CURRICULUM FRAMEWORK FOR APPLICATION OF ICT IN EDUCATION

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Abstract

Information and Communication Technologies (ICTs) are making dynamic changes in every aspects of life including education. Observation of various lacunas and limitations indicated the problems faced in the implementation of ICT in education. Though origin of many of the problems are complex and multifaceted, but core issues that need to be defined lies on the conceptualizing the implementing mechanism and paradigm. Observations at the application level show the lack of coherent curriculum framework with regard to ICT. In this background, framing a proper curriculum framework as per the needs of the existing system has been felt.

Keywords : *ICT; Education; E-Content; E-Learning; curriculum framework*

"Today, real borders do not lie between nations but lie between those who can access ICT and those who cannot." -Sheldon Shaffer, Director, UNESCO Asia and Pacific Regional Bureau for Education

Information and Communication Technologies (ICTs) are making dynamic changes in every aspects of life including education. Its influence in education system in India takes place at a fast pace (Snehi, 2009). The term encompasses diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information (Tinio, 2003). Application of this technology in education may range from using alternative means of communication and delivery mechanism such as radio, television, audio-visual systems to computer based learning systems. In India, initiatives to integrate this technology at different levels have been observed from early times (Reddi & Sinha, 2004). From the early efforts of Satellite Instructional Television Experiment (SITE) in mid 70s, UGC-CEC consortium for graduate and post-graduate levels, Gyandarshan II of the IGNOU, Ministry of Human Resource funded projects like Computer Literacy at Secondary School (CLASS) Project, ICT@School Project etc., to recently evolved National Mission in Education through ICT are the ranges of initiatives taken by India government for integrating and applying ICT in education system. On the other hand, many private players also contributed to the application of this technology in education through PPP model (e.g. Project Shiksha, Rajasthan Education Initiative) or independent mode.

Status of ICT at present

Along with these initiatives and investment, the question is how much we have gained from this technology and how much we have efficiently utilized our potentials and resources. Answers are far from satisfaction as reflected in the words of various agencies such as NCTE and NCERT. "*It has become more of a fashion statement to have computers or multimedia in schools, the result being that in spite of its potential to make learning liberating, its implementation is often not more than cosmetic*." (NCTE, 2009)

Observation of various lacunas and limitations indicated the problems faced in the implementation of ICT in education. Though origin of many of the problems are complex and multifaceted, but core issues that need to be defined lies on the conceptualizing the implementing mechanism and paradigm. In most of the application in institutional level, main focus of ICT was targeted to imparting knowledge of computer fundamental with basic computer handling. Such narrower vision towards ICT failed to provide results. Role of the ICT in education should not be confined to provide fundamental computer knowledge and basic handling of the computers. It should be expanded to avail all of the opportunities that can be provided by ICT for enhancing teaching learning process and familiarizing the learners with computer related social and ethical issues. In this technological era, ICT skills play an important role in improving employment facilities also. Studies have pointed out that ICT skills are usually insufficient in disadvantaged groups of society (Garrido, Sullivan, & Gordon, 2012). Goal of education should include measures to remove this inequality.

Potentials for positive approach are there as both public and private institutions have taken interest in their computerization programs. However, many of their vision could not extend beyond hardware procurement towards appropriate content, capacity building, support and maintenance (GESCI, 2009). From the side of the authority, imparting computer knowledge is identified with learning and handling proprietary tools. Little attention had been provided to development of course design, implementation methodology and monitoring mechanism.

Observations at the application level show the lack of coherent curriculum framework with regard to ICT. Many of the learners and teachers are using Internet at their institutions. Minute observations in many instances; have shown that they are accessing information which is not

related to course contents. Underutilization of full potentials of ICT by using only as information delivery mechanism has also been reflected in the National Policy (MHRD, 2012). Such situations are fallout of unavailability of adequate course materials that could link directly with curriculum. With most of the teachers and teacher educators are not properly trained in this technology, development of in-house tools are far from reality. As such, institutions have to import or procure e-content from external sources developed by private vendors. This stopgap arrangement could not serve the basic purpose in education, as most of e-contents originated from private vendors are targeted to larger audience and failed to link with the course curriculum. Such clear demarcation between ICT curriculum and course curriculum (Kasinathan, 2009) may undermine the spirit of application of this technology. When the computer education is not linked with regular curriculum, a sense of externality is observed towards the whole activity, as reported in certain studies (Kasinathan, 2009). Significantly, the Sub-Committee of Central Advisory Board of Education (CABE) on ICT in School Education in March 2012 have objected to the outsourcing of digital contents and resources and emphasized the need for involvement of teachers and teacher-education in such processes. There is also issues of quality and sustainability of the computerization projects.

In a diverse pluralistic country like India, centralized e-content development initiative should take into consideration cultural and linguistic diversity. Paradigm shift from centralized NCERT/CIET e-content development towards state level SCERT/SIET is a significant step for diversified contents (CABE, 2012). In spite of the directives and observations, practical implementations are yet to initialize. In the ground reality, a generic curriculum standard to be followed by state level functionaries is required. Lack of this uniformity creates diversified level of introduction of computer literacy among schools as observed in many institutions. Proactive role from concerned authorities are demanded to remove these contradiction of official guidelines and directives from grass-root level applications.

How to improve the status of ICT?

In this background, framing a proper curriculum framework as per the needs of the existing system has been felt. The efforts should be in accordance with the underlying spirit of integrating technology with education espoused by National Curriculum Framework, 2005 (NCF, 2006b)and Curriculum Framework for Teacher Education, 2009(NCTE, 2009). Operational definition of curriculum framework in this paper is based on position paper on curriculum, syllabus and textbook which states the framework as "*a plan that interprets educational aims vis-a-vis both individual and society, to arrive at an understanding of the kinds of learning experiences school must provide to children.*"(NCF, 2006a)

What should be core components of the curriculum framework related to ICT?

Demarcation between IT curriculum and Computer Science curriculum at the school level is clearly reflected in NCF 2005. In the Information Technology Curriculum, learning IT Tools for the learner's advantage is the basic goal while in Computer Science learners focus on the process of creation of tools. Since then, perspectives on computer and IT have changed a lot affecting every aspects of life. Consequently, MHRD's National Policy on Information and Communication Technology in School Education, last revised March 2012, have envisaged the application of ICT for preparing learners 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.(MHRD, 2012) It is a well-known fact that potentials of ICT are diverse. ICT can expand the horizon of education by providing "anywhere, anytime" classroom that can access reach marginalized and remote areas, preparing individuals for the workplace, improving the quality of education and creating learning centered environment (Tinio, 2003). As the existing and emerging technologies have significant role in shaping personal life to suit in their environment, institutions have to prepare the learners for the world they have to face. Successful implementation of ICT in conventional education would benefit many in resource scarce states. In the 21st education, rightful use of ICT will leverage our education system by providing equal opportunities to learners, extending the lesson beyond classroom, and bridging the rural-urban divide.

We can analyze the experience of others. Commonwealth of Australia has expanded the role of ICT to government and industry leadership, ICT research and development base, skills capability base, secure communications, development of a supportive environment for innovative ICT businesses , development of a culture of risk-taking and innovation; and effective and coordinated approaches to e-Government. (COA, 2003). In developing curriculum framework, we should not forget the core-issues highlighted by the UNESCO with regard to ICT, i.e. (i) integrating technology in the curriculum and assessment, (ii) shift in pedagogy, (iii) content and services that support continuous improvement of curriculum practices, (iv) development and selection of culturally sensitive content, (v) ethical and political implications of using English as lingua franca, and (vi) intellectual property rights related to educational software (UNESCO, 2004). Compared to these observations, inclusion of social and ethical issues in national policy in school education in

advanced level (MHRD, 2012) is not sufficient to cope with the rapid technological change. One of the important factors that ail ICT in India is limitation in budget allocations that favors more towards urban and advantaged section of society at the expense of rural communities. Some other challenges that faced developing countries in ICT in education are poor information management, language, information filtering and reliability and plagiarism (Tella & Adu, 2009). While framing the curriculum, these aspects should take into consideration to devise means to free from various constraints. We are living in an era which is greatly influenced by ICT. Redefining the role of ICT as "*the ability of individuals to use ICT appropriately to access, manage and evaluate information, develop new understandings, and communicate with others in order to participate effectively in society*." proposed by MCEETYA Performance Measurement and Reporting Taskforce is relevant in this context (MCEETYA, 2005). Moreover, for achieving UN Millennium development goals, proper implementation of ICT in education is also relevant (Wagner et al., 2005).

Conclusion

This paper is an attempt to highlight the various issues that faced in applying ICT in education sector. Notwithstanding various factors that affect the ICT, one of the major factors is curriculum framework that is suited to existing education system. Conceptualizing and developing a clearcut curriculum framework envisaging the application of ICT in education is the need of the hour. We should not narrow down our vision towards mere computer literacy but to familiarize our youths to grasp the challenges of tomorrow.

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