Influence of Digital Economy on School Education in India

S. Srivathsani, S. Vasantha

Abstract:The world around a common man has become digitalized. Anything and Everything a person deals in a day-to-day life is in digital format. Digitalization has become the way of life. Take the example of online shopping, e-payment of utility bills, money transfer from one account to another, ICT enabled education, e-learning, business done through video conferencing and the list is endless. The world has become smaller due to Internet and digitalization. The human beings have realized the benefits of digitalization. They understand that digitalization of a process or transaction is faster, economical and secure.This is driving the citizens of the country to progress towards Digital Economy. Digital Economy is the umbrella term given to all the economic and social activities performed by people utilizing Information andCommunicationTechnologies[18]. Digital Economy is helping India to cross borders and accelerate the economic growth of the country. It is encouraging the Indians to raise their standards and be on par with the developed and developing countries. It is aiding India to make a mark on the global market. "Digital India" is an initiative by the Government of India in driving the nation towards Digital Economy.This paper deals with initiatives taken by the Government of India towards "Digital India" with respect to school education and understands the impact which can be created by the successful implementation of the programme in rural areas. A conceptual framework has also been framed based on the literature reviews[3].

Index terms:DigitalIndia, ICT, E-Learning, Rural areas, Education, Initiatives, Schemes

I.   INTRODUCTION

Digitalization is the trending term in 21st century. Right from a child to an experienced old person, they are surrounded by laptops, computers, tablets and smartphones. Educational system is also getting influenced due to the digitalization era. Education is the pillar of any country. Education transform the person and leads him on the path where he can strive for the economic and social development of the country. The educational system is going through rapid transformation due to which, the children of this generation are be limited to traditional textbooks. Their thirst for knowledge cannot be quenched using the age-old methodologies and pedagogies. Their

hunger for ever-increasing information can be satisfied by the use of digital tools and Internet in the form of e-learning courses, digital textbooks, interactive animation videos and integrating ICT in classrooms. The traditional classrooms are getting transformed to "SMART" classrooms. However, this process of digitalization has not touched the rural areas of India effectively. This has created a digital divide between the urban areas and rural areas. "Digital India" aims to bridge this gap by connecting the remotest villages through WIFI and broadband[2],[4],[5][6][7][8].

II.   OBJECTIVES OF THE STUDY

a.   To review the literatures, newspaper reports related to the Digital India programme and its visions, National ICT policy of India
b.   To review the initiatives taken by the Digital India programme in terms of school education
c.   To frame a conceptual framework related to the literature reviews.
d.   To review the economic and social impacts of Digital India programme[11]

III.   RESEARCH METHODOLOGY

The paper is based on secondary sources of data or information. Different online news reports, government websites like DigitalIndia.gov.in, mhrd.gov.in and Government Publications have been referred in order to make an in-depth analysis. Considering the research objectives, descriptive research design is adopted to achieve correctness and rigorous analysis of research study.

IV.   LITERATURE REVIEW

"Digital India: Opportunities &Challenges" (2018) states that Digital India programme is the beginning of digital innovation, modernization and development. If the Digital India programme is implemented correctly, it can change the face of India and make the world look at India in a different perspective. Digital India has the capacity to enhanceGDPup to $1 trillion by 2025.Digital India would enable inclusive growth by providing access to better educational facilities. People who had to quit school education can make use of online educational facilities like Swayam. This would in turn increase the literacy rate in India.

"Digitalisation of Education"(2018) mentions about the study conducted by National Commission for Protection of Child Rights (NCPCR) in the Dhule district to understand

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the impact of digitalisation in the schools. They have done an in-depth analysis to examine the prosand cons of digitalizing classrooms in Indian schools by studying the mechanism adopted, stakeholders involved and its effect on overall quality of elementary education. They concluded that around 84% of the students preferred the use of multimedia. They were very attracted and interested towards learning about the related concepts when they saw the pictures and videos relatedto the topic being taught. They also found that the students were able to remember the concepts for a longer time. The results were favourable when teachers were taken into consideration. The teachers felt that the technology aided education was easier than the traditional way of teaching. They also suggested that the committee can install solar panels to resolve problems related to frequent electricity cuts. The involvement of the parents had also increased after the exercise of digitalisation in schools. The parents were more concerned about the education of their children.

"Digital India Prog vital for students" (2018) states Director of State Open School Education Board PR Tiwari stated that the World on Wheel Entrepreneurship Development Institute of India, Hyderabad has made a mobile van available to Madhya Pradesh State Open School. The main aim of this mobile van is to spread awareness about Digital India programme and explain about the importance of ICT in education. It also has provisions of video conferencing facilities to connect to the experts. It is aimed at overall rural development of the villages by providing information to the farmers regarding best practices and welfareschemes. Digital Literacy of the citizens play a vital role in the success of the Digital India programme. The Government is taking steps to encourage the people to become digital literates.

States that Jawahar NavodyaVidyalayas in collaboration with Samsung has given the breath-taking experience and feel of ICT, digitalized tools to around 2.5 lakh students and they have also trained around 8,000 teachers[14]. Many students are getting benefitted by this initiative. There are around 500 Jawahar NavodyaVidyalayasin the rural areas which are the helping the students in improving their digital literacy skills. The students are getting exposed to latest technologies and able to understand the concepts in a better way. The visualization of concepts helps them in improvising their interactions with the students and teachers. The teachers feel them that the school dropout ratio and absenteeism has reduced due to the efforts of Digital India in bridging the gap arising due to digitalization between rural and urban areas.

State that the education sector has been revolutionized due to the efforts of our Honourable Prime Minister by launching the Digital India program[1][12]. The schools have replaced the chalk boards by white boards, paper text books have been replaced by digital text books. Theyassert that the appropriateexecution of the technology and training to students can amplify the national efficiency to a great extent and have a great impression on the digital economy of India. They feel that the Digital India program is facing obstacles in the way of reaching their goals. The reasons which could act as barriers are the minimum increase in the percentage of expenditure on education sector and the

minimal decrement in the school dropout rates at primary level.

"The impact of "Digital India" on Educational System" (2018)highlights that government is planning to give training to around 100 million people belonging to smaller villages and towns. This is because there is a scope for many employment opportunities in the IT sector in the forthcoming years. Digital India is expected to decrease the unemployment ratio in the country. Digital India also has the capability to bridge the skill gap which is arising due to the mismatch between the employers' and prospective employee's perspectives.

Have discussed about the influence of e-technologies in school education. They have also discussed about the integration of ICT in different schools of Kanchipuram district in TamilNadu.They felt that ICT integration in the teaching and learning process is happening in the rural areas of Kanchipuram District. The teachers of these schools are quite satisfied with the integration and felt that the students are able to understand the concepts in a better manner[19].

"How Digital India impact on Education Sector" (2017) states that Digital India has the power to rejuvenate the education system in India. The program aims to solve the issues related to illiteracy by furnishing education through digital platform to children and teachers. It provides an opportunity to access learning sources through a global platform, providing reachability to teachers and breaking the barriers to gain quality education through physical classes.

"Digital India impact on education sector" (2017) highlights that the Indian Educational system has evolved over the years. Technology is being utilized to reach to maximum number of people with a view to reduce digital illiteracy, rising opportunities in the field of educational providers, providing uniform education to students in rural and urban areas. The goal of digital India is to bring urban and rural areas together for upliftment in Indian Economy.

V. ABOUT DIGITAL INDIA

The "Digital India" programme is a flagship programme aiming to transform India into a digitally powerful and energized society and skilled economy. According to the Government website(digitalindia.gov.in), the visions of the Digital India programme are positioned on three key areas: -

A. Digital Infrastructure as anadvantage to every citizen of India

The Government of India visions to see the most secluded, inaccessible village to be connected by high speed internet and broadband facilities. This will help in bridging the digital divide between rural and urban areas. This will help in achieving social inclusion and financial inclusion of the rural areas. This also ensures that there is uniformity in the services provided to urban and rural areas. Education sector will be highly benefitted by the establishment of internet connectivity in the remote areas. They will be able to access

the latest technologies and be on the same page as the urban areas.

B. Governance and Services on Demand

The Government of India's vision is that the common man should be able to access the public services anytime, anywhere. They aim that for achieving a complete digital economy, there is a need for making all the financial transactions electronic and cashless, accessing all the public services through online platforms, enabling the portability of the person's entitlements and make it available in cloud platform[16].

C. Digital Empowerment of Citizens

The Government through the Digital India programme aims at achieving digital literacy among all the citizens of the country to empower themselves. Digital literacy will also help them in securing better jobs, thus achieving economic development. The Government has also established many Common Service Centres (CSCs) to achieve digital literacy. Digital Empowerment can help the citizens to understand the endless possibilities of using ICT in their day-to-day life.There is no need for them to carry their physical documents. They can store it in Digi Locker in a secure manner and can access those documents from any part of the world[17].

VI. NATIONAL POLICY ON ICT IN SCHOOL EDUCATION

UNESCO(2002) defines ICT as the union of information technology with the communicationtechnology. The role of ICT in education is inevitable. UNESCO aspires that all countries, both developed and developing, have access to state of the art educational and technicalfacilities. This guarantees that the learners of the society are knowledgeable about the current trends in technologies. They will able to face the challenges of the constantly evolving society. This milestone can be achieved by integrating ICT as a part of school curriculum.

The vision of The ICT Policy in School Education endeavours to prepare the children, who are the future of our Nation, to contribute innovatively in the formation, evolution and prolonged development and evolution of a knowledge society leading to all round socio-economic development of the nation. This makes sure our country is on par with the global paradigms.

The goals of the National ICT policy are as follows: -

1.To create an environment which is conducive for the growth and utilization of ICT and ICT enabled activities in schools.

2.To promote the professional development of the teachers through ICT literacy trainings, ICT enabled tools and resources.

3.To develop ICT curriculum and induce it as a part of the school curriculum

4.To provide access to state of art ICT infrastructure in all schools.

5.To motivate teachers by provision of National ICT awards

   a. 6.To set up smart schools and promote the ICT integrated teaching and learning process
   b. 7.To develop digital learning resources which involves the contribution of various agencies like NCERT, Central Institute of Educational Technology, State institute of Educational Technology

As per the policy, the trainings related to ICT,which will be provided to the teachers and students, can cater to basic, intermediate and advanced levels.

   a) The basic levels can cover topics related to basic operations of computers like switching on and off a computer, creation of word file and saving it to store data, organizing files, connecting to and disconnecting from a network, launch web browsers etc.
   b) The intermediate level can include topics like produce and manage content using a variety of software applications and digital devices, using web sites and search engines to locate, retrieve and manage content, install, uninstall and troubleshoot simple software applications etc.
   c) Advanced level training comprises of topics like operating databases, storing data in databases,conduct research and carry out projects using web resources, use ICT for documentation and presentation; create and participate in web-based networks forcooperative and collaborative learning.

The National Policy on ICT in education aims to design ICT curricula according to the level of the teachers and students and incorporate it as a separate subject. The curricula designed at the central level has to be adapted by the state governments. This step to integrate ICT as a separate subject will help in improvising the digital literacy skills among the teachers and students.

VII. INITIATIVES OF DIGITAL INDIA FOR SCHOOL EDUCATION

Some of the initiatives in terms of school education highlighted by digitalindia.gov.in websiteis: -
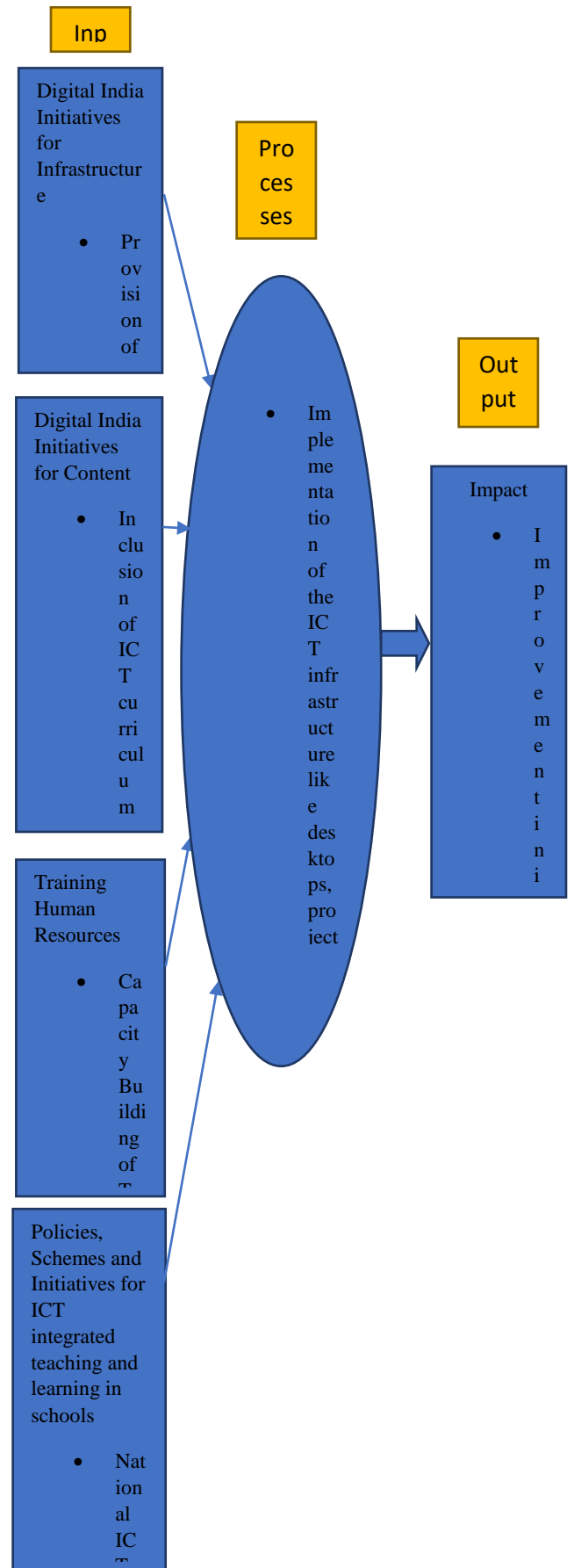
a. e-Basta: - To be consistent with the Government's Digital India initiative, this project has been created to make school books approachable, easy-to-use and user-friendly. e-Basta books are available in digital format. E-Bastas can be read and used on tablets and laptops. The main idea is to bring various publishersand schools together on the same stand. The participants of the e-Basta framework are publishers, schools, teachers and students. The e-Basta app can be easily downloaded by the students from all over the world. The contents required are selected by the schools and teachers. The publishers upload and manage content in the portal.

b. Saransh- CBSE Board initiated an e-facility titled 'Saransh' on 2nd November 2014 for CBSE affiliated

schools. It helps the schools to assess their performance and they can compare it against all CBSE schools at various levels.With the help of this online facility, schools can find areas of enhancement in students, teachers and curriculum and work on necessary measures to make changes. It alsoprovides overall and individual student's performance in academic and extra-curricular activities.

c. E-Pathshala -It is an app developed by NCERT.This app is house for different kinds of quality textbooks, audios and videos. It addresses a wide audience and also helps in bridging the digital divide between urban and ruralareas. It has variety of accessibility options.It can accessed through mobiles(android or IOS) or through web platforms on laptops or desktops.

d. ShaalaSiddhi: -It is a platform initiated by National Institute of Educational Planning and Administration. It aims at evaluating the schools to achieve the goal of sustainable improvement. They can also take sensible decisions for achieving their goals by comparing their performance with the criteria specified by the Schools Standards and Evaluation Framework[13].

e. e-Education: - Digital India aims to connect all the schools in India through Wi-Fi and broadband facilities. This again ensures that all the schools, be it in urban or rural, are able to access the state of art facilities and become familiar with the latest technologies.

VIII. PROPOSED CONCEPTUAL FRAMEWORK

The Inter-American Development Bank published a document named "Projects for the use of Information and Communication Technologies in Education, Conceptual Framework" by Eugene C. Severin in 2010.The proposed conceptual framework is based on this idea.The National ICT policy has directed the

Input

Digital India Initiatives for Infrastructure
- Provision of

Digital India Initiatives for Content
- Inclusion of ICT curriculum

Training Human Resources
- Capacity Building of T

Policies, Schemes and Initiatives for ICT integrated teaching and learning in schools
- National ICT

Processes
- Implementation of the ICT infrastructure like desktops, project

Output

Impact
- Improvement in

Central and state governments to implement ICT infrastructure in government and government aided schools in a phased manner[10].

Inputs: -

Thisframework takes infrastructure related to connectivity, equipments,software, hardware, contents, training of human resources and policies as inputs.The inputs will be covered as a part of Digital India initiative. As it is known, the success of the "Digital India" program lies expansion of broadband connectivity. Once the schools in the remotest villages get connected by broadband, the training of the teachers, the access to quality educational content will become easy.

Processes and products: -

This section highlights the progress of implementation of ICT infrastructure in schools, usage of ICT infrastructure, tools and resources in schools, trainings undertaken by the teachers. The teachers will also be able to align themselves to the recent trendsin technologies. The training provided by the government will help the teachers to enrich their knowledge and also improve their digital literacy skills. The teachers will be encouraged to play a participative role in developing the content, to become a part of online professional groups.These forums will also enable incessantdevelopment of ICT skills and also introduce them to tools and resources related to differentsubjects. This network will also help them

: Importance and Impact"(2018).

a) Impact of Digital India on Economic Development

"Digital India Programme: Importance and Impact"(2018) states that Digital India can boost GDP up to $1 trillion by scope to deploy Wi-Fi and broadband infrastructure is higher in rural areas when compared to urban areas. The tele-density in urban areas is around 160%. It has got fully saturated. The irony is tele-density in rural areas is only 45%, where around 70% of the population resides.

b) Impact of Digital India on Social Development

The modern and advanced facilities related to banking, education, healthcareis not reachable to the remote and rural areas of India. But with the launch of Digital India programme, it can be hoped that this gap can be bridged by providing broadband connectivity and ensuring that the urban areas and rural areas stay connected.The digital literacy in rural areas of India is just 6.5%. This can be improved by providing educational facilities like e-learning, smart class rooms, MOOC etc.

X. CONCLUSION

Digital India is in its nascent stage. There is a long way to go before the maximum potential can be realized. Only ICT and Digital India alone cannot drive the economy of the country. The citizens of the country have huge responsibility on their shoulders and they havetoutilize these initiatives to achieve a fully developed economy. The teachers form the crux of the educational sector. They have to understand the potential of Digital India initiatives towards education, the advantages of integrating ICT into the process teaching and learning. The teachers have a golden chance to develop their competencies with the help of induction and refresher trainings provided by

to share the knowledge gained to the other teachers in the group.

Outputs: -

Smart schools are being set up in different part of India in a phased manner. Initially, a computer lab which has facilities like broadband, projectors, whiteboardshasbeensetup in most of the schools. The transition to setting up of smart classrooms in all the classes will happen gradually. The outputs of the framework with respect to students are improved retention skills, better attention skills, improved decision-makingability, enriched critical reasoning skills and better vocabulary.The competencies of the teachers will also improve, thereby improving the academic performance of the students. This will help in increasing the confidence levels of the students and teachers.

IX. Discussion:

As seen from the conceptual framework, the Digital India initiatives in terms of Infrastructure, content, training of the human resources combined with the policies and schemesleads to overall development of the teachers and students. The current generation is the future of the country. Digital India and the National ICT policy has the potential for developing a knowledgeable, Digital literate economy. This is in line with the impact discussed in "Digital India Programme

2025.It will play a key role in improving digital literacy, generation of new employment opportunities, providing better livelihood opportunities for people in rural areas. The rural areas are expected to be benefitted more by Digital India initiative. This is because,the

the government. The transition from black board to white board will go a long way in the creation of a digitally literate knowledgeable economy.

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