

ICT Collaborations and Digitalization Services in Education: An e-view

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Abstract: Every service we can think of is now digital. The application for every service is available on smart phone and desktop. In education also from admission to counseling and placement, services are available on a click of digital button. It seems very comfortable when we got answer of our enquiry on the smart phone. Our time energy and money is efficiently saved. Books are now e-books and MOOCs are the new virtual gateways of knowledge and academic certificate accomplishments. Virtual Institutions are replacing physical Institutions of education. The bar of time and space is disappearing. The question remains is now of achievement and accomplishments through this rapid digitalization of education. This paper conceptually tries to evolve a critical prospective view of digitalization of education in terms of its power of providing equality and equity in education and side by side its effectiveness in paving ways of achievement and accomplishments in terms of graded success in acquiring quality education needed for success and happiness in life.

Keywords: Digitalization, Education.

1. Introduction

Digital knowledge is guiding the world today. Digitization makes it easier for e-services to access digital information. Larger population should be informed for maximum benefit of digital information in the form of digital information through apps and web. Digitization is a process of creation, saving, retrieval and dissemination of e-services. Digitization in education should be for equality and equality in education. It should promote e-inclusion and help bridge the digital divide among the masses. NCF 2005 talks about the use of ICT in education for quality improvement and implementation of government e-policies. E-inclusion completely depends on the digitization of education.

One of the major objectives towards the education community is how ICT and digitization services can create a conducive open learning environment. The National Curriculum Framework-2005, which implements and rationalizes teaching-learning efforts in schools, advocates that technology should be used as a tool for dissemination of information that facilitates the teacher. It expresses a strong belief that teachers and children should be treated not only as users but also as active collaborators of technology in educational processes. It should be mutual interactivity rather than one-sided passive reception that will make technology for

educational. More than any other previous technologies, ICT and digital e-services are giving learners access to a vast reservoir of knowledge beyond the school library. ICT and digital e-services are shifting from teacher-centred to learner-centered emphasis in the learning environment; Where the role of teachers shifts from being the principal source of information and transmitter of knowledge to being the guide and facilitator for the learning of the students; and where the role of students shifts from a role of passively receiving information to being actively involved and interactive in their own learning. Several steps have been taken in terms of developing training resources, creating e-content, designing e-learning platforms, creating IT infrastructure and conducting trainings, which have been created by government institutions as well as NGOs.

What follows is a brief discussion of key government initiatives to help integrate ICT and digitization in education and harness its benefits to improve the quality of learning.

2. Digital India Program

It is a program launched by Government of India having a vision of transferring India in a digitally empowering society and knowledge economy. The Digital India Program is based on three key vision areas:

A. Digital Infrastructure as a Utility to Every Citizen

“The Availability of high-speed internet as a core utility for delivery of services to citizens is of prime objective. The womb to tomb digital identity is unique feature. The Mobile phone and bank account UPI payment system will be enabling citizen participation in digital and financial space. There will be easy access to a Common Service Centre. The shareable private space on a public cloud will become reality. Providing the safe and secure cyber-space will be the priority”.

B. Governance & Services on Demand

“There will be seamlessly integrated services across departments and jurisdictions. The Availability of services in real time from online & mobile platforms will become the reality. All citizen entitlements to be portable and available on the cloud. Digitally transformed services for improving ease of doing business will be making available. The financial transactions will be electronic and cashless. The will be effort

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of Leveraging Geospatial Information Systems (GIS)”.

C. Digital Empowerment of Citizens

“The programme of Universal digital literacy will be started. There will be universal accessible digital resources. The Availability of digital resources / services in Indian languages will be available. There will be collaborative digital platforms for participative governance and citizens not required to physically submit Govt. documents /certificates.”

(Courtesy-Digital India Program, Government of India and NCERT)

D. Other Government ICT and digitalized Based Initiatives

1) National knowledge network

The National Knowledge Network (NKN) project aims to establish a strong and robust Indian network, which would be capable of providing secure and reliable connectivity. Globally, frontier research and innovation is moving towards a multidisciplinary and collaborative paradigm and requires substantial communication and computational power. In India, NKN with its multi-gigabit capability connects all universities, research institutes, libraries, laboratories, and healthcare and agriculture institutions across the country to address such change.

(Courtesy-NCERT, NKN)

Website: <http://nkn.gov.in/home>

2) Swayam (Study Webs of Active-Learning for Young Aspiring Minds)

“This Platform is indigenously developed by Ministry of Human Resource Development (MHRD) and All India Council for Technical Education (AICTE) with the help of Microsoft and would be ultimately capable of hosting 2000 courses and 80000 hours of learning: covering school, under-graduate, post-graduate, engineering, law and other professional courses. The courses hosted on SWAYAM will be in four quadrants, video lecture, specially prepared reading material that can be downloaded/printed, self-assessment tests through tests and quizzes and an online discussion forum for clearing the doubts.”

(Courtesy-NCERT, MHRD, AICTE)

Website: <https://swayam.gov.in>

3) National Mission on Education through Information and Communication Technology

“The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode”.

(Courtesy-NCERT, NMEICT)

Website: <http://www.nmeict.ac.in/>

4) National Digital Library of India

“The Ministry of Human Resource Development (ministry of Education now) under its National Mission on Education through Information and Communication Technology has initiated the National Digital Library (NDL) pilot project to

develop a framework of virtual repository of learning resources with a single-window search facility.”

(Courtesy-NCERT, Ministry of Human Resource Development)

Website: <https://ndl.iitkgp.ac.in/>

5) NROER

“National Repository of Open Educational Resources (NROER) is a collaborative platform, which brings together everyone interested in school and teacher education. Initiated by the Department of School Education and Literacy, MHRD and managed by CIET, NCERT, offers digital and digitizable resources (audio, video, interactive images and documents) in different languages along with online activities.”

(Courtesy-NCERT)

Website: <http://nroer.gov.in>

6) Shala Darpan

“Shaala Darpan is an e-Governance platform for all Kendriya Vidyalayas in the country. It aims to improve quality of learning, efficiency of school administration, governance of schools & service delivery to key stakeholders namely, students, parents, teachers, community and schools. Parents will get entire information at a united platform about their children in respect of attendance status, performance, health challenges and entire academic record from 1st to XIIth standards.”

(Courtesy-NCERT)

Website: <https://darpan.kvs.gov.in/shaaladarpan/>

7) Shala Siddhi

“The National Programme on School Standards and Evaluation (NPSSE), known as Shaala Siddhi is a comprehensive instrument for school evaluation leading to school improvement. Developed by the National University of Educational Planning and Administration (NUEPA), it aims to enable schools to evaluate their performance in a more focused and strategic manner and facilitate them to make professional judgments for improvement.”

(Courtesy-NCERT, NUEPA)

Website: <http://shaalasiddhi.nuepa.org>

8) Saransh Portal

“A CBSE Initiative, Saransh is a tool for comprehensive self-review and analysis for CBSE affiliated schools and parents. It enables them to analyze students' performance in order to take remedial measures. Saransh brings schools, teachers and parents closer, so that they can monitor the progress of students and help them improve their performance.”

(Courtesy-NCERT, CBSE)

Website: <http://saransh.nic.in>

9) E-Pathshala

“E-Pathshala has been developed by NCERT for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals and a variety of other print and non-print materials through website and mobile app. The

platform addresses the dual challenge of reaching out to a diverse clientele and bridging the digital divide.”

(Courtesy-NCERT)

Website: <http://epathshala.nic.in>

10) *e-PG Pathshala*

“High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages at PG level is being developed under this initiative named e- PG Pathshala.”

(Courtesy-NCERT)

Website: <http://epgp.inflibnet.ac.in/>

11) *Online Labs (OLABS)*

“Online Labs (OLABS) for school lab experiments provides students with the ease and convenience of conducting experiments over the internet. It has been developed to supplement the traditional physical labs and bridge the constraints of time and geographical distances. This not only reduces the costs incurred for conducting experiments in real time but gives a student the flexibility to explore and repeat experiments till they are thorough.”

(Courtesy-NCERT)

Website: <http://www.olabs.edu.in>

12) *e-BASTA*

“In line with the Government's Digital India initiative, C-DAC has created a framework to make school books accessible in digital form as e-books to be read and used on tablets and laptops. The main idea is to bring various publishers (free as well as commercial) and schools together on one platform.”

(Courtesy-NCERT, C-DAC)

Website: <https://www.ebasta.in>

13) *GIS in School*

“A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data. This is a Web GIS application to enable planning for the access, enrolment, retention, quality and monitoring aspects, integration of school infrastructure, facilities, budget & expenditure, child & teacher information, attendance, mid-day-meal program, results, school complexes along with required visuals, integrating.”

(Courtesy-NCERT)

Website: <http://schoolgis.nic.in/>

14) *Swayam Prabha*

“Educational Contents through for Operationalizing 32 Direct to Home (DTH) Television Channels for providing high quality educational content to all teachers, students and citizens across the country interested in lifelong learning.”

(Courtesy-NCERT)

Website: <http://www.swayamprabha.gov.in/>

15) *National Policy on ICT in School Education*

“To devise, catalyze, support and sustain ICT and ICT

enabled activities and processes in order to improve access, quality and efficiency in the school system. It aims at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socioeconomic development of the nation and global competitiveness.”

(Courtesy-NCERT)

Website: <http://ictschoools.gov.in/Policy/national-policy-ict-school-education>

16) *National ICT Curriculum*

“National ICT Curriculum aims at realizing the goals of the National Policy of ICT in Schools Education and the National Curriculum Framework.”

(Courtesy-NCERT)

Website: <http://ictcurriculum.gov.in/>

17) *National Award for Teachers Using ICT for Innovation in Education*

“Under the ICT in Schools, to promote computer enabled learning and usage of ICT in teaching in Government and Government aided Secondary and Higher Secondary Schools has provision for instituting the National Award for innovative use of ICT to motivate the Teachers and Teacher Educators for innovative use of ICT in teaching-learning.”

(Courtesy-NCERT)

3. Impacts of ICT Collaborations and Digitalization e-Services in Education

1) *Digitalization for Accessibility*

Digitalization is successful only when it is easily accessible to all despite of age, caste, creed and equal opportunity would be provided to all the citizens of India with a sense of responsibility.

2) *Digitalization for Availability*

Accessibility is possible after the proper availability of digitalization so it should be free for all and should be available for 24*7 with a better internet speed, which is still just a dream as most of the time and in many areas server remains down which hampers many activities.

3) *Digitalization for Adoptability and Adaptability*

Digitalization should be prevailed in the society in such a manner that people feel comfortable in adopting it in their daily life and can adapt them well with it although in most of the rural areas it is still a burden for the citizens.

4) *Digitalization for Infrastructure*

Digitalization can be successful in real terms if proper infrastructure is provided or from other way round proper infrastructure helps in prevailing digitalization among people.

5) *Digitalization for Training*

Only infrastructure alone is not enough but proper training to all the people in using it and adapting with it is prime concern so that they can feel comfortable in digitalization world.

6) *Digitalization for Creation*

Digitalization can reach to new horizons when people use it to create new productive things and learning and ample

information can be attained through digitalization which enhances the knowledge of people but cramming should be preferred if it is used for some new and productive creation.

7) *Digitalization for Curability*

Although creativity is important aspect but intelligent and positive use of digitalization for curation is equally important in today's world.

8) *Digitalization for Applicability*

Digitalization should be based on applicability. People can apply it directly in their day-to-day life for various purposes.

9) *Digitalization for Practicability*

Applicability of digitalization depends upon the practicability that is whether it is practicable in real life or just virtualizes the things and takes people away from their real world.

10) *Digitalization for Power to solve educational Issues*

Most important issue for any country is its education system. So, digitalization should bring power to solve various educational issues like understanding difficult concepts in discussing lively with experts, managing administration etc.

11) *Digitalization for Transferability*

Digitalization should contain such powers that it can be transferable from one app to other whatever and whenever required without much difficulty.

12) *Digitalization for Transparency*

Digitalization can prove to be a great source of transparency in almost every field like education, business, medical etc. Hence, can prove to be a boon in eliminating corruption and all types of evils from the society.

Overall trends:

- Collaborative use of technology in educational processes to support teacher work is usually more effective than individual use, though teachers and students, may need support in form of trainings and infrastructure in collaborating effectively.
- Technology should be exercised very effectively as a need based focused intervention to improve learning, particularly when there is regular and frequent use. Un collaborative sustained use over a longer period is usually less effective at improving educational attainments.
- Diagnostic and Remedial use of technology and digitalization services can be particularly effective for lower achievement students, those with special educational needs and those from disadvantaged backgrounds in providing e- inclusive environment to enable them to map up with their peers.
- In collaborative interventions, technology is best used as a tool and not as master to supplement the classroom teaching rather than of thinking as a replacement for it. This suggests some caution for all education fraternity in the way in which technology is adopted or implanted in schools.
- The gains in educational attainments of learning outcomes tend to be greater in mathematics and science (compared with languages learning for example) although this is also a more generic findings in literature

analysis and may be a measurement relic. In literacy, on the same grounded thinking the impact may be greater in writing interventions as compared with reading or spelling.

- Online capacity building programmes for teachers is an important component of successful digitalization approaches. At least a full training package support or on-going professional inquiry- based d appear the digitalized e-services will be more successful. The implication is that such collaborative support should go beyond teaching skills in technology use and focus on the effective pedagogical use of the digitalized e-services to support teaching and learning objectives.

Overall, the key implication is that the technology is solely a collaborative *catalyst* for change. What is it that teachers or learners actually do which brings about any quality improvement in learning? Focusing on the change (and the process of change) in terms of learning is essential in supporting and collaborative effective use of digitalization services.

4. Conclusion

From the present article it can be concluded that technology collaborations is an important part of educational processes in twenty first century and digitalization is proved to be a boon in the life of students by providing them equity and equality in education. Although digitalized e-platforms are provided by the government educational institutions and NGOs but we still need some extraordinary collaborative efforts which should be sensible enough to understand the varied needs of educational area and other aligned sectors related to educational field. For it just launching is not enough at all but requires management, prevailing sustainable efforts and support in order to reach in advantages. A sensible digitally undivided society can be formed if we are able to do it in education.

References

- [1] Andrews R., Burn A., Leach J., Locke T., Low G.D. & Torgerson C. (2002) A Systematic Review of the Impact of Networked ICT on 5-16 year olds' literacy in English. In: Research Evidence in Education Library. Issue 1. London: EPPI Centre, Social Science Research Unit, Institute of Education.
- [2] Cox, M., Webb, M., Abbott, C., Blakeley, B., Beauchamp, T., & Rhodes, V. (2003). A review of the research literature relating to ICT and attainment. Coventry: British Educational Communications and Technology Agency.
- [3] Cronbach, L. J., Ambron, S. R., Dornbusch, S. M., Hess, R.O., Hornik, R. C., Phillips, D. C., Walker, D. F., & Weiner, S. S. (1980) Toward reform of program evaluation: Aims, methods, and institutional arrangements. San Francisco: Jossey-Bass.
- [4] Davies, J. and Graff, M. (2005) Performance in e-learning: online participation and student grades British Journal of Educational Technology 36. 4: 657 – 663.
- [5] Dunleavy, M. Dexter, S. & Heinecke W.F. What added value does a 1:1 student to laptop ratio bring to technology-supported teaching and learning? Journal of Computer Assisted Learning 23: 440-452.
- [6] Fuchs, T. & Woessmann, L. (2004) Computers and student learning: bivariate and multivariate evidence on the availability and use of computers at home and at school CESIFO Working Paper No. 1321 Category 4: Labour Markets (Nov. 2004).
- [7] Harlen, W. (2007) Criteria for Evaluating Systems for Student Assessment Studies in Educational Evaluation 33: 15-28.
- [8] Hartley, J. (2007) Teaching, learning and new technology: a review for teachers, British Journal of Educational Technology 38.1: 42-62.

- [9] Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- [10] Higgins, S., Beauchamp, G. & Miller, D. (2007) Reviewing the literature on interactive whiteboards *Learning, Media and Technology*, 32.3: 213–225.
- [11] NCERT
- [12] CBSE
- [13] AICTE
- [14] NKN
- [15] C-DAC
- [16] NUEPA