ICT COMPETENCIES OF TEACHERS- A REVIEW

KIRTI*
PARDEEP MANN**
REEMA GUPTA***

*Former M.B.A. Student, IMSAR, Maharshi Dayanand University, Rohtak, India
**Asst. Professor, Dept. of Computer Science & Applications, N.C. Institute, Israna, Panipat, India
***M. Tech Student, Dept. of Computer Science & Engineering, N.C. College of Engineering Technical Campus, Israna, Panipat, India

ABSTRACT

In the era of globalization, the outburst of technologies is impacting the world to a great extent. Now days, Information and Communication Technology (ICT) has penetrated into every walk of life with education no exception to it. ICTs are a diverse set of technological tools and resources used to communicate, and to create, disseminate, manipulate, store, manage and exchange information. Teaching is becoming one of the most challenging professions in today’s knowledgeable society. So, a digital society requires teachers who are ‘Digital Literate’. To make the best use of ICT, teachers must be equipped with adequate ICT competencies. A teacher with ICT competencies can make teaching-learning process more effective and help in transforming the present isolated, text-bound and teacher-centered classrooms into rich, student focused, interactive and learner friendly environment. In this article, a review of ICT competencies is given by the investigators along with brief meaning of ICT, competency and ICT competency.

KEYWORDS: ICT, Competency, Teacher Competency, ICT Competency

1.0 INTRODUCTION

“Technology is essential for countries to train their skilled workforce and build 21st century skills. Our focus has been on giving all students the opportunity to be equipped to compete globally and support economic growth”- Nick Burnett, UNESCO Assistant Director-General for Education.

In the present age of globalization, the explosion of technologies is blowing the world in more ways that can be imagined. Technology is challenging the boundaries of educational structures that have traditionally facilitated learning. Recent advance in computer technology and circulation of personal computers, productivity software, multimedia and network resources over the last decade, heralded the development and implementation of innovative teaching strategies. Now days, Information and Communication Technology (ICT) has penetrated into every walk of life with education no exception to it. ICTs are a diverse set of technological tools and resources used to communicate, and to create, disseminate,
manipulate, store, manage and exchange information. This new technology has challenged the traditional concept of teaching-learning by helping how teachers and learners can access knowledge which has potential to transform teaching-learning. It is believed that the application of advancing ICT in education might help in making teaching and learning process more diversified and flexible.

1.1 What is Information and Communication Technology?
Information and communications technologies are computer based tools which covers computer hardware and software, the network, and other digital devices like video, audio, camera, and so on, which convert information (text, sound, motion, etc,) into digital form (Moursund & Bielefeldt, 1999). “ICTs are basically information handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the ‘old’ ICTs of radio, television and telephone, and the ‘new’ ICTs of computers, satellite, wireless technology and the Internet. These different tools are able to work together and combine to form our ‘networked world’ reaching into every corner of the globe” (UNDP). Thus, ICT encompasses both analogue (conventional) media and digital (modern) media.

1.2 What is Teacher Competency?
Competency has been defined as knowledge, proficiency, ability, capability or characteristic associated with high performance on a job. Gupta defines competencies as “knowledge, skills, attitudes, values, motivations and beliefs people need in order to be successful in a job.” Competencies are defined as “the set of knowledge, skills, and experience necessary for future, which manifests in activities” (Katane et.al., 2006). According to Klein and Spector et.al. (2004) describes competency as a set of related knowledge, skills and attitude that enable an individual to effectively perform the activities of a given occupation or job. There are so many definitions of competency; most of them have two common components as suggested by Goktas, Yildrim and Yildrim (2009)-

- The competencies are measurable knowledge, skills and abilities;
- These knowledge, skills and abilities must distinguish between superior and other performers.

In teaching profession, teacher plays a vital role in making teaching-learning effective. Any education system can thrive if there is updating, modification, enhancement and refinement in knowledge and skills of the teachers. With the diffusion of knowledge, teaching has become a
complex profession and for making teaching-learning process more useful, the teacher should be competent. Teacher competencies are specific and demonstrable characteristics or attributes inevitable for teaching professionals to create a convincing and learner friendly environment. Teacher competencies can be broadly divided into personal and professional competencies. Personal competencies include the personal or individual characteristics like confident, intelligent, healthy, helpful, energetic, good personality, good dressing sense, honest, patient, polite, kind, social, humorous etc. Professional competencies comprised of attributes required in teaching profession like punctual, discipline, knowledge of subject matter, effective communication skills, decision making capability, democratic, impartial, planner, manager, techno-savvy etc. (Bhargava and Pathy, 2011). Due to fast technological developments, another type of competency that helps the teacher to use ICT for effective teaching-learning is ICT competencies.

1.3 ICT Competencies of Teachers

Teaching is becoming one of the most challenging professions in today’s knowledgeable society. So, a digital society requires teachers who are ‘Digital Literate’. The productive and successful integration of ICT in schools depends upon the competence and attitudes of teachers towards the role of modern technologies in teaching-learning (Kadel, 2005; Yusuf & Balogun, 2011). Analysis, design, development, implementation, evaluation and management of ICT in education require diversified competencies and knowledge (Kozma, 2002). To make the best use of ICT, teachers must be equipped with adequate ICT competencies.

ICT competencies are based on using tools and technical equipments for the reaching, disturbing and transferring the knowledge. They include any technology that helps to produce, manipulate, store, communicate, and/or disseminate information. It means that the ICT competency is very important to improve the communication in the learning and teaching process. The ICT Competencies are a set of technology standards that define expertise in using computer technology in the classroom. The competencies consist of computer-related skills grouped into four general domains:

- Basic Technology Operation;
- Personal and Professional Use of Technology Tools;
- Social, Ethical, and Human Issues; and
- Application of Technology in Instruction (Lawrence and Veena)
Researches in the field of ICT competencies revealed two general clusters of competencies identified as Basic or Fundamental and Advanced competencies. Basic competencies are represented by entry level skills related to basic computer operation and the use of an array of software that supports and enhances professional productivity. Advanced competencies extend the application of basic competencies to teaching, administration, counseling and other professional activities (Algozzine, Bateman, Flowers et al., 1999). Fundamental skills come first - like managing electronic files, using computerized databases and spreadsheets, sending and receiving e-mail messages, and creating documents with graphics. These skills are prerequisites for more advanced skills, such as accessing online resources, creating desktop publishing documents, developing multimedia presentations, selecting and customizing instructional software to fit students' needs, streamlining record-keeping and other administrative procedures with electronic tools, and observing the correct protocols in sharing intellectual property (Lawrence & Veena). Van Eck et al. (2002) also mentioned the following ICT competencies as reviewed by Zwaneveld and Bastiaens (2010):

- The use of hardware
- The use of software
- The use of ICT in the learning process and the coaching of the students
- The use of ICT in the vicinity of the teaching
- The use of ICT in further professionalization

Later on Kirschner et al. (2003) put forward following ICT related competencies:

- **Personal ICT competences**: teachers in training should have basic skills in Office applications and applying these skills in communication;
- **ICT as mind tool**: teachers should be able to use applications to support meaningful thinking and working;
- **ICT as pedagogical tool**: teachers should enhance their knowledge, skills and experience in resource based learning and collaboration in digital environments;
- **ICT as teaching tool**: teachers should know the educational possibilities and impossibilities of ICT; and
- **Social aspects of the use of ICT**: teachers should not only be aware of ICT but also deliberately use ICT.
The UNESCO ICT Competency Standards for Teachers (UNESCO, 2008) advocated the following teachers’ skills with respect to ICT:

- Teachers must know basic hardware and software operations, as well as productivity applications software, a web browser, communications software, presentation software, and management applications.

- Teachers must be aware of a variety of subject specific tools and applications and able to flexibly use these in a variety of problem-based and project based situations. Teachers should be able to use network resources to help students collaborate, access information, and communicate with external experts to analyze and solve their selected problems. Teachers should also be able to use ICT to create and monitor individual and group student project plans.

- Teachers must be able to design ICT-based knowledge communities and use ICT to support the development of students’ knowledge creation skills and their continuous, reflective learning.

Goktas, Yildrim & Yildrim (2009) and Marija & Palmira categorized ICT competencies as Basic and Advanced. According to them, basic competencies are comprised of various components like use of operating system, identifying legal, ethical and social issues related to the use of ICT, use of word processor, spreadsheets and presentation software for personal and institutional purposes, use of ICT for communication, collecting data, knowledge management, decision making and problem solving. The advanced competencies include use of communication tools for support instruction, to enhance personal development, use of ICT to support instruction in and out of classroom, use of computer aided instruction materials, use of ICT for designing, developing, implementing, assessment and analysis processes of a course, use of hypermedia and multimedia tools for supporting instruction.

1.4 CONCLUSION

Thus from the above discussion, it can be said that ICT plays a significant role in enhancing the quality of education. In the process of integrating ICT into education, both teachers ICT competencies and how they perceive the role of ICT in teaching/learning processes play key roles. The experienced teachers, newly qualified and students –teachers need to be confident in using ICT in their teaching. These competencies are great tools in the hands of teachers for supporting various educational goals like rich, individualized, flexible learning environment, enhancing the possibilities of part time education, trying out new teaching concepts,
increasing meaningful interaction between teacher and student, supporting collaborative learning, motivating students, preparing students for lifelong learning, enhancing the effectiveness of teaching, costs reduction, enhancing the attractiveness of the profession of teachers.

References

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