Using ICT as a Tool for Effective Teaching

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Abstract

Information and Communication Technology (ICT) is a means of accessing, storing, sharing, processing, editing, selecting, presenting and communicating information through a variety of media. It involves finding, sharing and restructuring information in its diverse forms. ICT can be an effective tool in supporting teaching and learning. Many countries have realized the need for redefining teachers' roles and have responded by launching professional development programmes to train teachers in the use of new techniques of ICT especially the use of computers in importing knowledge to students and making classroom interaction vigorous, invigorating, meaningful and fruitful. ICT is proving an asset with them for updating their knowledge, processing mass of data, improve their competencies to do things and get qualified for highly specialized assignments later in life. This paper focus on using ICT to gives effective teaching and learning process.

Keywords: Information and Communication Technology, Effective Teaching, Effective Learning.

Introduction

The teaching profession comes under pressure and becomes even more difficult job. Today, a lot of instructional packages are offered to teachers, from traditional tutorial software to multimedia and hypermedia packages that come on CD-ROMs and laser-discs, and required to use in the classroom (Willis & Mehlinger, 1996).Some of the significant social and economic consequences of Information and Communications Technology (ICT) and its impact on education. It affects parents, children, and schools. Some parents become anxious if their children do not use computers because they believe that the computer is a powerful educational tool (Maeers, M., et.al., 1999). The need of new technologies in teaching learning process grows stronger and faster. The information age becomes an era of knowledge providing sound and unmatched feasibility for discovery, exchange of information, communication and exploration to strengthen the teaching learning process. Information technologies help in promoting opportunities of knowledge sharing throughout the world. These can help the teachers and students having up-todate information and knowledge (Dr. Irshad Hussain & Muhammad Safdar, 2008).

Meaning of Information and Communication Technology (ICT)

Information and Communication Technology (ICT) is a means of accessing, storing, sharing, processing, editing, selecting, presenting and communicating information through a variety of media. It involves finding, sharing and restructuring information in its diverse forms (Louis Cohen., et.al., 2004).

Information is basically data, which with the addition of learning becomes knowledge. In other words learning which is based on the capacity to find, access, apply

and transform information into new knowledge. Important competencies which learners require to make this transformation are often called information literacy competencies and include awareness of the need for information, the ability to critically analyse information and evaluate its usefulness and ultimately to be able to apply the information, turning it into knowledge. Communication is that simple act of dialogue between peoples and cultures that takes on a new dimension when combined with 'information' and 'technology'. Technology is not strictly limited to the Internet and includes simpler technology such as CD ROM, video, television etc although the term 'information technology' does imply the use of the Internet and telecommunication networks (Seventh UNESCO-ACE/D International Conference on Education, 2001).

The Four Basic Dimensions of Information and Communication Technology (ICT)

Attitudinal

Perceiving ICT skills and access to internet as a valuable asset for future wellbeing; perceiving internet as having meaningful and relevant content; being confident and motivated to go online.

Financial

Considering internet to be an economical way of learning ICT skills and carry out information-seeking activities via internet from home, work place or co0mmunity location without undue impingement on time, resources and money.

Skills

Having adequate skills or access to tuition, to develop, refine and perfect skills to use ICT optimally for personal, social and economic gains.

Infrastructure

Having adequate levels of band width available to carry out e-commerce, egovernment or educational interactions; having both hardware and software catering to specific needs of physically or mentally challenged people or those having language problems (Kamlesh M.L. Dr, 2008.

Advantages of ICT

- Raise student achievement in all subjects and for all students;
- Promote higher order thinking in order to evaluate knowledge;
- Promote learning for capability and problem solving;
- Foster collaborative learning;
- Raise students' motivation and engagement significantly (Louis Cohen., et.al., 2004).

ICT in Teacher Education

ICT is used in teacher education for a number of reasons. At one level, the teacher education institutions wish to ensure that newly qualified teachers have the appropriate ICT skills. It may be that in the long term there will be less need for this ICT skills

development, as students will develop better ICT skills before they reach teacher education. The second dimension to ICT in teacher education is the development of students' capacity to make appropriate use of ICT in their teaching. This is more challenging, as student-teachers sometimes tend to use the most obvious applications of ICT, resulting in over-use of these ideas. In some teacher education institutions, developing ICT capacity in student-teachers is the responsibility of one ICT specialist. This is an effective way to develop skills and the rudiments of educational use of the technology. However it may not be the best way to develop more imaginative uses of ICT within each subject area. To achieve a wider spread of ICT usage within teacher education may involve more staff development activities in some institutions. A third dimension to ICT in teacher education is the use of virtual learning environment to provide supports to student teachers (Standing Conference on Teacher Education, 2003).

Integrating ICT into Teacher Education

Information and communications technologies are computer based tools used by people to work with information and communication processing needs of an organization. Its purview 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). Successful integration of ICT in the school system depends largely on the competence and on the attitude of teachers towards the role of modern technologies in teaching and learning. Thus, experienced teachers, newly qualified, and studentteachers need to be confident in using ICT effectively in their teaching (Sara Hennessy., et.al., 2010).

Using ICT into as a Tool

The discussion above has highlighted the importance of integrating the curriculum to enhance learning outcomes. Clearly, the curriculum must be adapted or re-designed so that it is ready for ICT integration. A tools approach assumes that general-purpose software such as word processing or paint programs or an Internet World Wide Web browser, can be flexibly applied by the learner to various topics but students are still not playing an active role. And by active we mean constructive learning. When students play an active role the role of the teacher changes to that of a facilitator of learning.

Using ICT across the curriculum: a working model for designing an integrated learning environment. When ICT is introduced into the classroom teachers need to consciously redesign learning environments so that students can transfer their newly gained ICT skills and confidence to other applications that can be used in an ICT rich environment. Once teachers and students acquire some ICT Skills they can adopt a transferable learning style so that each further development in ICT use should become an easier step.

Essentially when the learning environment has to be redesigned we are implying a far-reaching paradigm shift for teachers.

Paradigm Shift in Teacher's Role

From	To
Objectivist learning theory	Constructivist learning theory
Teacher-d	Student-d
Teacher as expert, information giver	Teacher as facilitator, coach, guide
Teacher as knowledge transmitter	Learner as knowledge constructor
Teacher in control	Learner in control
Focus on whole classroom teaching	Focus on individual and group learning

In ICT rich environments it is more conducive for teachers to begin to help Students pursue their own inquiries, making use of technologies to find, organize, and interpret information, and to become reflective and critical about information quality and sources. Teachers become advisors and facilitators of learning helping students to frame questions for productive investigation, directing them toward information and interpretive sources, helping them to judge the quality of the information they obtain, and coaching them in ways to present their findings effectively to others. This ultimately requires teachers to become even better prepared in the content of the subjects they teach, and the means by which the content can be taught and learned. In all of this, teachers need an "attitude" that is fearless in the use of ICT, encourages them to take risks, and inspires them to become lifelong learners (Seventh UNESCO-ACE/D International Conference on Education, 2001).

Why Teachers Use ICT

A range of studies have looked at why teachers choose to use ICT. These typically involve conducting case studies of classroom use in a particular setting or from a longitudinal perspective. They portray the use of ICT in teaching as being inherently advantageous. Only a few reports adopt a quantitative approach exploring access, and the reasons why teachers in schools choose to use ICT in their classrooms. ICT needs to be linked to specific needs of learners, desisting from the "one size fits all" approach (Leach, 2005, p. 112). It is most effectively used as a learner-centred tool, instead of within a more traditional pedagogy. The real challenge for educationists is, therefore, how to harness the potential of ICT to complement the role of a teacher in the teaching and learning process. There is an understandable apprehension, even fear, as to the role of a teacher in an ICTequipped classroom (Futurelab, 2003). Teachers who lack the chance to develop professionally in the use of modern ICT feel under threat. The relevance of a teacher in the 21st century is determined by their willingness to develop in this way. It is clear that the psychological factors of a teacher's own beliefs and attitudes to ICT and pedagogical innovation are both primary facilitators and barriers to teacher use of technology in the

classroom. Those facilitators have been elaborated above, and we now take a closer look at the barriers that impede successful ICT classroom use.

ICT Skills Needed By Teachers Today

Many school leaders still perceive the lack of ICT-related knowledge of teachers as a major obstacle to the realization of their ICT-related goals (Pelgrum, 2002). The literature describes the kind of skills teachers may need when integrating ICT in new student-centered learning approaches. However, identifying which competencies each teacher needs to acquire is far from simple, as this depends very much on the circumstances of their particular school. Personal teaching styles also play a major role. Again, „one size fits all does not usually work (Davis, Preston, & Sahin, 2009). We also need to recognize that substantial learning can take place while teaching, and even learning, from students.

The UNESCO (2008) ICT competency standards for teachers go further, describing three approaches: technological literacy, knowledge deepening, and knowledge creation. These approaches are seen as part of a development continuum, and each approach has different implications for education reform and improvement, plus different implications for changes in the components of the education system: Pedagogy, teacher practice and professional development, curriculum and assessment, and school organization and administration. ICT plays a unique, but complementary role in each of these approaches, with new technologies requiring new teacher roles, new pedagogies, and new strands to teacher education. The successful integration of ICT into the classroom depends on the ability of teachers to structure their learning environments in non-traditional ways, merging technology with new pedagogies. This requires a very different set of classroom management skills to be developed, together with innovative ways of using technology to enhance learning and encourage technology literacy, knowledge deepening and knowledge creation. At the knowledge creation end of the continuum, the curriculum goes beyond a focus on subject knowledge to explicitly include 21st century skills that are needed to construct new knowledge and engage in lifelong learning – the ability to collaborate, communicate, create, innovate and think critically. Teacher development is seen as a crucial component here. It ideally coordinates teachers' sophisticated professional skills with the pervasive use of technology. This in turn supports students who are creating knowledge products, and who are engaged in planning and managing their own learning goals in a school that is a continuously improving, learning organisation. Teachers model the learning process for students, and serve as model learners through their own ongoing professional development, both individually and collaboratively.

Teachers Use the Information Technologies to

- Present the material in more interesting and attractive way.
- Guide and help students in searching the qualitative material.

- Make best use of time.
- Coach the students.
- Provide individualized instruction.
- Direct the students toward cooperative as well as collaborative learning activities.
- Prepare learning material for students, rather teaching in conventional situations.
- Diagnose the learning problem of students and help them to overcome.
- Solve the study problems of students.

Information technologies affect the teaching learning process in different ways. These helps the teachers in preparing lecture notes for interesting presentation, on the one hand and facilitates the students on the other hand. Different technologies help the teachers and students according to their respective nature and capabilities of storage and presentation. For example computers are used in education for various purposes as they can store and retrieve a huge amount of information. (Dr. Irshad Hussain & Muhammad Safdar, 2008).

Conclusion

ICT can be an effective tool in supporting teaching and learning. The use of ICT helps young people develop already widely valued skills and abilities such as literacy and numeracy. It also helps with the development of other significant outcomes like higher order thinking skills. Importantly, ICT and good teaching also combine to produce the generic skills, like team work and problem solving, that are so important not only for life in the information age, but also for lifelong learning. The information age becomes an era of knowledge providing sound and unmatched feasibility for discovery, exchange of information, communication and exploration to strengthen the teaching learning process. Information technologies help in promoting opportunities of knowledge sharing throughout the world. These can help the teachers and students having up-to-date information and knowledge.

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