ICT Enabled Teacher Education in Context of New Millennium

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Abstract

Information and communication technology (ICT) has become common place entities in all aspects of life. It is an indispensable part of the contemporary world. It has the potential to accelerate, enrich, and deepen skills; motivate and engage students in learning. In fact, culture and society have to be adjusted to meet the challenges of the knowledge age. The pervasiveness of ICT has brought about rapid technological, social, political, and economic transformation, which has come out in a network society organized around ICT. The field of education has not been unaffected by the penetrating influence of information and communication technology. Undoubtedly, ICT has impacted on the quality and quantity of teaching, learning, and research in education institutions. In research, ICT provides opportunities for teacher education colleges to communicate with one another through email, mailing lists, chat rooms, and so on. It helps to relate college experiences to work practices and to create economic viability for tomorrow's generation. So, we have to inquire the utilization of technology in teacher education institutions for 21st century classrooms. In such a rapidly changing context, this paper explores how teachers can be empowered and prepared to meet the challenges and new expectations effectively is a crucial concern in policy making of teacher education and professional development of teachers in India.

Keywords: ICT, Technology, Teacher Education, Knowledge.

Introduction

The pace of technological revolution and emergence of a knowledge society can change the traditional role of the teacher and the students. Traditionally, the teacher used to be the source of

knowledge for the students. There is some cooperation among students to explore new knowledge. In many cases, the teachers do not posses adequate knowledge to supplement the view of the student. And the main source of knowledge remains limited to text book. The rapid developments in technology have made tremendous changes in the way we live, as well as the demands of the society. Information and communication technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. The potential of ICT to improve productivity, foster sustainable development, empower people including women and youth, reduce poverty, build capacity and skills, and reinforce popular participation and informed decision making at all levels is tremendous. The impacts of globalization and local social political demands have induced rapid changes in many countries in different parts of the world since the turn of new millennium. In such an era of fast transformation, education reform inevitably becomes necessary and teacher education institutions have to face numerous new problems and challenges rising from their environment. Teachers are the key actors to implement educational practice and educational reform. Traditionally, teacher education often aims to equip teachers with the necessary competence to deliver knowledge and skills to students such that students can survive a local community or meet the manpower needs of a societal development. India has made impressive strides in the application of ICT in recent years and this is reflected in its vibrant and fast growing economy. However, the Education sector, particularly the area of Teacher Education, has lagged behind other sectors of the Indian economy, in benefiting from the fruits of technological developments. The 1998 UNESCO World Education Report, ***Teachers and Teaching in a Changing World,*** describes the radical changes in conventional teaching and learning. There is a big gap between professed teaching behaviours in teacher education courses and actual teaching behaviours in the classrooms. Therefore, teacher educators need to place technology mediated education within the context of teachers' work in the classroom and other practices.

Major Challenges in ICTs Enabled Teacher Education

Many teacher training colleges have limited resources i.e. books, stationery, furniture and other classroom materials. There a lack of infrastructure (classrooms, furniture, libraries, computer, language and psychology laboratories) in the teachers' colleges. Unqualified teachers are engaged in teaching learning practices. IT-trained teachers are available in the colleges to teach students effectively. Their lesson plans are most often outdated or irrelevant in this modern age.

These threaten the available quality of teacher education. The traditional boundaries of the classroom are giving way to virtual learning and online courses. All these development would have profound impact on teacher education programmes and processes. The challenge for teacher training is to enable teachers of the future to explore and exploit the learning potential connected to ICT and to equip them to facilitate the learning process by developing creativity in their use of ICT in relation to the subjects they teach. It is not only a question of using ICT as a tool in learning and teaching but of exploring it in the interest of innovative and fertile learning and teaching processes. In relation to this, there is an educational potential in student's digitally based spare time activities such as chat, games, news groups and home pages which can be developed and used in many different contexts, of which language learning is particularly prominent. However, all teachers are not willing to introduce new technologies to themselves first and subsequently to their students. Although valuable lessons may be learned from best practices around the world, there is no one formula for determining the optimal level of ICT integration in the educational system. Significant challenges that policymakers and planners, educators, education administrators, and other stakeholders need to consider include educational policy planning, content and capacity building. In our country large areas are still without a reliable supply of electricity and the nearest telephones are miles away. Technology advances in everyday life faster than in schools, even in remote areas and poor basic services are lacking. There are many school buildings, in which basic requirement e.g. water, electricity and telephone is not available. So, there is a need to develop original educational content (e.g., radio programs, interactive multimedia learning materials on CD-ROM or DVD, Web-based courses, etc.), adapt existing content, and convert print-based content to digital media. In this context, information and communication technologies (ICTs) represent a new approach for enhancing the dissemination of information and helping to meet these challenges.

Major Barriers in ICTs Enabled Teacher Education

The information and communication technology (ICT) is one of the important driving forces for modern development. With the advancement of ICT, one can live in the global village irrespective of distance, national and international boundaries. In this situation, teacher education institutions need to develop strategies and plans to enhance the teaching-learning process within teacher education programs and to assure that all future teachers are well prepared to use the new

tools for learning. But, the main barriers for integrating information and communication technologies (ICTs) in India in pre-service teacher education programs are following.

1. Lack of in-service training and basic knowledge/skills for ICT integration

2. Lack of appropriate hardware and software materials

3. Lack of appropriate administrative and technical support

4. Lack of appropriate course content and instructional programs

5. Lack of time and technology plans

6. Excess of overcrowded classrooms

7. Inadequate number of ICT-related courses

8. Lack of computers and other presentation equipment in classrooms

9. Lack of motivation of the teacher educators & prospective teachers concerning the use of ICTs in their future classes.

Since the beginning of this century, education has faced a variety of social, cultural, economical, and technical challenges. Increasing the quality of teaching and learning has been a seemingly important concern for teacher education. Teacher educators are the key actors to implement educational practice and educational reform.

Main Ways and Means for ICT Enabled Teacher Education

There are various problems prevailing in the field of teacher education. ICT and its applications is a valuable catalyst for successful teaching. The institutions of teacher education have a great opportunity and responsibility to design their educational system leading to the society. The following strategies could provide a generic approach towards enhancing this ICT enabled teacher education:

1. Teachers must have the knowledge and skills to use the new digital tools and resources to help all students achieve high academic standards.

2. The funding for new ICT resources should be increased in order to provide adequate ICT equipments and resources. The use of technology and on-line learning is becoming an emerging area of education. Technology plans for implementing ICTs in teacher education institutions should be prepared and implemented.

3. There are a variety of approaches to professional development of teachers in the context of use of ICTs in education. Professional development to incorporate ICTs into teaching and learning is an ongoing process and should not be thought of as one 'injection' of training.

4. Specific units and personnel should be allocated for peer support and organization, as well as to assist in the public's use of ICT tools and materials for ICT-enhanced instruction.

5. The teacher educators who integrate ICTs in their courses should be supported (i.e., through incentive payments) and load of course on teacher educators should be decreased.

6. The NCTE and relevant advisory services should work more closely with schools and colleges to determine the training needs of staff members and to help them to organise appropriate training programmes. Particular attention should be given to organising training courses in teaching methods that incorporate ICT.

7. Teacher educators must be adequately equipped with more didactic competencies so as to assume their new role as experts in the learning process. They should use ICTs as presentation tools (through overhead and LCD projectors, television, electronic whiteboards, guided "web-tours", where students simultaneously view the same resources on computer screens) in the classroom. They should act as role models for prospective teachers by using ICTs in their courses.

8. In-service and pre-service training in ICTs for teacher educators should be improved in both quantity and quality. New methods of teaching would involve use of pedagogical analysis, ICT, new evaluation techniques.

9. Teachers need to be supported in meeting the challenge of effectively integrating ICT in their classroom practices so that students should place at the forefront of advances in teaching practices and learning techniques.

10. Every classroom should have at least one computer and a computer-projector system with Internet access and every teacher education institution should have at least one laboratory available for students to ensure the diffusion and effective use of technology.

11. Computer, satellite communication, internet and various Electronic Medias are the real new methods of learning. Teacher educators and prospective teachers should be aware of the benefits of ICTs. A new ICT-related course, which must include both ICTs and a field of study (e.g., Maths, language, science), should be integrated in the curriculum after the method courses.

12. There is an additional requirement of teachers' motivation and incentives to participate actively in ICT enabled professional development activities. A variety of incentives can be used, including certification, professional advancement, pay increases, paid time off to

participate in professional development, formal and informal recognition at the institution and community levels.

13. Innovative practice is the way to enhance our quality education. Teachers should nurture and strengthen such practices with proper evaluation so that we can exist in the challenging atmosphere. The quantity and quality of the lessons addressing technology usage should be increased.

14. More ICT-related courses for prospective teachers should be offered and every ICT-related course should be based on practice-oriented.

15. Course content should be redesigned to acquire more benefit from ICTs and it should be supported by a course delivery system e.g., Learning Management System (LMS).

16. Teachers must have adequate access to functioning computers, and be provided with sufficient technical support, if they are to use ICTs effectively. Majority of academic staff need an ICT facilitated classroom setting.

17. Teacher education institutions must provide the leadership for pre- and in-service teachers and model the new pedagogies and tools for learning.

18. High quality, meaningful, and culturally responsive digital content must be available for teachers and learners. Teacher education institutions should reflect the dynamics of the professional area through well-designed programme for imparting new knowledge and skills of teaching & class management.

19. Teachers should be sufficiently educated by providing qualified in-service training opportunities, and learning environments should be donated with the minimum necessary technological tools.

20. The curriculum content of teacher education should be the world-class and globalized, pooling up the world-class materials and designs for learning and teaching and maximizing global relevance and exposure in different development areas.

Suggestions

Educational system is under increasing pressure to use the new information and communication technologies (ICTs) to teach students the knowledge and skills they need in the 21st century. Teacher education institutions are faced with the challenge of preparing a new generation of teachers to effectively use the new learning tools in their teaching practices. The teacher education system empowered by ICT driven infrastructure can have a great opportunity to come

up to ensure academic excellence, quality instruction and leadership in a knowledge-based society. The use of ICT in teacher education and development is limited, mainly on improving the efficiency of delivery of planned curriculum and professional competence. There is lack of systematic intention to apply ICT to facilitate any paradigm shift in teacher education in particular or education in general. Teacher education has a significant role to play in the sustained application of ICT in schools and colleges. Students and teachers must have sufficient access to digital technologies and the Internet in their classrooms, schools and teacher education institutions for improving the learning. Ultimately, the use of ICT will enhance the learning experiences for children, helping them to think and communicate creatively. It will also prepare our children for successful lives and careers in an increasingly technological world. But, it is really a challenging task to strengthen ICT in teacher education because a large majority of the teacher education institutions are un-digitized or under-digitized.

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