

## How Does ICT Facilitate Extending Teaching Competence?

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### **Abstract**

*ICT has a greater impact on the society, people and organization. People in all walks of life need to know about ICT if they need to enrich knowledge effectively in the information rich society. Teaching is a complex activity. Teachers need to improve knowledge and skills to enhance, improve and explore their teaching practices. Teaching competence is the sum total of all the competencies possessed by the teacher that are used in the teaching situation. In the present scenario of techno- savvy classrooms, teacher has to be a master in use of technology in the teaching-learning process. Being prepared to use technology and knowing how that technology can prop up student learning have become integral skills in every teacher's professional repertoire. ICT competencies are concerned with the use of technology in managing and processing the information includes all technologies for the manipulation and communication of information in the teaching-learning process. Teachers need to be able to help the students become collaborative, problem-solving and creative learners through ICT. Interactive computer simulations, digital and open educational resources, and sophisticated data gathering and analysis tools are only a few of the resources that facilitate teachers to afford previously unimaginable prospects for conceptual understanding.*

**Key words:** Teaching competence, Techno-savvy classroom, ICT competence, Interactive computer simulations

Education is a powerful and fundamental force in the life of man which is instrumental in shaping the destiny of the individual and the future mankind. In spite of the fact that technological advancements have made headway in the process of teaching-learning, it has not been found possible to replace the teacher. If teachers acquire professional competency and commitment, then high quality learning can be achieved by bringing about positive changes in the cognitive, affective and psychomotor areas of human development of their pupils. The effective teacher is not only a classroom practitioner but also a manager, a planner and a learner. Therefore, teachers should be competent to handle various roles in the field of education and they should equip themselves to perform their professional duties meaningfully.

Competence is the sum of available or learnable abilities and skills as well as the willingness of a student to solve upcoming problems and to act responsibly and critically concerning the solution (Selvi, 2010). Competency standards for teachers have reemerged as an issue for education. Their purpose has been asserted as: assisting in the governance of education; legitimating the system; improving the standard of pupil achievement and the quality of learning; improving the quality of teaching; raising the standard of teacher education; and promoting teaching as a profession (Patrick, 1997: 40). Competence is the key in the teacher performance. The teaching profession demands teachers to be innovative in their attitudes, flexible in their approach, always updating themselves with their subject knowledge.

Only competent teachers can materialize policies and plans of education in their classroom at grass root level. The teachers play a vital role in teaching-learning process upon whose competency and efficiency the standard of education depends. A competent teacher is amongst the foremost factors contributing to the educational improvements at all levels. Though certain competencies are in-born, either it has to be modified or new competencies have to be developed. Any skill has to go through certain polishing (Pawar, 2011). Competencies are defined as “the set of knowledge, skills, and experience necessary for future, which manifests in activities”. Gupta defines competencies as “knowledge, skills, attitudes, values, motivations and beliefs people need in order to be successful in a job (Lawrence, 2011).

### **The competent teacher**

The teacher is a dynamic force in an educational institution. Competency means adequacy and sufficiency. Rabindranath Tagore has defined the term *Teacher* comprehensively: “*A teacher can never truly teach unless he is still*

*learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who has no living traffic with his knowledge, but merely repeats his lesson to his students, can only load their minds; he cannot quicken them. Truth not only must inform but also inspire”* (Aggarwal, 2003:145). A competent and effective teacher will help in national development. They nourish the social and cultural instincts of the students and develop their mental and intellectual faculties so as to strengthen their learning capacities. Therefore teachers are considered as weapon for imparting education. Education should be learner centered and should pace with rapid advancements in the society to develop their cognitive, affective and psychomotor abilities (Parmer et al., 2008).

A competent teacher possesses teaching skills to employ in a teaching situation in order to drive home to the child a point, an idea or a thought so as to bring about the desired change in the students.

- Linked and loved by the pupil, appreciated by the community and endeared by the peers.
- Modest and possess self-confidence and self-image of being a partner in the nation building process.
- Aware of the impact of knowledge explosion, population explosion and explosion of the rising expectations from education.
- Well aware of collecting information from the right source and process it for the teaching – learning strategies.
- Willing to renew his approach, methodology and techniques in consonance with the changing times.
- Confident, willing and skilled to achieve professional up-gradation, particularly through self-directed learning.
- Role model for the pupil and communicator of new developments to the community.
- Willing to interact with all those who could help enhancing institutional efficiency and contributing to the growth, relevance and utility of education.
- Interest in professional preparation and growth.

Teachers too become learners when it comes to technology- facilitated learning. Students today are completely comfortable with technology, and are able to use it in a variety of ways. Ideas such as the “flipped classroom” suggest giving students’ more control of learning, moving the power centre from the teacher’s desk to the student’s platform. According to Mathew (1980) teaching

competencies include competency of a teacher's concern for students, competency of using audio-visual aids, competency of professional perception, competency of giving assignments, competency of illustration with examples, competency of pacing while introducing, legal exposition, classroom management, use of questions, imitating pupil participation, use of blackboard, recognizing attending behaviour and competency of achieving closure. Only the teachers who possess all the skills, knowledge and values can function effectively in a teaching situation and is said to be competent to teach in that situation (Xavier, 2009). If a teacher is competent learning is effective.

National Educational Technology Standard for Teachers (NETS) describes what competent teachers should know and should be able to do with technology in the content of broader teacher competencies. The NETS-T project categorized teacher competencies as follows.

- Technology operation and concepts.
- Planning and designing learning environment and experiences.
- Assessment and evaluation
- Productivity and professional practices.
- Social, ethical, legal and human issues (<http://cnets.iste.org>).

### **Teaching competence**

According to Wilson (1973) teaching competence is said to be the knowledge, attitude, skill and self perception as the products that drive from the mixture of these behaviours leading to the attainment of predicted outcomes. Teaching competency means an ability in a teacher to facilitate behaviour in students. 'Competence is a personal trait or a set of habits that leads to more effectively superior job performance' (Momin, 2008). A Competent teacher can only do his work effectively and efficiently. Every profession demands certain specific skills and competency on the part of its practitioners. Similarly, if one believes that teaching is a profession, one should demonstrate certain skills and competencies which can influence learning in the students and help them achieve their goal of life.

### **ICT Competencies**

ICT competencies are based on using tools and technical equipments for reaching, disturbing and transferring knowledge. They include any technology that helps to produce, manipulate, store, communicate, and/or disseminate information. ICT competencies are concerned with the use of technology in managing and processing the information which include all technologies for manipulation and communication of information. Large volumes of accounting

and record keeping data can be manipulated, organized, stored, retrieved and used for specific purposes. Word processing save time for people at all levels of the organization and helps to ensure accurate letters and memos. Automated filing, uses for less storage space than endless stacks of papers and also enables workers to retrieve documents when they are needed. The increased availability of CD-ROM produces, electronic publication, Internet access and training activities have focused on the application of new technologies in educational institutions (Poole, 2012).

ICT competency is very important to improve the communication in the teaching and learning process. Competence with technology integration is the basis for effective change. Teachers will need to lead by modelling effective ICT skills and lifelong learning strategies. Students will need to see their teachers applying technology in authentic and integrated ways that will enable students to engage in problem solving, project collaboration and in creatively extending their abilities and capacities to acquire and construct knowledge (Selvi, 2010). By combining ICT skills with emergent views in pedagogy, curriculum, organization the standards are designed for the professional development of teachers who will use ICT skills and resources to improve their teaching.

### **ICT competencies – Objectives**

*The ICT competencies -*

- *improve the training of new teachers in the use of technology;*
- *ensure that every teacher has the skills to take online learning courses;*
- *improve the quality and consistency through standards, measurement, accountability and increased technology resources;*
- *ensure that every teacher knows how to use data to personalize instruction; and*
- *Drive daily decisions and design instructional interventions to customize instruction for every student's unique needs.*

### **Teachers and ICT Competencies**

ICT is not only an essential tool for teachers in their day to day work, but also it offers them opportunities for their own professional development. In conventional teaching, most of the time is consumed for input-output and less time left for process. But, in teaching through ICT, the input and output time is reduced and thereby increasing more time for process parts. When the process time is increased, time of students' activities, discussion, correlation with other subjects, brain storming, learning etc. is enhanced. When we do teaching with

the help of ICT, we get more time to process phase which is more important in a period of 45 minutes or one hour.

The ICT competencies of teachers should support the following educational goals: making teaching flexible, creating individual learning paths, enhancing the possibilities of part time education, creating rich learning environments, trying out new teaching concepts, intensifying teacher-students interaction, supporting collaborative learning, motivating students, preparing students for lifelong learning, enhancing the effectiveness of the of teaching, costs reduction and enhancing the attractiveness of the profession of teachers.

There are three main possible approaches to ICT which can be adopted in the classroom teaching-learning situations (Mushra et al., 2007). *Integrated Approach* aims at planning the use of ICT with in the subject to enhance particular concepts and skills and improve pupils' attainment. *Enhancement Approach* focuses the teacher plans to complement the lesson with an innovative presentation method to promote class discussion and visualization of problems. *Complementary approach* aims at using an ICT resource to empower the students' learning by enabling them to improve their class work by taking notes on the computer, or by sending homework by e-mail to the teacher from home, or by word processing their homework .

### **Improving Teacher Competency through ICT**

The ICT competencies are a set of technology standards that define proficiency in using computer technology in the classroom. The competencies consist of computer related skills grouped into four general domains (Educational Benchmark, 1998). They are:

- *Basic technology operation:* Fundamental skills come first- like managing electronic files, using computerized data bases and spreadsheet, sending and receiving e-mail messages, creating documents with graphics. These skills are pre requisites for more advanced skills, such as accessing online resources, creating desktop publishing documents, developing multimedia presentation, 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. The basic competencies are productivity, communication, research, media and presentation (Lawrence, 2011).
- *Personal and professional use of technology:* Teachers will apply tools for enhancing their own professional growth and productivity. They will

use technology in communicating, collaborating, conducting research and solving problems.

- *Social, ethical and human issues:* Understanding of legal and ethical issues pertaining to computer use, such as how copyright applies to classroom software use, and what additional safety measures may be needed in the classroom.
- *Application of technology instruction:* Teachers will plan and deliver instructional units that integrate a variety of software, applications, and learning tools. Lessons developed will reflect effective grouping and assessment strategies for diverse population.

### **ICT aids in Better Teacher Performance**

The various ways (Sahoo et al., 2011) of ICT help for better teacher performance are abstracted here under.

*Knowledge enhancement through use of ICT:* Through use of ICT, teaching knowledge can be improved. It helps in tailoring learning resources to meet the particular needs of students at every stage of his/ her education. Some ICT tools are: Internet, software CD/ DVD, e- books, e-content, learning objects, multimedia representation and simulations.

*Strategies for teachers:* ICT enables us to interact with students over a physical distance. It enables to access on-line libraries, journals and research to support individual learning.

*Management of learning:* ICT enables to pay attention for gifted or talented students. Individual self-paced learning is possible through e-books, virtual laboratories, concept formation animations (learning objects), flow diagram and pictures, developed media aids through on-line and offline resources.

*Evaluation of learning:* ICT enables to give feedback and testing objectively and quickly without biases. It makes formative and summative evaluation easy and can evaluate learners in remote location also evaluate through Internet.

*Guidance to the learners:* Diagnosis of individual is also possible through ICT using specific software. Individual self-paced learning can play a role for remedial teaching through e-books, virtual laboratories etc. Video conferencing can also provide a diagnosis and remedial teaching by experts in remote places.

### **Recommendations**

Teaching is a process that uses diverse tools and methods, including technology. Through adoption of technology standards, states can set

expectations for teachers and help direct pre-service and in-service training programmes. Including technology standards in the Certification process helps ensure that teachers who meet their standards have the training they need to incorporate technology into their classroom that will result in improved student achievement.

Government should make the development of teachers' ICT competencies a priority and set targets when all long serving. Newly qualified teachers are expected to become ICT- literate to mandatory standards. Government should provide block grants to create materials appropriate for Internet safety curricula, materials for community and institutional publications and be development of libraries.

Learning networks between educational institutions can support the emergence and sharing of new practices and encourage teachers to try new approaches with digital tools. Institutions should support free courseware development and sharing by the teachers, allowing and encouraging blended learning resources. Setting up collaborative peer learning networks with coaches and buddies can support teachers and through them the organizational development towards new learning and teaching approaches.

The advanced digital competence needs to be emphasized for stakeholders such as authorities, managers, human resource managers and parents. Emphasis should be given to more advanced e- skills in curricula embed for ICT practitioners and professionals. Every teachers should possess some of the essential technology related skills such as productivity tools, troubleshoot technology, technical assistance, familiar with what's available on the web related his/her subject area and open to new ways of doing things with the help of ICT.

### **To Conclude**

Teachers must be prepared to empower with the advantages of technology. Teachers, who are equipped with technology resources and skills, can effectively teach the necessary subject matter while incorporating technology concepts and skills. Real- world connections, primary source material and sophisticated data-gathering and analysis tools are only a few of the resources that enable teachers to provide unimaginable opportunities for conceptual understanding. Once teachers have mastered the basis of ICTs - operating systems, word processing, e-mail and Internet navigation, they can use the technology to access professional development opportunities. This



enables anytime, anywhere learning and overcomes the conventional limitations of face-to-face training workshops.

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