1.66	5.83	37.50	Submetacentric
4	0.61	1.22	1.83	2.00	6.06	33.33	Metacentric
5	0.48	1.08	1.56	2.25	5.16	30.76	Metacentric
6	0.22	0.72	0.94	3.27	3.11	23.40	Subtelocentric
7	0.41	1.04	1.45	2.53	4.80	28.27	Subtelocentric
8	0.39	1.24	1.63	3.17	5.41	23.92	Subtelocentric
9	0.08	0.54	0.64	6.75	2.12	12.50	Telocentric
10	0.05	0.46	0.51	9.20	1.68	09.80	Telocentric
11	0.02	0.31	0.33	0.15	1.09	06.06	Acrocentric

Eudrilus eugeniae species.



IDIOGRAM SOFTWARE



Chromosomes viewed under Microscope

DNA barcode of *Eisenia foetida*



Nucleotide Sequence

```
TTGAATTAAGTCAgCCTGGATCATTTTTAGGTAGTGACCAACTATATAACACAATTGTAAGTGGCGCAGCATTCTAATAATTTTCT  
TTTTACTGATACCAGTATTTTATGGGGGATTTGGTAATTGATTACTACCATTAATACTAGGGGCTCCAGATATGGCATTCCACGAC  
TAAACAATATAAGGTTTGGTTACTCCCACCCTCACTCATTCTATTAGTATCGTCTGCTGCCGTAGAAAAGGGGGCGGTACAGGAT  
GGACAGTCTACCCACCCTAGCAGGAAATATTGC-----
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Digital learning – An emerging path to learn

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ABSTRACT

This paper focuses on digital learning- an emerging path to learn. To study more precisely, inhabitants of Karnataka are selected as sample and collected data from them. The paper works on the objectives like to identify the dimensions of digital learning, to study the opportunities in digital learning, to find out the shortcomings of digital learning. To analyze the data, simple statistical tools like percentage, graphs, growth rate etc. are used. Technology is increasingly becoming commonplace in the recent educational scenario. Gone are the days when classroom teaching and learning was restricted to textbook learning, teachers using the blackboard to explain things and students writing down notes in diaries. The education system in India has become modernized, making way for digitalization and thus, taking the place of traditional classroom teaching and learning. Digital Education is accompanied by technology or more specifically by instructional practice that makes effective use of technology and thereby, gives students some element of control over time, place, path and pace so far as their learning is concerned. On the one hand, it empowers students by getting them to be more interested in learning and expanding their horizons, on the other hand it enables teachers to customize learning sequences for each student and thus, making teachers' tasks much easier.

Keywords: Technology, Learning, Digital education

I. INTRODUCTION

Technology is increasingly becoming commonplace in the recent educational scenario. Gone are the days when classroom teaching and learning was restricted to textbook learning, teachers using the blackboard to explain things and students writing down notes in diaries. The education system in India has become modernized, making way for digitalization and thus, taking the place of traditional classroom teaching and learning. Digital Education is

accompanied by technology or more specifically by instructional practice that makes effective use of technology and thereby, gives students some element of control over time, place, path and pace so far as their learning is concerned. On the one hand, it empowers students by getting them to be more interested in learning and expanding their horizons, on the other hand it enables teachers to customize learning sequences for each student and thus, making teachers' tasks much easier. But its expansion at national level is not that much easier due



to factors like increased cost of education, basic infrastructure, and lack of sincerity in policy planning and implementation. Emerging technologies, like Artificial Intelligence, Big Data analytics, Cloud computing, Augmented and Virtual reality are already finding their footing in the learning industry. The digital learning leads to, a rise in blended learning environments, personalization of learning, immersive learning experiences. This paper is focuses on digital learning- an emerging path to learn. To study more precise, inhabitants of Karnataka are selected as sample and collected data from them. The paper works on the objectives like to identify the dimensions of digital learning, to study the opportunities in digital learning, to find out the short coming of digital learning. To analyze the data, simple statistical tools like percentage, graphs, growth rate etc. are used.

II. OBJECTIVES

- To identify the dimensions of digital learning.
- To study the opportunities in digital learning.
- To find out the short coming of digital learning.

III. DATA AND METHODOLOGY

The study is based on primary and secondary source of data. The primary data are collected through structured questionnaire in Karnataka having inhabitants around. The sample size of data is 140.

Primary data are empirical observations gathered by the researcher or her associates for the first time for any research and used by them in statistical analysis. Secondary data is the data collected by others in the past and used by others. It may be either being published or unpublished data.

IV. ANALYSIS AND INTERPRETATION

1. Profile of the Respondents

Table No.1. Profile of the Respondents

Age Group			Male-Female Ratio of Respondents		
Age	Frequency	%	Gender	Frequency	%
10-20	75	54	Male	25	18
20-30	25	18	Female	115	82
30-40	25	18	EducationalQualification		
40 and above	15	10	Illiterate	2	1.3
Current Enrolment			Primary	1	0.7
	Frequency	%	Secondary	13	10
Part time	79	56	Graduate	97	69
Full time	61	44	Post graduate	18	13
Total	140	100	Diploma & etc	9	6

(Source: Primary Data)

In the above table we can observe the respondents profile like age group, gender, current enrolment, and educational qualification. In the age group we can observe 75% respondents are age between 10-20 years, among 140

respondents 25 are male and remaining 115 are female, among these 56% are part time and 44% are full time enrolment. When we come to educational qualification of respondents' majority 69% of graduates and 6% is completed



diploma or other courses. In these analysis overviews that majority of students are respondents and their gains and a difficulty of digital learning was highlighted.

2. **Impact of Technology on Learners point of view**

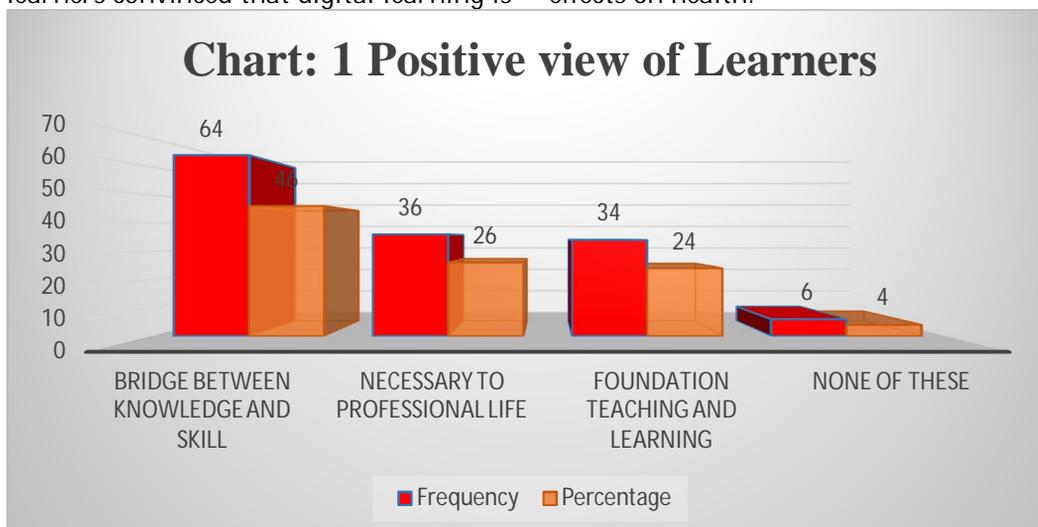
Table No.:2 Positive and negative of Technology

Impact of Technology on Digital Learning	Impact of Technology on Digital Learning		Impact of Technology		
	NO	%		NO	%
Bridge between Knowledge and Skill	64	46	Waste of time	03	02
Necessary to professional life	36	26	Increase knowledge	99	71
Foundation teaching and learning	34	24	Effect health	25	18
None of these	6	4	None of These	13	09

(Source: Primary Data)

Here we can observe that impact of digital learning on learner's point of view. 46% learners opinioned that digital learning is a bridge between knowledge and skill. 26% opinioned that it is most necessary to professional life. 24% learners said that it is a foundation for teaching and learning. Most of the learners convinced that digital learning is

create a bridge between knowledge and skills. It provides knowledge about each and everything and it also helps to updating our skills. In this table we can also see the impact of technology. 02% respondents said that technology is waste of time, but 71% respondents said increase the knowledge. 18% said that effects on health.



(Source: Primary Data)



3. Digital Learning an emerging path to learn

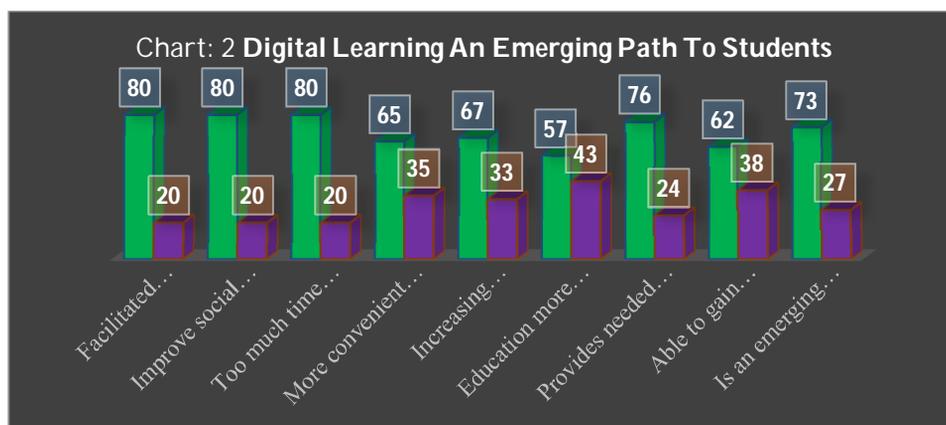
Table No.:3 Digital learning an emerging path to students

Digital learning an emerging path to students	Yes (%)	No (%)
Facilitated integration information	80	20
Improve social and political skill	80	20
Too much time spent in front of a computer screen harmful	80	20
More convenient and flexible	65	35
Increasing student participation and motivation from digital learning	67	33
Education more efficient, scalable and accessible	57	43
Provides needed feedback to boost confidence level of youth	76	24
Able to gain access to the site at any time	62	38
Is an emerging path to learn	73	27

(Source: Primary Data)

Table 3 shows that digital learning is an emerging path to learn through digital learning. 20% of respondents are said that digital learning will facilitate integrated information. And 20% said that it is helps to improve the social and political skills, 35% respondents said that digital learning is more convenient and flexible way of learning. 33% said that digital learning is increasing student participation and

motivation, according to 43% respondent's education more efficient, scalable and accessible through digital learning.24% respondents said that digital learning will provide needed feedback to boost confidence level of youth, other 38% respondents said that digital learning will able to gain access to the site at any time. In general, we can say that digital learning is one of the emerging path to learn.



(Source: Primary Data)



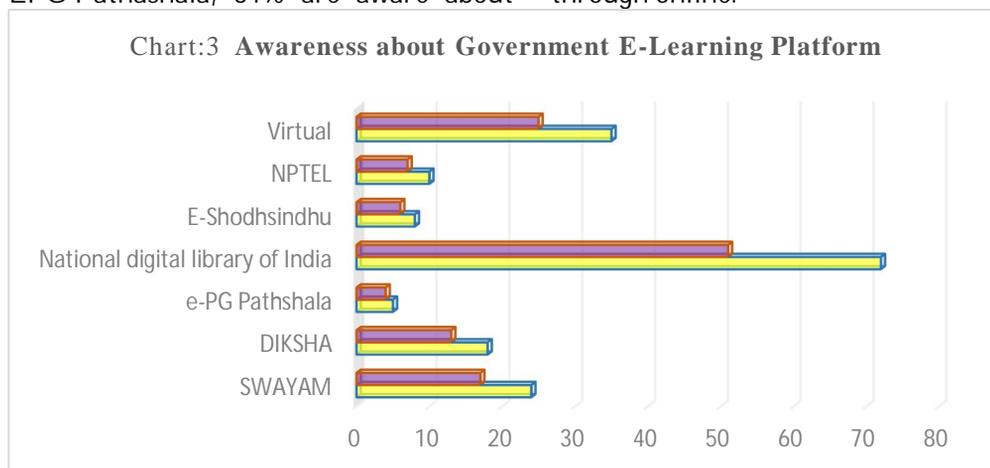
4. Awareness about Government E-learning platform Mode of Digital Learning

Table No.:4Awareness about Government E-Learning Platform

Platforms	Frequency	Percentage	Mode	Frequency	Percentage
SWAYAM	24	17	YouTube	42	31
DIKSHA	18	13	Telegram	01	01
e-PG Pathshala	5	4	Snapchat	05	03
National digital library of India	72	51	Google	74	52
E-Shodhsindhu	8	6	Others	18	13
NPTEL	10	7	Total	140	100
Virtual	35	25	(Source: Primary Data)		

Today we have number of ways to learn in online. Education got a multidimension approach through online. We can access any thing in a single brow. Here we can see the awareness about various government E-Learning platforms like Swayam, Diksha, E-PG Pathashala, etc...just 17% respondents are aware about Swayam, 13% are aware about Diksha, just 4% are aware about EPG-Pathashala, 51% are aware about

National Digital Library of India, just 6% are aware about NPTEL. There is need to create awareness about digital learning. In the same table we can see the mode of digital learning, 31% respondents said that YouTube is one of the best mode to learn through online, most of the respondents 52% are happy with google to study. Here we can conclude that google is the best mode of learning through online.



(Source: Primary Data)



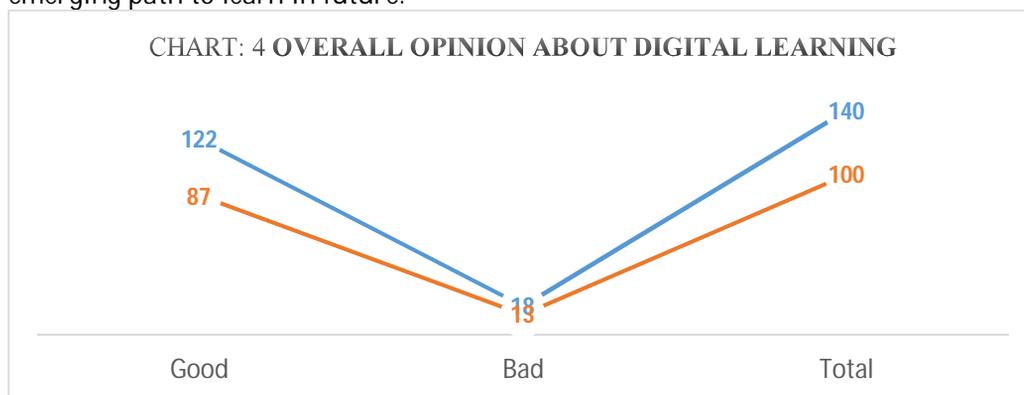
5. Overall opinion about digital learning

Table No.: overall opinion about digital learning

Overall opinion	Frequency	Percentage
Good	122	87
Bad	18	13
Total	140	100

(Source: Primary Data)

Table 5 shows that overall opinion of the respondents regarding digital learning. Most of the (87%) respondents are feel Digital learning is an emerging path to learning. They said that it is good platform to update ourselves. And 13% respondents feel little difficult on digital learning due to various reasons like network issues, not understand clearly and other reasons. But ultimately Digital learning is an emerging path to learn in future.



(Source: Primary Data)

V. CONCLUSION

In the recent years, online education is becoming a popular mode of imparting education to those who are in very need and thrust of learning new and advanced knowledge. Digital learning is gradually replacing the conventional class room methods of education because, E-learning or e-education programs can offer wider content on a topic than the conventional education lesson: in a conventional class the learners are limited to the amount of information that they can get but online education is a dynamic industry, with new

technologies and instructional strategies always on the horizon.

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Digital empowerment and use of the mobile internet in urban slums of India

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Abstract: The wild and the everyday point at once to twinned aspects of life and, in this article, to a technological imaginary drawing upon the use of the mobile internet in urban slums of India. The article responds to the rather untethered way, from the point of view of state regulation, in which the telecom market in India has devolved to include poor populations, stoking a repertoire of unconventional daily use of the internet by youth living in slums. This article serves to locate the 'wild and everyday' as a specific sociocultural space in relation to use of mobile Facebook among young populations invisible to mainstream research on internet and culture. While development, as conventionally understood, is not focused on purposive outcomes of digital leisure practice (romance, play, entertainment), we argue that online engagements such as these are powerful precursors to ecologies of learning, reconstituting our understandings of global and mobile internet practice.

Keywords: Culture, entertainment, imaginaries, India, leisure, mobile internet, play, poor, slums, youth

INTRODUCTION

The wild and the everyday point at once to twinned aspects of life and, in this paper, to a technological imaginary drawing upon the use of the mobile internet in urban slums of India. The paper responds to the rather untethered way, from the point of view of state regulation, in which the telecom market in India has devolved to include poor populations stoking a repertoire of unconventional daily use of the internet by youth living in slums. This paper serves to locate the 'wild and everyday' as a specific sociocultural space in relation to use of the internet and social media technologies among populations invisible to mainstream research on mobile society and culture. We specifically point to the internet offering a free zone in resource- poor settings, untethering slum youth from social

constraints to explore and present self-identity. In uncovering ' the wild and everyday ' of internet use, this paper goes beyond developmental approaches to technology use, usually reserved to understand underprivileged and marginal populations, by vesting agency of technology use for pleasure and leisure in a similar population segment of slum youth While development, as is commonly understood, is not focused on purposive outcomes of informal learning, we argue that engagements such as these are a powerful precursor to developing technology literacies, skills and ecologies of learning. To examine the accretion of digital literacies through leisure practices in the everyday we leverage evidence embedded in the social life of things, the mundane use of technology as an extremely immersive and schooling experience. The search for



and enjoyment of leisure-driven content, inform the 'stuff' of digital technologies shaping relationships between people, digital media, and informal learning. It's indeed astounding to find relative affluence in the uptake of digital technologies by user populations least likely to afford and access them in the slums of urban India.

With a focus on Facebook via mobile use among the youth, mostly young adult & male, in the slums of Hyderabad and Chennai, the themes we explore to frame this paper will be a departure from research approaches studying 'perpetually connected' spaces and persons in the domain of new media youth practices. It is interesting to note Goggin's study of the iPhone underscoring the active role consumers' play in orchestrating a specific culture of mobile phone use. Like the iPhone, slum youth in our study remake their humble phones as an 'instance of consuming culture' but in ways that draw meaning from their specific social contexts. Social Network Sites (SNS) are purposed to enable new communication channels, architecting novel ways of acquainting with people and managing flows of interpersonal relationships. With more than a billion users, is Facebook all about a new relationship between society and technology? As digital multi-media permeates the globe and as more people are spurred to go online, we are seeing the steady narrowing of literacy gaps between the digital rich and poor especially among users who have the infrastructural support to forge 'perpetual contact' and those who lack them to access, use and persist with digital media. Facebook in India, the third largest global market with over 90 million users, is steadily

immersing populations at the lower economic spectrum, allowing a hitherto unavailable trans-hierarchical class/caste social experience.

Revisiting ICTs as artifacts of Development

Despite the broad and liberal definition, the ICT for development community (ICTD) tends to privilege what are and what are not desired/legitimate developmental impacts of technology. New media practice in emerging economies that are substantively oriented towards leisure - play, entertainment and pleasure, are duly relegated as anecdotal. However, some of us in the ICTD domain view development as enhancement of livelihoods/quality of life reflected in improved life indices and adopt familiar ways to identify technology driven processes implicating progress. In this paper, we move away from a narrow focus of ICTs as objects of development; instead, we support the idea of these tools as social artifacts of the 21st century that are often deeply entrenched in leisure made evident through its everyday usage in the global South. It is essential to complicate the linear understanding of socio economic progress, development benefits and beneficiaries, particularly the normative understanding of 'users' in emerging economies as unique and utilitarian beings in this digital age. By repositioning these users within the larger rubric of social mediatization, the authors argue that this facilitates a bi-directional flow of scholarship between New Media Studies and ICTD fields. This fluidity enables ICTD scholars to contribute to contemporary and critical preoccupations within internet



studies regarding online surveillance and privacy, virtual economies and free labor, and cyber-activism to name a few, and in turn, provide a rich diversity and representation of participatory practice that extends digital understandings beyond the Western frame of reference.

The Social Life of ICTD

ICTs are social artifacts before they are baptized as tools for development. Using the titular idea in Appadurai's seminal work, *The Social life of things* (1988) we examine the influence of technology in the formations of cultural extensions of technology use. Over the past decade, as technologies migrate and re-home in the global South, they come to be contextually imagined, accepted, modified, and operated. Such trajectories of technology use have little ideological space to evolve and be recognized as legitimate processes through the lens of development. An emerging class of literature has presented accounts of technology usage in the south wherein leisure practice is interwoven and intricately embedded; in middleclass homes in Asia), technology ecologies of micro entrepreneurs in South Africa, Bluetooth enabled sharing of digital content among the Bangalore street entrepreneurs, digital browsing in cybercafés in rural Himalayas, sexuality and the internet in emerging markets), and digital learning through play. For ICTs to become tools of utility they often undergo a process of sustained exploration through leisure avenues. We see this pattern recurring with every new technology of the time from the radio, the television to the computer in our day and age. Much of the ethnographic work amongst

populations in low-income, digitally unstable, and diverse literate environments is about getting closer to the processes of cultural production of global technologies. Local translations define the relationships between the broad understanding of technology, deemed for specific use, and the practices occurring around them in a specific social ecology. Therefore, development practitioners need to confront the mutuality of the global and local influence on competence, literacy and skill building and also reveal mediating relationships between accessing and adopting technology.

Practices of self are ways in which the subject actively constitutes herself and by extension, alludes to a suite of technologies that permit individuals to instrumentalise the self towards a better state of being. The internet offers a platform of resources for the active and reflexive shaping of the self, a central feature characterizing the era of the Web 2.0 and the everyday of the local-global dialectic, and the other dialectic between technology platforms and users practices inscribing a parallel life. A study of MySpace profiles, for example, documents the function of this site as a stage for the performance of taste. This is an activity in which the self is being expressed in terms of the semiotic systems of popular culture such as music, film, television, clothing and so forth. The user interface of MySpace invokes directly the symbols of this culture and users write themselves into MySpace by mapping themselves to the dictates of the site's cultural taste. Newer forms of publishing such as YouTube are ways to narrate and communicate experiences as consumers and with incremental use and



user created practices, values associated with specific user communities of the platform begin to emerge. In a study of YouTube, Burgess and Green indicate the workings of a platform as a cultural system, a virtual affordance of a continuum of cultural participation.

The Culture of Aspiration as prelude to Development

The idea of aspiration told by Appadurai as the capacity to aspire is also a tool kit to understand the relationship between culture, poverty and development. For the most part, Appadurai argues, it is in the realm of culture that ideas of the future, as much as those about the past, are embedded and nurtured. Thus, in strengthening the capacity to aspire, conceived as a cultural capacity, especially among the poor, the future-oriented logic of development could find a natural ally, and the poor could find the resources required to contest and alter the conditions of their own poverty. This argument runs against the ICTD grain of many 'deep seated images' of the opposition of culture to economy. But it offers a new foundation on which research can base answers to two basic questions: why is culture a capacity worth building and strengthening and what are the concrete ways in which it can be strengthened? This nuanced approach to aspiration is also tied to the author's idea of production of locality and the idea of imagination as social practice not just defined by reproductive logics (aka Bourdieu's rules & regularities) but as collective/social visions or desires. To produce is to inhabit and sustain a space, a relation involving large amounts of labour, attention and effort.

The Slum as a socio-geographic lens The primary focus of the paper is the evolution of social media, particularly Facebook, to adapt specific socio-technical practices and technological characteristics for contextual usages, in this case the urban slum. The slum quarter is an evolving assortment of small habitats, spatial layouts, and commercial enterprises. B Businesses within this domain comprise small scale industries like metal workshops and auto spare parts garages, furniture stores, photo studios, fast-food joints, and shops selling small goods such as mobile phones, groceries, appliances, garments or jewelry. A typical home is a 100–200 square feet and many not have attached baths or private bedrooms. Constraints of space and resources force compartmentalization of homes based on activities and functionality—kitchen area, television area, mattress area, storage area, and a washing/water storage area- all housed in a single room or spread between two or three connected smaller rooms. Doors are usually kept open and every home typically has a constant influx of visitors—relatives, neighboring children and adults stopping by. Informal spaces are usually gender segregated: the males huddling in front of mobile phone shops or cheap fast food joints or simply street corners. Women usually congregate around water pumps during hours of water supply when they are out to clean dishes, wash clothes, and bathe kids while performing domestic chores. Young women usually do not hang out but interact more purposively in public spaces. We will revisit the importance of gendered spaces in slum quarters in our discussion section.



Findings and Discussion

Reclaiming Facebook as Leisure and Labor

Our research fields in both Chennai and Hyderabad are less than five sq. kms space of human habitat inside the city limits. The Chennai slum on the southern coast Urur, is mainly residential, adjoins a posh neighborhood, housing 3000 households and a population of 10,000. Much of Urur slum youth have the privilege of living in the margins, absorbing without participating the public culture of a posh Chennai neighborhood. The authors were introduced to some of the youth in the Chennai slum by a young taxi driver they had known for a while. As research progressed some of our participants and research informants led us to many of their peers and to gain access into their neighborhood to understand Facebook practices amongst their young men and teenagers. Hafeezpet, in the outskirts of one of the major IT parks of Hyderabad, is inhabited by a multi-religious population comprising of low-income classes and a slum quarter. Slit by a highway, it comprises of a mix of households, small commercial establishments, survival economies in the form of small shops, cottage industries, servicing stores and a self-employed human labour force offering diverse economic services. Much of our research entry in Hafeezpet came from the owners of mobile phone shops dotting both sides of the highway. One of them, a 19 year old mobile phone dealer and repairwallah [repair man] transitioned to a primary participant in our research foray. Our study being ethnographic in nature aims to engage deeply with a small sample of users. Hence, from a focused and deep engagement with a set of users, our

findings are indicative of broad trends and patterns of behaviors. We employed a variety of qualitative methods, including open-ended interviews, observations of community life, and semi-structured baseline surveys, all aimed at achieving a “thick description” of contexts of technology use. We chose both our field sites, Hafeezpet and Urur, for two reasons: one, it subscribed to a typical unauthorized and informal urban settlement we refer to as slums; second, due to its proximity to the vast public infrastructures that are afforded by global Indian cities like Chennai and Hyderabad.

We adopted two techniques to understand social networking behaviors on Facebook: 1) face to face in-depth interviews with 23 Facebook users in three urban slum communities and 2) qualitative profile building of the same users by an extensive study of their Facebook pages. We conceived and executed our research from March to November 2012 in three socio-geographic communities, two in Hyderabad and one in Chennai. Our focus was on charting pivotal elements of Facebook use, such as the beginning and the amplification of the use of Facebook, and the unfolding and maturation of skills to press the site to service specific set of behaviors. All except two are male, between 17-21 years of age, from low-economic backgrounds with a family income in the range of 1700-2500 \$US (a monthly income 140-170 \$US). Their educational background varied from school drop outs to college going with some of them working for an average monthly income ranging from 100-200 \$US. An average monthly spending on the mobile internet is around 1 to 3 \$US per person.



We investigated the social contexts of our subjects concentrating on the motivations to join Facebook and the paths that led them to the social media site. We further focused on their articulations of behaviors exclusive to Facebook, their friending patterns, what they post and how they share and exchange information, photos and messages. We paid careful attention to their phones, the way Facebook was accessed via applications and clients downloaded specifically for this purpose, their friend lists (making note of the social profiles of their friends) and exchanges that were public on their pages. Next, we made a gallery of all the images that appeared on their pages with an intention to analyze aspects of persona building and representations they signify. From profiling our participants, both on and offline, we gathered a) their social locations, b) what they post, and c) for whom (their sense of audience). These are articulated in the manner and pattern of Facebook friending, which formed a good part of our study. Looking for romantic opportunities play a big role in Facebook activity and are dominated by heterosexual dating possibilities aligned with possibilities of upward class mobility via friending women of higher social segments. Facebook pages display behaviors as engagements for better material affordances in the form of socially elevating friendship and heterosexual relations. These behaviors were grounded in specific practices that our informants described as parameters by which they evaluated strangers for a friend request. This evaluation process is a fertile site for examining a user's life world of values, social norms, and romantic expectations from Facebook to fit into these.

Thus user aspirations for Facebook varied widely. They ran the gamut from exploring, making and learning from friends near and far flung across the globe. These young men seemingly play down the importance of Facebook in their lives, as one of them said, "FB is just for entertainment, just like cinema and at max to find out few things, but not for entire life." Even if informants play off their emotional involvement with Facebook-and claim that it is not very compelling they equally let it slip by that they "cannot live without Facebook." This attitude re-orient to an idea of entertainment not as frivolous but as important leisure time in what may be an otherwise demanding routine. Offline social realities are reflected in the online Facebook interactions, but manifested differently in different users. These socially marginal youth live under highly structured socialization possibilities with young women and the low socioeconomic status affect their heterosexual comportment and dating choices. In some users' experience of Facebook, these social structures reproduced themselves: they socialized online mostly with young men, were unable to change their settings to reflect a romantic relationship, stated that people with darker skin were less likely to use a photo of themselves as a profile picture or felt intensely uncomfortable with pornographic profile pictures certain women friends (usually fake women profiles) choose to display on their pages It is not unusual for these young men to have hardly spoken with girls in their life

The humble feature mobiles these youth own, afford the ability to do practically anything on Facebook.



Accessing Facebook via mobiles is characterized by an economy of time and attention. Everything costs money to access, and even in an unlimited data plan, there is also a time cost to consuming Facebook's image-heavy mediascape. Users have to labor to persist and tease out affordances from the mobile in order to press Facebook into servicing their unbounded desire to rapport with new friends. This interface allows the user to see the most relevant information in sufficient detail (e.g. how many comments have already been posted on a girl's photo), but it does not let you see all information side-by-side, as you would on a desktop computer. The mise en scène of a Facebook profile dissuades our users to be anything but passive. On a phone, it is as though the user has blinders on, viewing the site in discreet portions, consuming the information ecology byte by byte. Thus enormous dexterity is needed in order to consume the site piecemeal and steadily build an integrated experience out of discreet ones of whatever is the preoccupation, whether romantic, diasporic or otherwise. This results in an altogether different immersive sense of involvement and participation on Facebook.

Several apps and clients are customized on to the mobile screens of users. Some of the core ones are anti-Virus programmes, Core Play for media files, 3G TV which links to streaming media (much of which is porn) and more importantly, Nimbuzz, a messenger for voice and text chats with friends over data. Nimbuzz users can chat directly from their screen names to Facebook chat and the user stays within Nimbuzz, but s/he is plugged into the FB API and can pull in friends from different platforms simultaneously.

Using Nimbuzz, especially with short term unlimited data plans, can represent a huge cost savings for the volume of voice and chat messages. The 'favorites' feature allows people to more easily chat with whoever they've added to this list. Facebook does not allow the creation of a friends list but replaces with alerts of friends who are online. In our opinion, the Nimbus favorites list could encourage our young users to re-chat girls they might have wanted to be better friends with and speculatively add to the friends list. It is a software/structural feature that encourages relationships to be strengthened over time instead of chatting whichever random stranger happens to be online. These practices get repeatedly fine-tuned and honed to optimize internet as the channel of preferential communication. It also points to a shift towards using the internet as voice and chat, bypassing the plethora of attractive talk time and SMS plans, particularly serviced to develop and maintain far flung and potentially long term friending relationships.

Conclusion:-

Leisure Geographies of Digital Media

Kulbeer's garden bearing Diasporic content on his Facebook timeline is presentation of self in on-line networked environments in a complex of SNSs that combine a variety of audiences 'into a single crowd of spectators' observing the same performance, but from a variety of vantage points (Papacharissi 2010). Kulbeer's audience encompass a range of friends and strangers, exotic foreign women and the diaspora from his own Sikh community. Kulbeer is essentially engaging in 'multiple mini performances' to produce his presentation of self, in a space that only Facebook can provide in a



form that is accessible, affordable and sustainable. Localization of Facebook is not simply forging a technical system to match affordable access but a socio-cultural phenomenon resulting from interpreting contexts of use. What slum youth perceive to be Facebook is durably connected to the management of what the SNS offers in relation to what is made available to them in lived contexts. For our informants in the slums of Chennai and Hyderabad, Facebook was not just an object, experience or technology of leisure. It was a gateway, enabled by a socio-technical habitus and 'the elective mobilization of the distant' (Giddens, 1991) into a world inhabited by places and personalities inaccessible without these 'technologies of self'. The consequence of perceiving Facebook as a romantic gateway rests as much on its ability to influence and shape offline personas and their self-perception.

Our user subjects perceive Facebook as an aspirationally romantic gateway and a vesting of affordance that constantly evades their every day. Facebook enabled romance is also a presence mediated heavily through popular cinema attached to the screen personalities of its matinee idols, translating to heterosexual pairing. A Facebook persona therefore is at once dichotomously local/global, rooted/diasporic and momentous/mundane.

The goal of this paper is to highlight the centrality of leisure spaces as an active producer of cultures of digital literacies. While development, as we understand it, is not focused on purposive outcomes of informal learning, engagements such as these are a powerful precursor to developing technology literacies, skills and ecologies of learning. To explore every day ICTs

for entertainment, pleasure, and play, we touch upon, 1. How, mundane repetitive everyday use of technology holds tremendous potential for immersive adoption 2. How, the everyday is dominated by the search for and enjoyment of leisure driven content and 3. How, this separation of leisurely use and developmental use is artificial, and by and large, a facile one.

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Digital Learning in India: Issues, Challenges and Prospects

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ABSTRACT

Education means modification of the behavior to the positive perspective and shaping the overall personality of an individual. Even from ancient times, Indian education system is known for its quality, completeness and overall understanding of oneself. Indian education system is undergoing continuous change to cope up with the changing socio-cultural and economic environment, right from Vedic Gurukul system to the modern education system. Recent days, the phenomenal technological growth that are taking place around the world are touching every aspects of human life and bringing tremendous changes in our education system also. These changes are leading to a drastic shift in our education system from traditional learning methods to online education methods. The Covid pandemic has accelerated this shift and now our education has moved to the online platforms than ever before. During this Technological Shift various stakeholders of our education system are facing many issues and challenges like Lack of personal care, reduced learning quality, Unsupportive learning environment, Technical issues, etc., Class room education and online education are the two wheels for the growth engine of our education system. Hence, it is the responsibility of the concerned authorities and educational institutions to address the various issues and challenges faced by the stakeholdersto pave way for the growth of digital learning in India. With this perspective, the research paper focusses on the perception of learners towards digital learning and the various issues and challenges faced by them during digital learning. Which in turn, helps in deciding the future prospects of the digital learning in Indian Education System.

KEY WORDS: Education; Digital Learning; Online learning; Issues, Challenges and Prospects;

INTRODUCTION

Education is the vehicle which facilitates the learning or acquisition of knowledge, skills and values. Education system decides the direction and destiny of any society in terms of its value system and standard of living and it is

also the driving force for the growth of any nation.

Indian education system is one of the oldest education system in the world and it is the learning hub since the ancient times. Ancient Indian education system was consisted of both formal and informal ways of imparting the



knowledge. Ancient emperors have given greater importance to education. As a result, many education centers like Takshashila and Nalanda were established. Great Indian scholars like Aryabhata, Chanakya and others were educated from these esteemed institutions.

For any education system, it is the fundamental requirement to make necessary changes and modifications to meet the industry requirements and changing societal needs. Ancient education systems were primarily targeted on imparting moral and social values to the learners. Whereas modern education concentrates primarily on imparting of various skills and practical knowledge. Indian education system is undergoing rapid changes to suit itself for the changing environments. Many factors have contributed to infuse freshness to our education system. The British rule is the major factor which has significant influence on our education system. In recent days, the technological advancements that are happening around the world and the Covid pandemic have changed the shape and structure of the world's education system and mandated our education systems to move from traditional offline face to face learning to technology enabled remote learning platforms. Without any other choice even our Indian education system is moving to the online mode of education and this is opening the doors for tremendous opportunities for the learners and educational institutions in terms of scope, accessibility and convenience.

REVIEW OF LITERATURE

Challenges and Opportunities for Online Education in India by Aman

Jindal & Dr. B P S Chahal (2020) says that, online education has significant impact on the future Indian education system. Rebuilding the course curriculum to make the students employable and using technology to impart the various skills in local languages can faster the development of online education in India.

E - Learning: Usage among Indian Students by Manu Sood and Virender Singh (2014) analyses that, advancement in the internet speed facilitates the sharing of knowledge through online mode in the text or audio or video forms and many students of north east have different opinion regarding the online learning.

Trends and Issues of E-Learning in Education in India: A Pragmatic Perspective by Sheikh Mohd Imran (2012) states that, E-learning is emerging as future trend of Indian education system. E-Learning is growing both within and beyond the curriculum and its providing different dimensions and practical approach for the education system.

STATEMENT OF THE PROBLEM

In recent days, digital learning is emerging as the most predominant method for imparting education in India due to Covid pandemic. Even though the online learning is need of the hour, it has many issues and challenges which are affecting the teaching learning process. It is the duty of the educational institutions and other concerned authorities to identify and look in to this issues to clear the way for the online education in India.



OBJECTIVES OF THE STUDY

- 1) To know the experience and perception of learners towards online learning.
- 2) To study and analyze the various issues and challenges faced by learners during the digital learning.
- 3) To study the opportunities available for digital learning in Indian Education System.

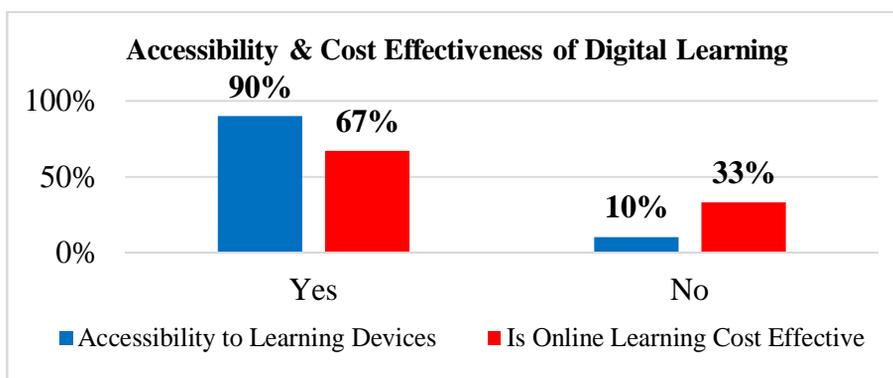
HYPOTHESIS

Ho : Digital Learning has Great Opportunities in Indian Education System

RESEARCH METHODOLOGY

This research has been carried out from primary and secondary data. Questionnaire has been prepared to collect the data relating to the issues and challenges faced by the students and their learning experience during online

1.1 Chart showing the students responses on Accessibility & Cost Effectiveness of Digital Learning



Analysis & Interpretation From the above chart it is clear that 90 percent of the students have access to smart phone or tab or laptop or desktop to attend the online classes and 67 percent of the

learning. Required data has been collected from the 355 students across the Karnataka and other states. The data so collected is tabulated and expressed in different charts in order to analyze the data and to draw the valid inferences & conclusions.

LIMITATIONS OF THE STUDY

The results of this research are obtained from the data so collected from students and the analysis made upon that data. So before generalizing the results of this study sufficient changes should be made and care should be taken.

ANALYSIS AND INTERPRETATION

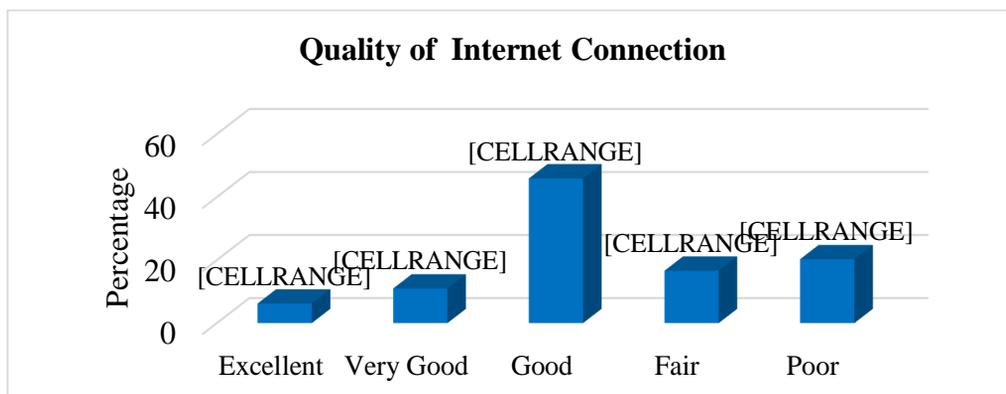
The required data has been collected from the 355 students across the Karnataka state through questionnaire. Data so collected is analyzed in a systematic manner to draw valid and meaningful inferences.

students accept that online teaching is cost effective. Whereas 33 percent of the students still feel online learning is not cost saving.



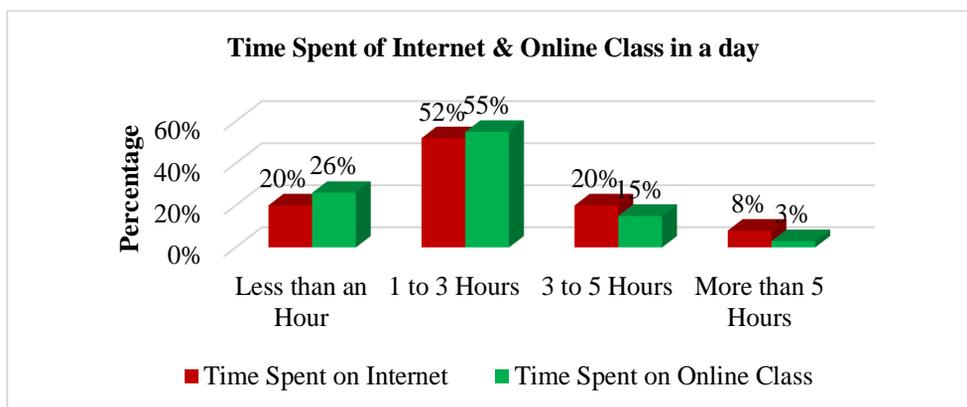
From the above analysis it is proved that maximum portion of the students have access to infrastructure to attend online classes and even they feel online learning is not a burden in monetary terms.

1.2 Chart showing the students responses on Quality of Internet Connection



Analysis & Interpretation From the above chart it is evident that 46 percent of the students have good internet connection and around 37 percent of the students are facing the problems with speed of internet connection. Speed of internet connection plays a prominent role in deciding the effectiveness of digital learning. Still 37 percent of our students especially in rural areas are facing the internet speed related issues which needs to be addressed by the concerned authorities.

1.3 Chart showing the students responses on time spent on Internet & in online classes



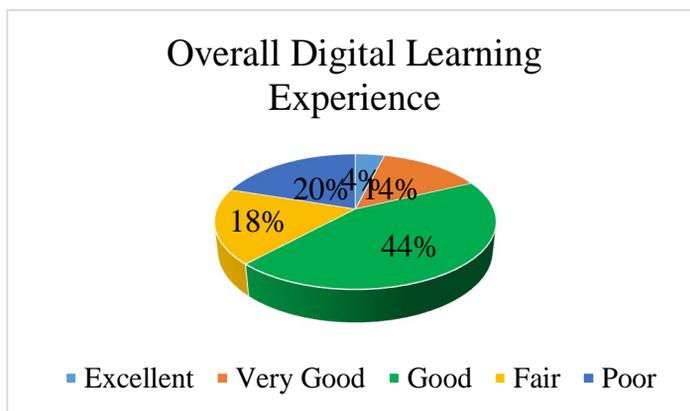
Analysis & Interpretation

Above chart of students' responses on time spent on internet and in online classes clearly shows that 52 percent of the students spend more than an hour of time on internet and nearly 28 percent of the students are spending more than 3 hours a day

on internet. More than 70 percent of the students are spending good amount of time for digital learning during this Covid pandemic.

Since the maximum portion of the students are spending a huge amount of time on internet, there is great opportunity for the educational institutions to attract the students towards digital learning through various creative initiatives.

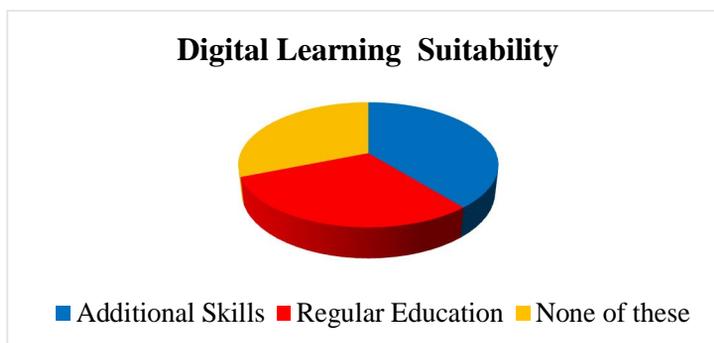
1.4 Chart showing the students responses on overall digital learning experience



Analysis & Interpretation

From the above chart it can be learnt that the 44 percent of the students are feeling online classes are good and around 38 percent of the students are not satisfied with the overall quality of the online learning. Various issues like technical issues, unsupportive learning environment etc., are affecting the quality of the digital learning.

1.5 Chart showing the students responses on digital learning suitability



Analysis & Interpretation Above chart shows that 30 percent of the students are opining that digital learning is suitable for regular curricular aspects and 39 percent of the students are saying digital learning is suitable for learning of additional skills like

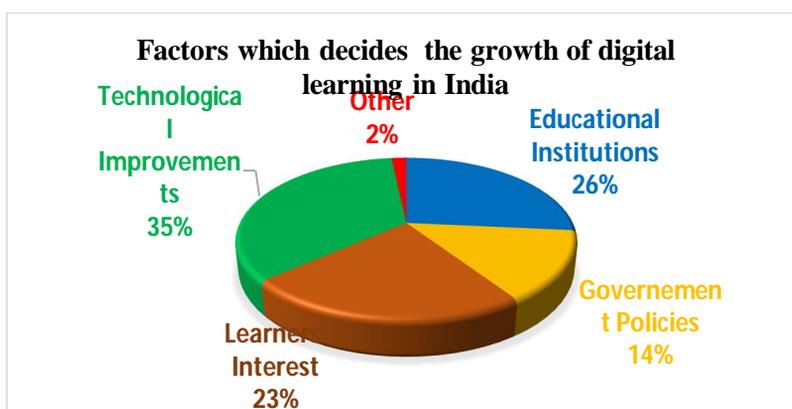
extra and co-curricular aspects. Hence, it is interpreted that, there is ample of opportunities for the digital learning in Indian education system.

1.6 Chart showing the students responses on factor which reduces the Effectiveness of Digital Learning



Analysis & Interpretation Above chart depicts that 55 percent of the students are saying the quality and effectiveness of the digital learning is getting affected by technical issues and 11 percent of the students are saying lack of personal care and lack of learners involvement is reducing the digital learning quality and 13 percent of the students’ learning is affected by the unsupportive learning environment. It is very clear from the above chart that there are many issues which are negatively affecting the digital learning quality and these issues must be considered and measures should be taken to resolve these issues to improve the digital learning quality.

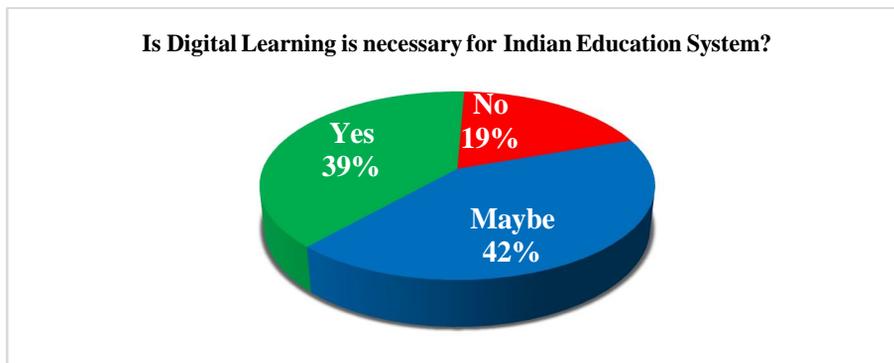
1.7 Chart showing the students responses on Factors which decides the growth of digital learning in India



Analysis & Interpretation Above pie chart shows that there are some critical factors which can boost the growth of online learning India. 35 percent of respondents are agreed that technological improvements can faster the growth of digital learning in

India and 26 percent are saying initiatives from educational institutions and 23 percent are saying good learners' involvement can accelerate the growth of digital learning in India. Hence these factors must be taken care off to faster the growth of digital learning in India.

1.8 Chart showing the students responses onis Digital Learning is necessary for Indian Education System?



Analysis & Interpretation

Above data shows that 39 percent of the respondents are saying digital learning is necessary for Indian Education system and 42 percent of the respondents are not sure and only 19 percent of the respondents are saying digital learning is not necessary to India. This analysis clearly shows that there is a greater opportunity in the Indian Education System to adopt the technology and to move to digital platforms in coming days.

CONCLUSION

Recent happenings that are taking place around the world are creating pressure on the education system to make fundamental changes to fit itself to the changing environment. Covidpandemic happening around the world has mandated our education system to adopt the new technologies into the place of traditional classroom learning. It is known that digital learning

is the supplement to the traditional face to face learning but not the substitute. Traditional education system can have freshness and extend its scope and coverage by adopting digital learning methods along with the face to face learning methods. The hybrid system of these two methods can bring numerous and multiple opportunities to the learners and educational institutions in specific and all the stakeholders in general.

During the process of adopting new advanced technologies and methodologies to education system, stakeholders may pose resistance and also face many issues and challenges. Learners are facing many issues and challengeslike lack of digital infrastructure, technical issues, unsupportive learning environment, lack of personal approach etc., during the course of learning through digital platforms.To pave the way for digitalization of education concerned



authorities and educational institutions should resolve these issues and convert the challenges into opportunities so that benefits of the digital learning can be availed by everyone.

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«μυθικά, zlgá, é-éáwéá pávázéá pkapálgá ááqouí a p a b ááíánpálgá yálpá yámut C1lgá a ágápnó a p a b zréváyá a auwóga a éé@sá pá@pá ása úlrpéuaj púka a áavázá pñtáíá a ávávúka «éá+páj ±duwéab ±éácp «±éqí, á±éqí CZJ a pñt, ááázá väd1é p k á e p ú k á pñtáíá «, áíá -éápp áv»é

pñt ááúwé a éáááúka o áá, oái áázúka, yá o'zévá úduka áé«á éáav a áuá gévlgá ±éáμúé a ááqáázá, Cwáéqí-ééáéqí éé úopá «péáýúka, zlgá pñt «eá@úka ««zá pñt ááéázéúka, pñt a áawé ávúo cfpágá ±á»úka G yá úúka, C a éá@pá éá, Cu pñúka d@a áé@zá p a úka, p a @pé zégaíácgá a «z ááí a ávúo Czlgá zlgá K j p é gév á, áwz a o'éá g áí z á ááwúka, a áévué v á y á p á a á a @ a áéá Sró a áéá áíéáéúka, o áqú, a ápka D'lgá a ééá, áázá p éáá p a a áááör -ááázá«úálgá, v ááqá áé«áúáV p éáíó p b á j C -z á pñt áé«á y áá@í áó z p á j u é o'éáúáázá, áé p á1 v á p á z á á í á v j u é K j p é á j u é p a ú k á, gévlgá Dv p á v a áavázá pñt @pñ áúwéab g z é á v p p á v v ä d 1 á í á g á p k á e p ú k á z z é ú é m y á r 1 v á o ö p á v y j o á g á p é á u k á e á a á v z á v C v á v ú p á é á o d á á z á z á.

záráíáá a gév á; a úduka Ew á z á a ááéá Cz á á í á S g á í á á áúá a v p á v k p á á í á v v ä d 1 á í á g á «éé éé á í á p k á e p ú k á a á e r s á z á o'é á a áúó z á pñt y á z p é a á e r S g á í á a v é á a ú á v p é pñt a p á í p é á á d é á v z á á á p a p a C 1 ú p é á b v á z á p é q p á ± k á á á z á S o á a á r p á u á v z é D z á g á u á D y ö p á á z á g á u é g á á k á z á a á a z á z h é é á v l g á C z á a j á o v á y p v á a ± á p á t - á g l z é á ú é C p á á í á p á y á p p é á v o q á a á ú w á í á e á b - á r p l g á pñt p é q á á z á a á p á e t o á á z á z á.

väd1áíá gá p k á e p ú k á pñtáíá D q a S g ú k á e á b pñt p é q l z é g á f á é á «z á é z á pñt ±é á í á e á b ««z á a áúúúka a éá@pá a ávúo é z á j p a z é p p é é z p é v g á a pñt a v é ú k á D v p á z á ú b p á í á a á é é é á á v z é pñtáíá é á á ú w p á m q é á í z á C á z h g á a v é ú k á C a g á a á v á u k á, S g p ú k á a á e @ p á p á z á í á z á a á é á e á b a á n g á á z á pñtáíá D - é á z é á p p á z á S z á á a ú á í á a á é á b - á í á v á é

väd1áíá gá y á e á o'p p á v «á p z á «á z é é - á á z á l z á a á z j ú k á pñt - é á p p é á b C o p á u p á k í pñt u é o z á n a á o á p é n g á á z á C z á í á e k á z á w z á S g á v z é G v á á a á á q l z á áé«á, g á á á í á p a ú é s g á a á v ú o c e ú w á p é n ú é ú é s g ú k á e á b v á f á á z á, p k ú k á e á b a á é o d é é a á á q k g á á z á, o k á é á ± p ú k á 1 a y á q u é o p k ú k á e á b a f o á a f é á á v ú k á a é á @ p á p á k í pñt, g á á á í á p ú k á S y p é a f o 1 z é á p á j ú k á p é n ú é ú é s g á G y á á é á v á a á a á í á a pñt, a á é p é á o á p á y k o z á á á p a pñt, f á a p é á ú k á G 1 g á í z á o á í á í á e á b v j v p á v ú v ú é v á a g á á á í á p a pñt, C a z á ± é é @ á d o w ú á á í á a á á p á - é á p z á C á t C y á á í á p á j a á e q á a y á z á á í á p a pñt a á a v á z á pñt D á í á a ú k á ««z á a á z j ú k á e á b p á d z á ú p á e p é v g á á z á v ä d 1 á í á g á p k á e p ú k á a á t e k e t c u é S g á f á a v á á o u k á v á é

páqá a ávúo p é g á p á z á s j á í á g é v l g á a á v ú o a é á f á « á w l ú p é y j o á g á p a q á p p é á v á u z á y j ú w á í z z á o «p á í á e á b z á o á v z é a é á f á «ú k á z á g é v l g á f á a p k á z á p p é á p á z á a á v ú o á ú k á v á é o á p a a y á á ú k á d é l g á y á g é á z á D p é á ± p é a á g h t C y á á z á ± á v p á á é ú k á z á p é ; á p k á í ú k á é l g á í á v á v é S g á v p é C g í á E - á s é a á v ú o y j g á «e á @ ú k á F p á ú k á u é E a c u k e a é á @ p p á v é z á w p p á v y j o á g á p a q á » r á í á c g á á z á pñt p á p á d z á z á g á v ú k á p é m a z á. C a é á @ p a pñt á ú é p á q á ú k á e á b m v á p j a á r p p é a q á C w p k á á á z á, p á r é á a y p p o e á @ ú k á e á b é á ± p á á z á, a á g v q u k á u é g a v l g á p é q r y á á o p é q á á z h g á y j u á a ú k á z á p á r é á ú t a á í o p á 1 z á e t « p a á á í é á d é é C p á ú k á v é á v z é a á é p é á a é á f á «ú k á D á á á á e p é - é á o v é k á z á p é o á z á u á C a a á á é p é á D á á á á e p é p é o á p á v p é J a s á z á v ä d 1 á í á g á p k á e p ú k á C o p á u á á z á a á á p á v z é



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gÁ,ÁÁiÁ°PÁ °f@Eji vÁZÁiÁ PBTI ¥ZÁwÁiÁEÁB ¢FÖ¹ ,PÁtÁ PBTI'ÁiÁEÁB DZÁGÁJÉÉ vÁGÁ°ÁZj ÁZÁ ¢KEZÁP ¢ÁÁDÁUKÁP È GvÁZÉÉ PÁªÁÁiÁÁUÁS°ÁZÁ. EÁVÁGÁ GvÁZÉÉ UÁt ¢ÁÁiÁªÁV KJ 'KE«ÁÁiÁ ¥PªÁÁwÁiÁ ¢GÁVÁGÁVÁiÁEÁB PÁÁiÁÁPKEÁPÁZÁGÁ ¢ÁE°PÁ PBTI RZÁÖ PÁªÁÁiÁÁUÁªÁ »EB'ÁiÁ°è VÁd'ÁiÁªÁGÁ PÁKÁEPÁUKÁ PBTIÁiÁ ¢ÁÁUÁEÁÖ¥ÁÁiÁÁUKÁ ¢GÁVÁGÁ °ÁqÁPÁI ZP È ZÁEÁÁ PÁUÁVÁP È

PBTI ¢ÁÁwÁiÁ Cª«ÁÁQVÉUÁKÁ, CªÉÁÁPÁ PBTI ,ÁSAÇü ZÉDÁUKÁ, PBTI 'ÁÁÉÉ vÁKÁPÁ-Á°ZÁ VÁPÁiÁ ¢ÁÁÁUKÁ, CªÁÁEÁKÁÁiÁªÁÁV S°UKEÁPÁ ÁSAQFÁYÁEÁ» GZPÁ¥ÁwÁUKÁ PÁGÁYÁ ÁPÁGÁ eÁUÁWÁPÁ DyöPÁ eÁ°UÁKÁEÁB 'azÁSGÁ GÁÁÁ PÁZÁSj ¢ÁÁUÁZÁ ZÁÁiÁ°è ¥PÁh,ÁVÉÉ "ZÁªÁÁiÁªÁÁV ¢ÁÁVÁU «ZÁªÁÁiÁªÁÁV ZÉVÁV 'ÁÁÁGÁªÁ GZPÁ¥ÁwÁUKÁ ErÁ °ÁÁUKÁ ,PÁÁDZÁ ¢ÁÁÁÁiÁ ZPÁGÁEÁB SZPÁ,ÁÁÁÁ S°ÁVÁªÉ °ÁUKE CªÁ DYÁªÁ ,PÁÁDÁGÁEÁB ¢ÁÁÁwÁÁwÁPÉ ¢ÁÁiÁÁVÁt ZÁ MÁÁUÁqÉ GÁE¥ÁÁUKEÁPÁ Á GÁDÁÁiÁÁYöPÁ ¢ÁÁwÁUKÁ ,PÁÁDZÁ ,ÁÁE¥ÁEÁB SZPÁ °ÁqÁwÁPÉ⁵ JAS ¢ÁÁÁwÁEÁPÁ PÁn° GÁDÁPÁGÁt ZÁ ,PÁÁDÁGÁKÁ, SAQFÁYÁªÁ±Á»UÁKÁ GÉVÁGÁ »VÁEÁB PÁÁiÁªÁªÁ SZPÁ °ÁÁÁiÁ PÁj ¢ÁÁÁR-PKEÁqÁ PBTI 'KE«Á ¢ÁÁVÁU ¥PÁÁwÁiÁ ,PÁÁVÉÁ°EÁEÁB CªÁEÁKÁZÁ EÁ±ÁÁÁ,ÁVÁGÁªÁZÉÁB ,ÁÁÁÁ,ÁVÉÉ EZÁ ¥ÁÁÁVÁ ZÁ±ÁZP È EÁÁÁiÁÁwÁGÁªÁ GÉVÁ ZÁPÁÁUÉ »rZÁ PÉÁRÁiÁÁVZÉ

PBTI UÁÁÁÁt ,PÁÁDªÁEÁB DPÁÁ¹ eÁUÁWÁPÁ DyöPÁ eÁ°VÁtªÁEÁB GÁEj¹ PBTI «EÁ±PÉ PÁGÁtªÁÁUÁªÁ PÁn° GÁDÁPÁGÁtÁUKÁ, PÁÁÁ CÇPÁGÁEÁ»UÁKÁ, SAQFÁYÁEÁ»UÁKÁ, ¢ÁÁÁRªÁÁqÁ Zj ,ÁªÁ CªªÁÁQ CZÁÁPÁ ,Á»w ÁÁÁDÁUKÁ, °KE,Á °KE,Á °f@Eji vÁZÁiÁEÁB GvÁwÁ ¢ÁÁÁqÁPÁ MªªÁ VÉÉÁj ,ÁªÁ GÁÁÁÁiÁªÁ ¢ÁÁVÁU CAVÁGÁÁÁÁiÁªÁ ZÁÁÁ PBTI «EÁÁPÁUKÁ, ««ZÁ «±KZÁÁªÁÁiÁÁUKÁ CªÉÁÁPÁ PBTI ,ÁÁEÁZÉUÁKÁ, CªÁEÁÁÁtPÁ PÁÁiÁÁÁÖUÁGÁUKÁ, 'Á-ÁZÁÁPÁZÁ PBTI ,PÁÁÁVÉUÁKªÁ PBTI PÁ ,PÁÁDZÁ GÁPÁ »ÁGÁªÁ wÁUÁÁÁVÁGÁªÁ PBTI EÉ UÁKÁEÁB VÁd'ÁiÁªÁGÁ PÁKÁEÁ ÁEÁPÁ VÁWÁPÁV ±EÁÇü 'Á,ÁÁiÁªÁ SzÁQEA ¢ÁÁÁtÉPÁ CqÁGÁªÁ CZPÁÁ FÁªÁ PKEÁÁUKÁ MªªÁ É MqÁÁEÁqÁªÁ FÁªÁ EKEÁVÁPÁ ÚPÁEÁ°ÁªÁZÁ.

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"EÁªÁÇ dÉUÁKÁ PÁÁÁÁR EKEÁqÁ PÁEKEÁ ZÁ-Á¹Á«Á CwÁÁPÁEÁ PÁEKEªZÁ CAVÁPÁÁU ¢ÁÁÁPKEÁqÁ ¢ÁÁSA ¢ÁÁÁGÁ EKEÁqÁ EgÁPÁUÁPÉ JAZÁ VÁEÁ GÉVÁGÁ ¥ÁÁÁ EgÁªÁVÉ ¢ÁÁÁVÁqÁÁVÉÉ PKEÉUÉ ¢ÁÁªÇ ,PÁÁEÁEY PÁÁÁÁR EKEÁqÁÁPÁ"ª JAZÁ UÁqÁÁÁ UÁGÁªÁªÁ ¢ÁÁVÁU ¥ÁGÉÁÁj EPÁÁª dÁUÁj PÁÁiÁEÁP É GÉVÁGÁ ÚÁRÁUKÁEÁB CªEÁÁEÁPÁV VÁGÁZÁ ÁAZPÁV ;ÁR,ÁªÁÁUÁ dÉÁÁEÁEÁ MÚÁÁV CÇPÁj ÁiÁ «GÁZÁ ¥ÁÁÁÁ,ÁªZÁ ,PÁÁDZPÉ CÇPÁGÁ ¢ÁÁÁDÁUKÁ GÉVÁGÁ ¢ÁÁÁ-É EnÁÁªÁ PÁVÁFÁiÁEÁB VÁd'É PÁKÁEPÁUKÁ JwU VÉÉÁj ,ÁVÁPÉ PKEÉUÉ ¥ÁGÉÁÁ CÇPÁj GÉVÁGÁ ¥ÁÁÁÁ EÉ MÚÁÁEÁB EKEÁR ±ÁÁÁÁÁUÁEÁUÁªÁZj ÁZÁ VÁd'É ,Á»VÁ ,ÁZÁ ¢ÁÁE° ÚPÁP ÉKEÁqÉ ¢ÁÁÁVÉÁqÁÁVÉÉ



«AUA gva; dEba PM Szapeab oht aAqa Szpa CCPAgla» UMa «pbaUzAv
MaAaUMeab vj vP AV pAd gMe; aPa. CCPAgla» aPaPaia e «pbaUzAv; qAUa aAaP AV
vAaP Ar oht aAaFPA AePeb oAa aAqa a Pj AiA EMeUMeab UAgaw, aAza PAsj AiA
aPm AVZ PM SzAdza EwPa aEUMa eAUPE DyOPA CCPAgla, aAd SAza aAaP AVPEAB CSj
CtQ, aAa Pj PAsj AiA PM CaEw vAtAPUka e MAza «2p AVZ»

«gvea dAza zAa P CaeEsa gAdPagt aAgvea» vAvAv zEqPea. MSa «eAvAv
aAra DzeA. DzeE CaEa Tw MPeA TwAvAvZ Pj AiAgzEa aAiAgzEa AiAgzEzE KEA?
aAaAa AiAa AUPE aUe gveUe «dAiEUBPca? aEUP DPaPEa? EAVpbaE? JgMe FUtUaE
EeB EAvUe⁷ gPpAv vj APgAiaa h aAgaa aAvA vAA UAagP AV CxDPeteo AVZ
SAqP Aza» UMa, aAgvea» vAa» UMa, CCPAgla» UMa aAvU gAdg aAUA dEAvAieab aAa, aAa zAj
vAa aAa DPaP hEAB vAd¹ e PkAEPUka zP JwU aAgveaCu AVPE CCPAgla» UMa PUMeAB zPvE-Aza
aAaIATP AV aAd¹ gveba PpA PAVD¹ tUzUe Pj oAgA MzV, aPa «EA Ca hA zEqP
Pa, UMaUA Agza. aU pAdPe aAzj AiAUA PaZA CCPAj UMa aAZza PPEzP e zEa zEa
aAaUAaAza PM SzAZAiaza CaEwUka e MAzAVZ»

«PaA, Jg hA PEGve DUFA CaPE aAZa - aA zEgAiaaAza dEUMA PAUA - AzUaO CAEgAzUaO
CPU MeO CaPE gP S¹ AiAaAza aAa EUMeAB PEAZa aAvU zP aFvAieVMI aO PEve OEQAiaze
DyOPA aAe hAFAEA C, Az⁸ JAZa vAd¹ aiaa h vPa oE, a «ZAgUka» «aAaO PAvAia» e oAvga
aAvUUMA gveba TwAia SUE vAAS UAagKAZa PKEze dAUaj PaEPE e aAgE hJ CCPAj UMa OEAV
Sga a gveba aOUMeAB aP vAa, Ue aAqa a EPEzP e aAZa OAvaAza, «UAgj Ue OgAPVA PEI aO
aAe» aAqa a VASa, aze C«AQUA EA EA PbaVA gMezP e aAZPE PE MqAUgAaAza gveba PM
FAEA za hP AVZ oht za xE Ue «azASga gPa hzP e gveba KOUe oAvA aAzE SgaAza, 'dAUaj PaEi'
PAVAzAia aP AgzP e gvea KOUe MVAia e zEgAiaaA Jg hA aAzj UMa PM aAZza xAvPE
JAS aA, Pa aAaieAB vAd¹ aiaa h PkAEPUka CPE AVPE»

«AaiaA-PEaP aAvU «UQe aAaE hA» PAsj UMa CEaMj aAvU CwMj O hA
aAvA hza zA Pj hzP e UAa PM SzAdza UEAzPa aAia SzAOEA dAeA aEAB awaAvPE aAaiaA-PEaP
PAsj AiA e E hAiaa J-Ae WA EUka aAj Ue «ASAZa O «ZAgUAV» e PbaVA SgUAza hA, hA
«AUAia» e oMAza SW OEUAaA PEzP e «CAVtO» aI a d gMj aAeUMa, EIC aAj UAV
CAEAgE aDP AV PZa hA aGAdUka CEaMj aAia SVAieAB PAsj AiA aAvAaP, hzE»

«EA EA EeB aAE PPA oJ AiAa a gMj Swz hE PArAiaa aAj Ue KEA aAqa aAzAa JAS
aAvAia e zE CzA oAI aPa eAUzP e aAvU oJ AiAa aAvzA CPPEa MAza MAza aAgPEABUR VqPEABUR
PArAiaze Paqa oAvVEE oAU G¹ zE » AZPEaE EeB oMe vPEAI zP e aAgA oZAN Sga a oAU
aAqPEAUza gMj oAI aP e «KzU AgA¹ VqUka FUEB Ae Pj PaAe OEQzE aAgA D MAza
aUd, aAeteo SW OEAV j AiAV SACp PR 1zj AzA E e EA EA oMza vAmUe OEAVgP e AiAa
«AUAia» e E aiaa hUe aAgA SwzP e Dz hE F aUdza oga «Ue EPEArz hE E j PAIAUAWAO
JAS aGPEP hA UAag aAvEia e d«Ae» UMa AgPVAia SUE aAvA vP AVZ PM PA SAQUE
d«Ae» UMeAB PAVaqa a OEUE EAUj Pa SzAdza PM aA aAvAiaV CEaMj UEA aPAVZ CvAza aPa
vAvAeEza Dz aPa DVAPPaj «AmAia e d«Ae» UMa SvAUgA aza zAgz hP AVZ»

C-PEa PEaE TwAia PAgA AgA dAeA zP e PM FAEAza aAZAia FEAV oJ AiAawzE MAza
«UcOQa gMj d«Ae» PEUEE «EaUdgza oAvAV aAvUeAB SzP PPEaqa aAaP AV oJ za EIC
AgAaAza «AiaPaj AiAZaA. EzE d«Ae» EAve aAvEAza CaAV hA, hJ, Pa PAgE aAUa a DVAPA

