

PERSPECTIVES OF INTEGRATING ICT IN 21ST CENTURY'S TEACHER EDUCATION

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Abstract

As a result of gradual shift and progression into the 21st century, adoption of Information and Communication Technology (ICT) will bear strong force in planning and delivery of instruction to meet out the contemporary trends in education. Application of ICT skills in teaching has become indispensable for both teacher educators and student educators in the technology driven era. Teacher educators have to acquaint themselves with the expansion of technological advancements in teaching to meet out the confronts and prospects of e-learning environment in an informative era. This article aims to explore the need for revisiting pedagogy of teaching as mandated by ICT enabled teaching methodologies and tools for student educators as they shoulder entire responsibility to practice and implement ICT enabled pedagogies in future. Restructuring of teacher education curriculum with appropriate 21st century ICT skills will facilitate the student educators to accommodate in the futuristic classroom with utmost ease and confidence.

Keywords: *ICT, Integration, Teacher Education, 21st Century*

Introduction

India is a rapidly changing country focused upon inclusive, high-quality education for its future prosperity in the international scenario. India holds third position in the world as far as higher education structure is concerned following United States and China. India's higher education sector witnessed swift expansion since 2001. Drastic increase in number of Higher Education Institutions found to be astonishing and enrolment simultaneously increased to four fold. Pandemic resulted out of COVID-19 outbreak has radically shifted the education system from face to face to online mode with distinctive rise of digital learning in remote mode. Information, Communication and media technologies are the high-octane fuel that drive global connections, exchange of knowledge and resources, create the platform and provide tools to collaborate and connect. India's continued growth in every level fundamentally relied on education. ICT has become inseparable part in providing quality and effective education in every level of education and in shaping behaviour of futuristic citizens. In the year 2008-09 a budget allocation of Rs.502 crores has been provided for National Mission on Education through ICT. At this moment teachers should be equipped with appropriate ICT skills and maintain a proper balance between content creation, content delivery, assessment and evaluation procedures

through various digital platforms. Quality parameters of education relies upon the competencies of the teacher exhibited in the classroom to shape the learners. The modern technology driven era demands more knowledge and skills from teachers regarding ICT related skills in teaching - learning process. ICT knowledge is also expected from the prospective teachers during their pre service training to meet out the demands of future classrooms with their technology integrated pedagogical skills.

Role of ICT in Education

Traditional face to face classroom with desks, notebooks, pencils and blackboard gradually advance towards technology enabled classrooms with digital features. In order to achieve the goals of education for all (EFA) which focused on education with quality, an immense requirement has been stirred up to develop educational goals with expanded vision. This enables for holistic approaches to reorganize contents in order to develop fundamental abilities of the learners through curriculum renewal involving ICT skills focusing on 21st century skills such as communication, collaboration and critical thinking. In an information and communication driven age, education system is directed to respond the evolving demands by two means, firstly through transmission of constantly evolving knowledge and tackling the adaptations of learners to it and on the other hand to control and monitor learners not to be snowed under by the uninterrupted flow of information, while keeping social and personal development of the learner at its end in view. Hence education should endow learner with a guiding map to move in right path to reach their destination (Delors, et al).

In India, institutions offering education at school level and higher education face confronts in the aspects of Access, Equity and Quality. Government of India has initiated quite a few measures for its implementation in the Eleventh Five Year Plan period by adopting various strategies specific to the state with relevance to increase access to higher education through reforms in curriculum, skill training programs, networking, adoption of Information Technology in regular and distance education which is being continued in the Twelfth Five Year Plan. ICTs are mainly used in higher education in preparation of learning material; content delivery and sharing; communication among various stakeholders like teachers, students and societal members; research; administrative reforms etc to overcome confronts in Access, Equity and Quality at all levels of teaching. Employing ICT in education paved way for learner-centred learning settings stressing upon the need to follow and practice digital initiatives as the world quickly moves towards it in the 21st century.

Benefits for various Stakeholders

Stakeholder	Benefits
Students	<ul style="list-style-type: none"> • Increased access • Flexibility of content and delivery • Combination of work and education • Learner-centred approach • Higher-quality of education and new-ways of interaction
Employers	<ul style="list-style-type: none"> • High quality, cost effective professional development in the workplace • Upgrading of employee skills, increased productivity • Developing of a new learning culture • Sharing of costs and of training time with the employees • Increased portability of training
Governments	<ul style="list-style-type: none"> • Increase the capacity and cost effectiveness of education and training systems • To reach target groups with limited access to conventional education and training • To support and enhance the quality and relevance of existing educational structures • To ensure the connection of educational institutions and curricula to the emerging networks and information resources • To promote innovation and opportunities for lifelong learning

Source: (UNESCO, 2002); <http://unesdoc.unesco.org/images/pdf>

Objective

To explore the Perspectives to integrate Teacher Education with ICT

Methodology

Descriptive analytic method was adopted to analyse the materials collected from secondary sources which includes books, articles, journals, Government reports and websites to trace out the perspectives of integrating ICT in teacher education.

Need for ICT Integration in Teaching

Education in online mode is an atypical feature in Indian scenario since it very new concept for majority of students and teachers. Using ICT by the teachers in turn prepares the learners who are the future educators to become well versed and competent enough to explore with advancement of technology and thereby develop 21st century skills as

demanding from futuristic society. The teacher plays a crucial role in the life of a student as a facilitator, information provider and mentor. Hence it becomes inevitable for a teacher to be endowed with appropriate strategies to transfer knowledge and skills through technology incorporating pedagogical concepts in the technology driven knowledge era.

Several studies have identified integration of ICT in teacher education curriculum as a major concern. Before initiating for introduction of technology and infrastructure in an educational set up it becomes imperative to educate teachers to use it. Educators are to be trained to cope with the rapid development of teaching practice through ICT. Further they have to be extended with continuous in - service education and exposure to employ appropriate ICT skills to cope up with emerging technologies (Mafuraga and Moremi 2017).

ICT skills provide opportunities to teachers and students to practice simulative sessions, easy access of articles, materials and content through web resources (Khan, Hasan and Clement 2012). ICT skills and technology facilitated for self regulated learning as a new horizon in learning wherein learning, unlearning and relearning of concepts happens in a natural process to match with the updates of present scenario. Advanced technological influence during teaching and learning process with ICT skills attract students and enrich them with new learning experiences (Al-adwan & Smedley, 2012).

Institutions of the Future

Challenges in the current work and life spaces are far more complex than they ever were. The skills required to face these challenges go far beyond mere thinking skills and conceptual knowledge. It is increasingly becoming interdependence and connected world. Technology is taking giant strides, creating new innovations and making the impossible possible. Thus 21st century living requires a diverse array of skills specially designed to enable an individual to navigate this ever changing and challenging world and create successful and well adjusted lives for themselves. A visual representation of institutions of future is represented in fig 1.

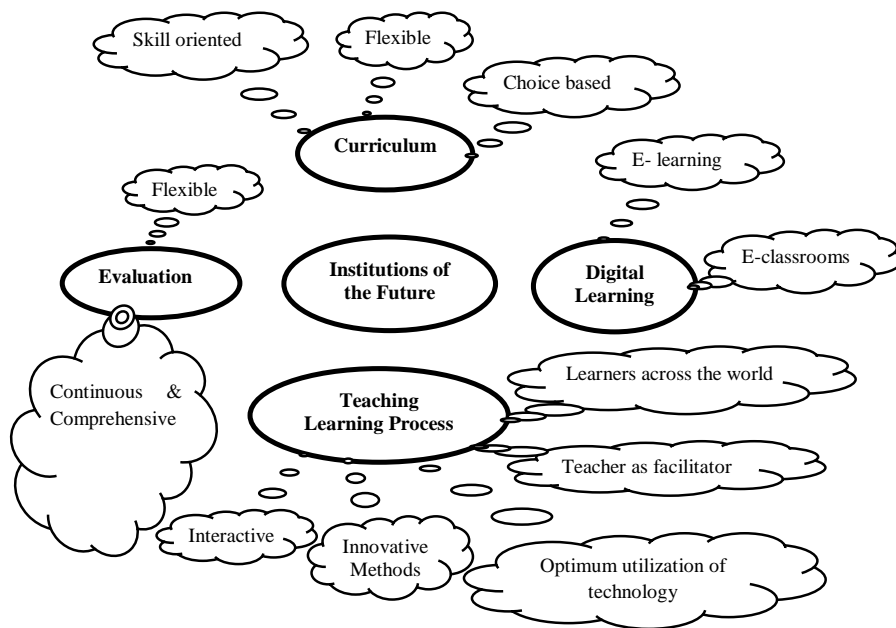


Figure 1: A visual representation of institutions of future

Teachers have to prepare themselves to meet out the demands of the Institutions of the Future by updating themselves with the innovative technology oriented teaching methodologies to reach out huge learners.

Quality Enhancement of Teacher Education by Integrating ICT

Pedagogical approaches in teaching are revisited as a result of prevailing remote learning environment and teachers are mandated to adopt for innovative technology driven pedagogical approaches and methods in educating the digital native citizens of 21st century. Digital tools and content with augmented reality and virtual reality expands the horizon of content delivery in the remote classroom. Teacher education curriculum of 21st century need to integrate these aspects of technology advancements to prepare tech-savvy teachers for future generation. Teacher educators of present context along with their knowledge expansion in usage of ICT skills should motivate student educators to embrace technology during their pre service period to enjoy its potential benefits in future. Online education influenced the teachers to teach in blended classroom and flipped classroom environment and prepared them to be conversant with teaching through ICT skills. With modern advancements interactive learning tools has completely transformed the teaching methods and techniques to impart constructive learning experiences to learners. Rapid change in learning style of students claim teachers to be acquainted with technological

skills to meet out the learning demands of students. (Al-adwan & Smedley, 2012). Remote learning mandates for ICT skill acquisition of student teachers in order to increase their teaching competencies in the e-learning environment to educate the futuristic generation and meet out their expectations in learning.

Existing Teacher Education Curriculum should be reorganized with the following to provide holistic updated experience to the teacher trainees to meet the demands of future E- classrooms:

1. Include ICT as integral part of their curriculum.
2. Provide training to develop e- content and learning modules in addition to conventional lesson plan preparation.
3. Provide virtual experience of developing curriculum that promote competency and performance.
4. Knowledge acquisition and enrichment through online platform (SWAYAM) which enables for unlimited Massive Open Online Course (MOOCs) at learners' pace of learning.

Conclusion

ICT enabled teaching promotes flexibility and accessibility in remote learning with quality content delivery. Hence it becomes imperative on the part of teacher educators and student educators to get acquainted with ICT enabled teaching pedagogical approaches to address to the unique learning styles of learners. Teacher education curriculum of 21st century incorporated with ICT components will enable the student educators to meet out the demands of futuristic generation encompassing digital native learners. Restructuring of teacher education curriculum with 21st century ICT skills is mandated for building a society with efficient communication, collaboration and creative thinking skills.

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