

## PERSPECTIVES OF EDUCATIONAL TECHNOLOGIES TO DIGITAL INDIA

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### Abstract

*Education is the tool for change the society through their respective strategies in the world. The present government is pushing ahead the Digital India initiative to transform the country into a digitally empowered society and a knowledge society. In the present scenario couple of new initiatives has been taken to strengthen the economy of India. Few of them being made in India, Digital India, and skilful India etc. Studies linking the provision and use of technology with attainment tend to find consistent but small positive associations with educational outcomes. Today there is a significant gap between knowledge and skills students learn in school and the knowledge and skills that workers need in workplaces and communities. Employers report that they need students who are professional, having good moral and work ethics, can collaboratively work in team, have critical thinking and problem solving ability, can lead a group of people and are skilled in verbal and written communication. Social exclusion and inclusive policies are need to better performances through the positive practices to the nation development. The different perspectives help to make changes in technology as digital India. This paper consist concept, challenges, tools, global ideas and digital India views.*

**Keywords:** *Perspectives, Education, Technology, Digital India.*



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### Introduction

Now the India is shining because of adopting diffident technology in the field of Education. technology means the use of all kind of modern media and materials for maximising the learning experiences. Education technology is suggested by expert as one of the potential means of impairing education effectively and efficiently. Previously, teachers used to teach in rigid, formal and stereo-typed ways. Education was then conceived as the process of transmitting knowledge and ideas. Student used to get by heart whatever was given by the teacher or textbook. They often could not understand what was taught and were expected to reproduce at the time of examination. Pupils were silent audience and could not make any logical queries or independent thinking of their own. Today, the student is not

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considered as an empty vessel to be filled in by facts and figures. They are now expected to use so many media and materials and to get learning experience from all sides. Education is regarded as a process of interaction and interpersonal communication. Through this various educational tools and technology is adapting by the teaching and learning to the students for the growth and development of Digital India.

### **Concept of Education technology**

Educational technology is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. Educational Technology relies on a broad definition of the word "technology" which significant the tools and the sources to enhanced, to develop the skill of the Education.

"The study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources is called Educational technology".

### **Uses in Education technology**

These factors help to growth and increased human capacity.

- ❖ **Technological innovation** - the ability of the workforce to create, distribute, share and use of the new knowledge.
- ❖ **Capital deepening** - the ability of the workforce to use equipment that is more productive than earlier versions
- ❖ **Higher quality labour** - a more knowledgeable work force that is able to add value to economic output

### **Productivity Factors to connecting education policy with economic development.**

- ✚ **Approach through Creation Knowledge** -Increasing the ability of students, citizens, and the workforce to innovate, produce new knowledge, and benefit from this new knowledge.
- ✚ **Approach through deepening Knowledge** -Increasing the ability of students, citizens, and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems.
- ✚ **Approach through Technology literacy** -Increasing the extent to which new technology is used by students, citizens and the work force by incorporating technology skills into the school curriculum.

### **Technology as tools of Teaching**

- Mobile devices
- Online media Audio and video
- Class blogs and Wikipedia
- Computer tablets in the classroom
- Digital video-on-demand
- Digital Games
- Wireless classroom microphones
- Online study tools
- Interactive Whiteboards
- Social networks
- Webcams & Whiteboards
- Screen casting
- Virtual classroom
- Learning & Training management system

### **Challenges/Problems in Higher Education**

Policies are helping to improve the education system in the form the various surveys and studies, it has been observed that the higher education is undergoing through challenges and problems which need an effective solution to regulate those deficiencies. The major of them as –

- Low Student Enrolment
- Declining Research Standards
- Out-dated (Traditional) Teaching Methods
- Inadequate (Untrained) Teachers
- Irrelevant & Poor quality education
- Gap between job seekers & job providers
- Increasing popularity of Online & Distance Education
- Unequal Access, and Inadequate Infrastructure & Facilities

### **Challenges of Education Technology in India**

Despite early implementation of technologies in Education system, India still faces problem for the new technologies in education. Some of them are:

- Lack of knowledge about ways to integrate technologies to enhance curriculum
- Lack of adequate technical support for education institutes

- Not enough or limited access to computer hardware & computer software in education institutes
- Lack of time in school schedule for projects involving use of technologies
- Students and Teachers do not have access to the necessary technology at home
- Education technologies integration is not a priority
- Not enough teacher training opportunities

There is also a negative facets of new technologies used in education.

- ❖ **Too much trust in the information found** – When searching for some information on the website students tend to accept what they have found as true information, often without looking at other sources and hence having no justification to accept the information at face value.
- ❖ **The Copy and paste syndrome**– Schools and universities have more and more problems with students who prepare essays/ project/ presentation by using material from websites or blogs. Often, students just copy pieces of information that look relevant and paste them together, without sometimes even understanding them, let alone citing them.
- ❖ **Loss of privacy and profiling** – When students use services offered over the websites it is clear to us that they are making often information about us known to the service providers. There can be no doubt that some companies are collecting information or profiles on users, and on economic relevant developments. This may be done through stealth as described or from open social networks where many persons give away information that may well be harmful to them at some later stage.
- ❖ **Distortion of reality** – When students are looking for some information on the website, they usually employ a search engine. This will give them a ranked list of often incredibly many search results. There is the real danger that their view of reality is distorted by the website, by the fact that someone with enough money can influence what is written or ranked.

India is able to create a “globally relevant and competitive” higher education system that serves the requirements of both the domestic as well as global economy. We believe that “globally relevant and competitive” in the Indian context implies the following:

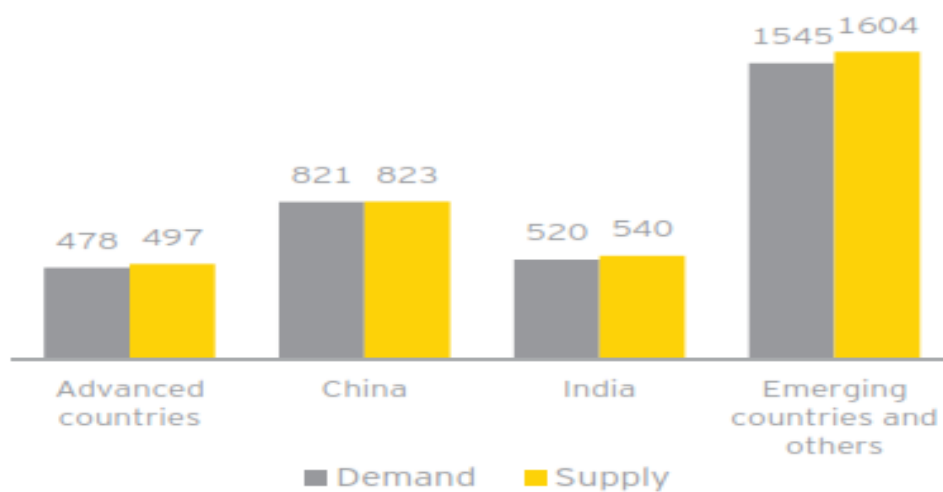
- ❖ India prominently placed on the global higher education map in terms of more globally-reputed Indian institutions, significant student and faculty mobility, presence of / collaborations with quality international institutions

- ❖ India as a hub for talent that is able to drive competitiveness of the Indian economy and is fit to work in or serve international markets
- ❖ A culture of research, innovation and entrepreneurship that can power high economic growth in the country

While the Indian higher education system has made considerable progress in terms of capacity creation and enrolment especially in the last decade, it lags significantly in terms of “global relevance and competitiveness”. We believe the key gaps are as follows:

- ❖ Limited focus on entrepreneurship on campus as reflected in the fact that there are few institutes that offer programs in entrepreneurship and have active incubation / entrepreneurship cells
- ❖ Low employability of graduates, driven by several factors including out-dated curricula, shortage of quality faculty, high student-teacher ratios, lack of institutional and industry linkages, and lack of autonomy to introduce new and innovative courses.
- ❖ Complex regulatory requirements and hurdles, poor institutional governance standards, and lack of professional management
- ❖ Low impact research output and patents filed given relatively low government and corporate spending on research, insufficient doctoral students, missing research focus and culture in most institutions, and lack of international research collaborations.

Global labor force demand and supply by 2020 (in million )



Source: Mckinsey Global institute “The world at work- jobs pay and skills for 3.5 Billion people

## **Digital India through the educational strategies**

- 1. Messages for innovation policies in education:** The history of digital technologies in education so far has mainly been one of undelivered promises, naïve beliefs and ineffective policies. Recent evidence, including the analysis of PISA data reported in this chapter, shows that introducing digital technologies in schools has not resulted in the promised improved efficiency through better results at a lower cost. There is a weak or even negative association between the use of ICT in education, and performance in mathematics and reading, even after accounting for differences in national income and in the socio-economic status of students and schools. Part of the explanation for this must lie with the dominant focus on technology and connectivity, both among suppliers of goods and services and among policy makers. Schools and education systems are not yet ready to realise the potential of technology and the appropriate conditions will need to be shaped if they are to become ready. Gaps in the digital skills of both teachers and students, difficulties in locating high-quality digital learning resources and software from among a plethora of poor-quality ones, a lack of clarity over learning goals, and insufficient pedagogical preparation on how to blend technology meaningfully into lessons and curricula, have driven a wedge between expectations and reality. If these challenges are not addressed as part of the technology plans of schools and governments, technology may do more harm than good to the teacher-student interactions that underpin deep conceptual understanding and higher-order thinking.

Despite the many challenges involved in integrating technology in teaching and learning, digital technology offers great opportunities for education. In many classrooms around the world technology is used to support quality teaching and student engagement, through collaborative workspaces, remote and virtual labs, or through the many ICT tools that help connect learning to authentic, real-life challenges. Teachers who use inquiry-based, project based, problem-based or co-operative pedagogies often find new technology to be a valuable tool and industry is developing a number of technologies, such as learning analytics and serious games, that promise to exploit the rapid feedback loops afforded by computers to support real-time, formative assessments, thus contributing to more personalised learning. What this shows is that the successful integration of technology in education is not so much a matter of choosing the right device, the right amount of time to spend with it,

the best software or the right digital textbook. The key elements for success are the teachers, school leaders and other decision makers who have the vision, and the ability, to make the connection between students, computers and learning.

It is easy to feel overwhelmed by the changes that digital technology has brought to our daily lives. Access to the Internet, increasingly through mobile devices, has a profound impact on the way we collect information, communicate with others, perform daily tasks and professional tasks, enjoy ourselves, and learn. Educational attainment and digital skills profoundly affect our capacity to use and benefit from digital technologies. Indeed, experience using digital technology and digital skills greatly enhance employment, wages and other social outcomes. Equipping individuals with the relevant skills to engage with the digital world – on top of good foundation skills such as reading and writing – will be key to their successful participation in Education, economic, social and cultural life. Without both digital reading and navigation skills – implying metacognitive regulation – individuals find themselves digitally adrift.

It is difficult to imagine innovation strategies in education without a strong focus on developing digital skills among students and learners. Countries will need to invest in the acquisition of digital skills, and especially in reducing the skills gap and the inequalities among those benefiting from digital technologies, if they are to harness the potential of the digital world.

- 2. Promoting teachers' digital skills:** NCTE develops content for teachers' professional development with the aim of stimulating innovation in teaching and learning, of bridging the distinction between formal, non-formal and informal learning environments, and, in a lifelong learning perspective, of reducing the distance between pedagogical practices and everyday life. NCTE has a rich resource bank for professional development related to the use of ICT in schools, including over number of text or multimedia resources, many of which introduce subject-specific uses of ICT. Training is often in blended (face-to-face and online) mode, combining preparatory face-to-face sessions with online activities and materials that are specific to subjects and grade levels but also linked to curricular contents and distance tutoring.

- 3. ICT competences Training to Teachers:** Today India need to action on ICT skills training for all its teachers and training professionals via the creation of a certificate

on the use of digital technologies and the Internet, the ” (C2i2e). The C2i2e certificate validates professional competences in the pedagogical use of basic numerical technologies and technology tools, which are today recognised as central to the exercise of their functions. The training leading to the acquisition of the C2i2e (*Certificat et internet del’enseignement supérieur de niveau 2 “enseignant*) certificate is open to all people studying towards a degree in the teaching profession, as well as any postgraduate student and already established teachers and trainers. Some of the skills targeted include the use of digital tools for research purposes, to foster team work and encourage student networks, to improve pedagogical methods and ensure the effective evaluation and monitoring of students’ ICT skills competences in school. Obtaining the certificate is not a prerequisite to the successful completion of a teaching degree. However, the Ministry of Education expects that all teaching student candidates and graduated teachers will obtain the certificate within three years of graduating, thus ensuring its future teaching workforce has mastered ICT

**4. Device and Network Management:** Many schools underestimate the importance of a plan for staffing and resources for on-going monitoring, management, and maintenance of network infrastructure. We must ensure that student data are maintained in secure systems that meet all applicable federal and state requirements concerning the protection of personally identifiable information. Key elements of an infrastructure plan should include the following:

- ↔ Network management and monitoring
- ↔ User helps desk and technical support
- ↔ Maintenance and upgrade of devices and equipment
- ↔ Insurance for devices
- ↔ Estimates of future demand and network capacity planning
- ↔ Licensing fees for digital learning content
- ↔ Firewall protection
- ↔ Content filtering
- ↔ Anti-virus and Anti-malware protection
- ↔ Security filtering
- ↔ Network redundancy
- ↔ Back-up recovery plans



↔ User cyber security education

↔ Use of open standards to ensure interoperability with other learning networks

### **Recommendations**

- Create and validate an integrated system for designing and implementing valid, reliable, and cost-effective assessments of complex aspects of 21st-century expertise and competencies across academic disciplines.
- Revise practices, policies, and regulations to ensure privacy and information protection while enabling a model of assessment that includes on-going gathering and sharing of data for continuous improvement of learning and teaching.
- Research and development should be conducted that explores how embedded assessment technologies such as simulations, collaboration environments, virtual worlds, games, and cognitive tutors can be used to engage and motivate learners while assessing complex skills
- States, districts, and others should design, develop, and implement learning dashboards, response systems, and communication pathways that give students, educators, families, and other stakeholder's timely and actionable feedback about student learning to improve achievement and instructional practices.
- The rationale for the impact of digital technology on teaching and learning needs to be clear
- Identify what learners and teachers will stop doing.
- Technology should support collaboration and effective interaction for learning
- The role of technology in learning should be identified
- Teachers and/or learners should be supported in developing their use of digital technology to ensure it improves learning.

### **The future of edutech in India**

**1. Culture:** The reason that the next technology revolution will occur in India is the degree to which the culture prizes learning and scholarship. Indian families will save and spend to educate their children. India students of all ages understand that the only way to achieve their dreams of economic improvement are individual investments in learning, and societal investments in the human capital of the population.

**2. Demand:** According to Homi Kharas of the Brookings Institution, between now and 2039 India could add over 1 billion people to the global middle class. To get there India will need to greatly improve its productivity, and the route to higher productivity is education. Even if

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India is able to follow through on plans to create 1000 new universities between now and 2020 the supply of higher education spots will dramatically lag demand. India's young age structure (with nearly one-in-three Indians below currently below age 14) will drive huge demand for post-secondary education opportunities. A campus-placed based model for 21st century higher education will never suffice to meet the demand. Higher education will inevitably move towards online and blended learning. The coming waves of Indian college students may not have the resources to pay tuition at today's high-end residential institutions, but the huge numbers of potential students combined with the scale economics of the web will result in profitable opportunities for education providers.

**3. Mobile:** Just as India leapfrogged landlines and jumped directly to mobile phones, the country is set to leapfrog campus-placed based higher education and jump right to online learning. The first trend, mobile phone adoption, will catalyse the second (online learning). India has over 850 million mobile phone subscribers; with a rate of increase over 10 million a month these mobile devices will be the classrooms of tomorrow. Big technology and publishing companies have so far failed to understand the potential of educational services delivered via mobile devices. Once the potential for mobile learning is understood, with revenue models from advertising to micro payments, there will be a gold rush into the Indian mobile education market.

### **Digital India New Processes**

The journey towards a digitally – connected India began in the early 90s and 2000s with the introduction of a range of e – governance programmes. However, its impact was limited. With a clear vision, the present government is pushing ahead the Digital India initiative to transform the country into a digitally empowered society and a knowledge economy. Digital India provides the much-needed thrust to the nine pillars of growth areas, namely Education Broadband Highways, Universal Access to Mobile Connectivity and Public Internet Access Programme, among others.

The Digital India programme is based on the following pillars:

- 1. Broadband Highways:** Under this programme, high – speed broadband coverage highways will connect 250,000 villages, various government departments, universities, etc. In addition, National Information Infrastructure (NII) will ensure the integration of the network and cloud infrastructure within the country to provide high-speed connectivity to various government departments. These components include networks such as State Wide Area Network (SWAN), National Knowledge Network

(NKN), National Optical Fibre Network (NOFN), Government User Network (GUN) and the MeghRaj Cloud.

2. **Universal accesses to Mobile Connectivity:** Today, there exist around 55,619 villages in India that have no mobile coverage. To cover remote villages in the northeast, a comprehensive development plan has been initiated that will be carried out in phases.
3. **Public Internet Access Programme:** The underlying principle of this initiative is to make 250,000 Common Service Centres (CSCs) operational at the gram Panchayat level for delivery of government services. In a similar move, 150,000 post offices will be converted into multi-service centres.
4. **E-governance: Reforming government through technology:** The idea is to use business process re-engineering to transform government processes and make them simple, automated and efficient. Under this, forms will be simplified and only minimum and necessary information will be collected. Similarly, there will be a tracking process for the status of online applications. To further simplify the process, use of online repositories for certificates, educational degrees, identity documents will be encouraged so that these documents do not have to be submitted in the physical form.
5. **Ekranti - Electronic Delivery of Services** This pillar emphasises on the use of technology for service delivery such as e-education, e-healthcare, technology for planning, final inclusion etc.

#### **Vision of Digital India through Education**

1. **Information for all:** This is to provide open access to government information and documents available online. This will enable a two – way communication between the citizens and the government through online platforms and social media. The biggest success story is MyGov.in, a platform for citizen engagement in governance, which was launched by the Prime Minister Narendra Modi on 26th July 2014 as a medium to exchange ideas or suggestions with the government.
2. **Electronics manufacturing:** Under this programme, the target is to reach net zero imports by 2020 through implementation in areas such as taxation, economies of scale, skill development, government procurement etc.

3. **IT for jobs** this step will provide the required skills and training to enable youth to find jobs in the IT/ITes sector. This component also emphasises on the setting up of BPOs to enable ICT-enabled growth.
4. **Early harvest programmes** These early harvest programmes consist of a range of projects to be carried out within a short timeline. This includes an IT platform for messages, e-greetings from the government, biometric attendance and Wi-Fi in all universities etc.
5. **The Digital India** vision provides the intensified impetus for further momentum and progress for e-Governance and would promote inclusive growth that covers electronic services, products, devices, manufacturing and job opportunities.

### **Successes of Digital India**

Governance and Services on demand

- ➡ Digital empowerment of citizens
- ➡ E-Pathshala: Transforming Learning through Technology
- ➡ eBiz platform
- ➡ My Gov platform
- ➡ Jeevan Praman
- ➡ Digital Locker System

### **Conclusion**

After a completion of one year of this effort, we are looking forward that efforts to make in India in education sector will take a bright future of our new generation & make the India stronger & sounder in the matter of not only in employability, but also in entrepreneurial business skills. The Education Technology also enables teachers to integrate project based learning. With guidance from effective teachers, students at different levels can use these tools to construct knowledge and develop skills required in modern society such as presentation skills and analytical skills. In the present time the teacher's role in teaching is facilitator. The teacher has to facilitate the learning by providing students with access to technology. The teachers can find the means to engage students more easily in learning and to cater to the various needs of different students. Education is tool to change the society through various technologies in India and its dimensions are helping to the digital world for the human beings. Finally Social exclusion and inclusive policies are also involving in the area of digital India as process of development.

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