A Sound Framework for ICT Integration in Indian Teacher Education

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ABSTRACT

This conceptual analysis aimed at preparing a sound framework for healthy integration of information and communication technologies (ICTs) in Indian teacher education practices. An extensive and integrative literature review was made following the inclusion-exclusion criteria. The models proposed in several previous studies were also gone through and adequately contextualised with the needs and ethos of Indian teacher education programs to build an innovative framework leveraging the optimum potentials of ICTs in educational set up. The findings of the study synthesized with a proposal to build a sound framework for an ideal ICTs integration in Indian teacher education scenario based on seven cardinal principles of good practices with a major shift in emphasis from 'education for ICT' to 'ICT for education', effective to accost the educational transformations for 21st century India. The implication was that by adopting such a sound framework the teacher education in the country could exploit the genuine benefits of ICTs thereby augmenting its educational outputs to the fullest.

KEYWORDS

Educational Technology, India, Information and Communication Technology (ICT), Pedagogy, Student Teacher, Teacher Education (TE)

INTRODUCTION

Manas Ranjan Panigrahi (2016) in his edited book entitled '*Resource Book on ICT Integrated Teacher Education*' wrote, learning is not learning if a formative shift in one's cognitive schema has not occurred and teaching is not teaching if one has not learned. Noel Pearson (an Australian Aboriginal Activist) bluntly put it, "if the student has not learned, the teacher has not taught" (Pearson, 2009, p. 35). But teaching is not simply about talking to students about a body of subject matter knowledge rather it is a lot more than that. If learners have not learned anything, then all a teacher may have done is 'talked' to them, or given them a "lecture", hence it is about influencing one's cognitive schema with new knowledge and realisations and/or new approaches to viewing reality; it is about moving minds (Laurillard, 2012). Laurillard (2012) further said unlike the natural sciences, education generally, and teaching in particular, is best seen as a design science which has the aim of continuous quality improvement based on best practices. Teaching is about motivating students to want to learn (see Keller, 2008; Mathews, 2009). It is about placing "students in an environment where they want to learn and where they can naturally discover their true passions" (see Robinson, & Aronica, 2009,

p. 238), and "great teachers have always understood that their real role is not to teach subjects but to teach students" (p. 249). But this high idealism of modern teaching can only be harboured by a teacher through a proper teacher education program only.

In 21st century, technology is considered to be a potential instrument for bringing revolution in social and cultural lives of our human society. Present generation of students cannot remain aloof from technology; therefore, need for a class of teachers adroit in handling technology enabled classrooms, is very essential. We are living in a defining moment of education history, when the world in which teachers do their work is changing profoundly, and the demographic composition of teachers is turning dramatically and teaching is now becoming a young persons' profession again (Hargreaves, 2003). He also stresses that the present knowledge economy is driven by creativity and ingenuity, is empowered by technology, and fuelled by information. In such a rapidly changing context, how teachers can be empowered and prepared to take up new roles and perform teaching effectively to meet the challenges and new expectations from education reforms is a crucial concern in policy making, reform and practice of teacher education and professional development in the Asia-Pacific region and its counter parts (Cheng, Chow, & Mok, 2004). Particularly in a context of growing emphasis of applying and integrating ICT in education, a key issue confronting educators and leaders is how ICT should be applied in teacher education to enhance professional learning and support teachers effectively to perform new roles and face up to new challenges in education for the future. ICT generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information (Toomy, 2001). It means ICT applied to the creation, storage, selection, transformation and distribution of information of many kinds. Hence ICT is a comprehensive term that includes any communication device or application such as radio, television, cellular phones, computer and network, hardware and software, satellite as well as the various services and applications associated with them, such as video-conferencing and distance learning. World Education Report, '*Teachers and Teaching in a Changing World*' (UNESCO, 1998), describes the radical implications ICTs have for conventional teaching and learning. It predicts the transformation of the teaching-learning process and the way teachers and learners gain access to knowledge and information. Educational systems around the world are under increasing pressure to use the new ICTs to teach students the knowledge and skills they need in the 21st century (UNESCO, 2002). The UNESCO report entitled *Information and Communication Technologies in Teacher Education: A Planning Guide (2002)* identifies the importance of ICT for teacher education as "teacher education institutions may either assume the leadership role in the transformation of education or be left behind in the swirl of rapid technological changes. For education to reap the full benefits of ICTs in learning, it is essential that pre-service and in-service teachers have basic ICT skills and competencies."(p.13). Now in many developed countries in Europe or North America, ICT has become an important integral part of the curriculum of Teacher Education and the integration of ICT in curriculum has become an inevitable global trend of the education (Guo, W. & Yang, Z., 2016). Student and teachers should have sufficient access to digital technologies and the Internet in their classrooms, schools, and teacher education institutes; high quality, meaningful and culturally responsive digital content made be available for teachers and learners; teachers must have knowledge and skills to use the new digital tools and resources to help all students achieve high academic standards (Takwale, et al., 2014).

However, the teacher education institutions and teacher education professions in India and in many other Asian countries are yet to explore its complete advantages (Mishra, et al., 2006). Integration of Information and Communication Technologies (ICTs) and their integration in teacher education programmes are a means to improve and reinforce the quality of teacher education programmes at pre-service and in-service level (Dash, 2014). With implementation of ICTs and its effective integration with teaching-learning process, the approaches to learning and teaching has been changed dramatically (Takwale, et al., 2014). It is needless to say that there is a growing pressure on teacher education institutions of India to prepare teachers who are confident and competent in using ICT in their personal and professional lives; that is 'students should learn about, learn with, and learn

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