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**Munesh Kumar**  
Research Scholar, Department of  
Education, University of  
Jammu, Jammu Tawi

## Role of ICT in Enhancing Teacher Education

**Munesh Kumar**

### Abstract

Information and Communication Technology (ICT) has become one of the basic building blocks of modern society. It has an important role to play in changing and modernizing educational systems and ways of learning. Information communication Technology has opened new challenges for teacher education. In the Present era education system faces the challenges to prepare individual for the information society in which one of the most important aim is to handle information. Teacher education system empowered by ICT-driven infrastructure can have a great opportunity to come up to the center stage and ensure academic excellence, quality instruction and leadership in a knowledge-based society. For this purpose it is essential to create in the teachers an awareness of the possibilities of ICT which will lead to their willingness to learn it and resulting in the commitment and confidence to use it. The effective use of ICTs depends largely on technically competent teachers. The paper discusses role of information communication technology in enhancement of teacher education and also suggest the measures.

**Keywords:** Information Communication Technology, Teacher Education.

### 1. Introduction

Information communication technology (ICT) has opened up new challenges for teacher education. ICT if used properly has the potential to radically after the manner in which students learn and teachers teach. Our educational institutions cannot afford to ignore the accelerating pace of technological advancement and their role in building an enlightened society of ICT empowered citizens. 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 development. Today's education system faces the challenge to prepare individuals for the information society in which one of the most important aims is to handle information. No amount of technological up- gradation of educational institution will change the performance of our students without the active involvement and support of teachers who are capable of exploiting the profound possibilities the ICT can offer for the teaching- learning process. For this purpose it is necessary to create in the teacher an awareness of the possibilities of ICT which will lead to their willingness to learn it and resulting in the commitment and confidence to use it. Thus, teacher education institutions in the country must rise to the occasion to turn out ICT competent through in –service and pre-service courses.

### 2. Teacher Education

It is well known that the quality and extent of learner achievement are determined primarily by teacher competence, sensitivity and teacher motivation. The National Council for Teacher Education has defined teacher education as – A programme of education, research and training of persons to teach from pre-primary to higher education level. Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein. Teacher education encompasses teaching skills, sound pedagogical theory and professional skills.

**Teacher Education** = Teaching Skills + Pedagogical theory + Professional skills

#### 2.1 Teaching skills

Includes Training and practice in the different techniques, approaches and strategies that would help the teachers to plan and impart instruction. It includes effective classroom management skills, preparation and use of instructional materials and communication skills.

**Correspondence:**  
**Munesh Kumar**  
Research Scholar, Department  
of Education, University of  
Jammu, Jammu Tawi.

## 2.2 Pedagogical theory

Includes the philosophical, sociological and psychological considerations that would enable the teachers to have a sound basis for practicing the teaching skills in the classroom.

## 2.3 Professional skills

Help teachers to grow in the profession. It includes soft skills, counseling skills, interpersonal skills, computer skills, information retrieving and management skills.

## 3. ICT and Teacher Education

There are a variety of approaches to professional development of teachers in the context of use of ICT in education. Professional development to incorporate ICT into teaching and learning is an ongoing process and should not be thought of as one 'injection' of training. Teachers need to update their knowledge and skills as the school curriculum and technologies change. Two aims of teacher training are fundamental: teacher education in ICT; and teacher education through ICT. Teachers need to complement their content and pedagogy expertise by utilizing online facilities. In present scenario, teachers need to help their students in: how to learn, how to grow in future, how to develop study skills, how to conduct fundamental research, how to examine, evaluate and assess information and also how to question and then dismantle unauthentic structure of knowledge and cognition if need be. This is necessary if the teachers really want to survive in the ICT savvy world of education. All these expectations may be met only through need-based, goal-oriented and meaningful in-house discussion, conferences, symposia, workshops, refresher and orientation courses, crash courses, capsule courses and subject-based courses, interdisciplinary and holistic approaches to education and quality research and by enriching the existing libraries and making use of the user-friendly ICT with contextually appropriate and firm pedagogical scaffolding. The teacher educators and individual teacher ought to sincerely and persistently work hard toward this goal. Use of ICT effectively requires a change in classroom practice rather than mere acquisition of technical skills. Teachers need to familiarize themselves with possibilities approaches and application in the use of ICT, the facilitation of teaching learning. These technologies along with overhead projector and computer projections have the potential to make teaching learning and training processes more efficient and cost effective. It has opened up new possibilities of reaching out to the still un-reached disadvantaged groups and children with special needs. The educational channels need to be organized, strengthened and utilized for creating awareness strengthened, and utilized for creating awareness, providing instructions and offering solutions of problems faced by learners of specific age. The increasing use of technologies has brought changes in the modes and methods of instructional processes which are becoming more learner-centered. New interactive relationships among teachers, learners and technologies are emerging.

## 4. Role of ICT at different levels of teacher education

### 4.1 Role of ICT at Primary Level

ICT is emerging as an integral part of teacher education at primary level. It help primary teacher education centers do their work effectively establishment of learning resource center in a teacher education instruction has to be mandatory.

Such a center may be equipped with audio video tapes slide showing picture of animals, insects, birds, flowers vegetable, and fruits. It influences not only teaching system but also the learning styles. ICT results in transformation from teachers oriented learning to that of exploratory self learning.

### 4.2 Role of ICT at Secondary Level

Secondary education is the link between primary and higher stage of education. ICI helps to make multiple innovative and interaction modes adopted for transmission of foundation restated papers and internship in teaching. It also making of different programmed instruction programmes. Use of ICT as vital modes of transaction and methods of teaching would involve use of pedagogical analysis, ICT, new evaluation techniques.

### 4.3 Role of ICT at Higher Level

It occupies a unique position in the system of education. As teacher education systems exist today, there are pre-service teacher education programmes for preparing teachers at primary and secondary stages. There is no provision however is prepare teacher for higher stage. Role of ICT to elevate teacher in at higher education to empowering teachers for self-study, reference political thinking, abstract thinking, and of knowledge by adopting various such as project work, acquire skills.

## 5. Inclusion of ICT content in teacher education

The effective use of ICT depends largely on technically competent teachers. They should be able to appreciate the potential of ICT and have positive attitude towards ICT. Generally four phases are identified to implementation of ICT content in teacher education programme.

1. **ICT Literacy:** It means having the skills, Knowledge and attitudes to use ICT to maximum advantage and in other words we can say ICT literacy means that a person can contribute more effectively to their own well being and be a more effective worker, entrepreneur and consumer.
2. **Efficiency:** The effective and efficient use of ICT hardware and software for teaching learning activities.
3. **Pedagogical Bases:** Pedagogy bases ICT use (integration of ICT in subject content, teaching, online support, networking and management.)
4. **Innovative Practices:** Adopt best innovative practices in the use of ICT in teacher education programme.

### 5.1 Required basic knowledge for teachers

It is a necessity for every teacher educator to know about the ICT. Teachers must be knowledgeable in the content, standards and teaching methodologies or their discipline. Teachers must learn to use technology to support ICT in enhancement of teacher education.

### 5.2 Required skilled teachers

The teachers who work in teacher education institutions must be skilled in the use of technology for teaching. They must be able to apply technology in the presentation and administration of their course work and facilitate the appropriate use of technology in their teaching process.

### 5.3 ICT can help teachers in the following ways.

1. ICT enables to enhance the initial preparation by giving

good teaching or training materials, use simulators, other training institution experiences and, working, introducing trainees with resources and support on cyber space, Example the use of technologies teaching training situation.

2. With the help of ICT, teachers can access with universities and colleges or education, teacher education institutions and national organizations like UGC, NCTE, NCERT and NAAC (National Assessment and Accreditation council) etc.
3. ICT enables to access online libraries journal and research enable individuals learning.
4. ICT provide lifelong and professional development by providing courses at virtual situation, training on demand: orientation and new courses through video conferencing or online.

### 6. Suggestions

1. It should be mandatory for every teacher to undergo training for how to use of computers/ networking etc.
2. Each teacher education institutions should provide computer and other adequate infrastructure for this purpose.
3. Providing and advanced level course for interested students who can develop more advanced ICT based pedagogical skills.
4. Integrate ICT components in curriculum and so on so that students have a role model for ICT integrated teaching and learning. When planning ICT curriculum, ensure that it is congruent with the educational vision the culture and the context of each region both locally and globally.
5. ICT should be used to teach all subject matter areas at the pre- service level so that the pre-service teachers are above to get hands on experience.
6. The curriculum of the teacher education programme needs to provide flexibility in curriculum so as to provide opportunity for student teachers to develop various ICT infused instructional material.

### 7. Conclusion

The paper has sought to explore the role ICT in enhancement of teacher education as we progress into the 21st century. The teacher education system empowered by ICT driven infrastructure can have a great opportunity to come up to the centre stage and ensure academic excellence, quality instruction and leadership in a knowledge-based a society. ICT in teacher education is essential and it must be met for successful technology integration and provide guidelines for the development of strategic planning process. Rapid changes in technology will ensure that ICT will proliferate in the classroom. The use of ICT will enhance the learning experiences for children, helping them to think and communicate creatively. ICT has tremendous potential for education. ICT can enable a teacher to reach out widely efficiently and effectively. Networking through ICT helps teachers and institutions to be more modern, dynamic and integrative. It is really a challenging task to strengthen ICT in teacher education because a large majority of the teacher education institutions are unequipped or under-equipped in the terms of digitized and high-tech infrastructure.

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