ICT in education

By Anna Neena George | Aug 13, 2012

Information and communication technology (ICT) is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. ICT has become part of everyday life and all sectors from banking to tourism now depend heavily on ICT for carrying out their transactions. The National curriculum framework 2005 (NCF 2005) has highlighted the importance of ICT in school education.

ICT in schools

Why do we need ICT in schools? Was education not happening before computers came into existence? Why is this paradigm shift necessary? The shift is necessary because this is the age of information and technology, an age that requires that teachers facilitate the gathering of this information and not merely teach.

Unfortunately, in India, ICT is largely associated with the use of computer and Internet. What one uses ICT for and how one uses it, is not addressed sufficiently. Schools and colleges acquire computers, Internet connection, LCD projectors and then send their teachers for crash courses that supposedly teach them to use technology. The trouble is this whole approach is devoid of focus. But, until teachers are made to realize the need of ICT, no amount of computerization can help.

What is ICT supposed to be used for in the class?

A question I often hear teachers who are unwilling to take the ICT plunge is, ‘Can the student learn anything without the teacher explaining or intervening? And my answer to that is, ‘Students also have ideas of their own and knowledge that they gathered from daily life; this knowledge and ideas are not accepted or utilized by teachers. Using ICT this can be achieved in a big way.’

Training a teacher in using ICT is more crucial than acquiring a large number of computers. Teachers have to be trained to facilitate the learning process, make the process real, achievable, challenging, yet exciting and not intimidating. Reducing teacher talk and encouraging student discussion is extremely important. Everything need not be written on the blackboard to be considered as taught. Many teachers think the computer is used only to make the content look attractive! They need to know that in 21st century, information is not difficult access, instead organizing, sharing, and collaborating become essential skills. Hence, ICT is not merely to portray information but to interact, share, and thus learn. ICT provides meaningful, absorbing media that makes teaching-learning more productive.

There are two main areas that we have to look at if a paradigm shift in the teaching process has to occur: the teacher’s role of teaching and the teacher’s role of helping the student learn.

In the first one the teacher has to enhance teaching. Here, the teacher can ask himself or herself, ‘How will ICT enhance my teaching?’ The teacher should be aware of what lacunae exist in his/her teaching. The teacher should ask ‘Do I need to be empowered? ’ ‘What more can be done?’ ‘What is the most effective way of teaching?’ ‘How will more students benefit from my teaching?’ ‘Will ICT help me?’

The second role of the teacher: helping the student learn.

The Internet is full of information, textbooks are bursting with information. But this information can become true knowledge only when the teacher makes it meaningful. Here the teacher can use multimedia to make topics more comprehensible.

Think of a teacher showing large number of different flowers while reading out a poem on flowers, or teaching about the parts of a flower. Talking about the freedom struggle is one thing and seeing a 2 minute video on the same topic is altogether different. Preaching about rain water harvesting and showing a clipping while teaching is different. Showing how bunding is done, how crude oil is refined, gives students the correct idea. Instead of boring the students with a decade old chart on the respiratory system, showing a 1.5 minute video during teaching takes the students to a different level of understanding. Listening to the voice of Rabindranath Tagore while reading his stories, poems will help the students associate with the author. The entire teaching-learning process gets a boost with the appropriate use of ICT. It should be used to fill in the inadequacies that the teacher is facing. The problem of large numbers, students not showing interest can be tackled to some extent. Can use of ICT make teaching more meaningful, get rid of rote memorizing?

The teacher needs to be fully aware of the fact that students can find information, they need proper instructions, they need scope for creativity, expectations of the teacher brings forth performance.
The present generation is a multimedia generation. It is not their fault. They are numbed by too much of information and easy access to that information. How then can we expect our students to sit and listen to lifeless sermons in class. The information that is given in the classroom is redundant and presented in a boring manner. NGC, Discovery, Fox History can take one to places and time in minutes. They show so much of the present and the past far and wide that one seems to learn unknowingly. One search on Google and lo and behold! The information at your fingertips will be difficult to assimilate. How does one harness this gargantuan accessibility of information? How to make students use it appropriately and avoid brazen plagiarism? Vague expectations, lack of innovation, poor scope for creativity make learning dull. Mere use of computer or Internet doesn’t improve the learning output.

The process should be like this.

**Step one:** What are the problems in schools, classrooms, exclusively related to teaching-learning? Identify them. Large numbers? Lack of interest? Many drop outs? Learning disability?

**Step two:** What is being done about these problems? Can use of ICT help? Try making lectures, classes more technology laden to bring a difference. Observe the difference in the classes.

**Step three:** What are the requirements of the teacher to do a better job? Do the teachers feel that use of ICT to help them improve their teaching?

**Step four:** Are the teachers and students equipped with ICT skills?

Although ICT offers the opportunity to construct powerful learning experiences, it is pedagogically neutral. That is, ICT can be used in support of traditional teaching methodologies like the large group lecture, student note taking, and examinations. Teachers can use a computer and projector to show slides to illustrate a lecture, students can use laptops to take notes during the lecture, and multiple choice quizzes about the content of the lecture can be put on a website. How these new ICT tools and resources will be used is a human decision, not inherent in the technologies themselves.

ICT has the potential to be used as a supportive educational tool enabling students’ learning by doing. ICT can make it possible for teachers to engage students in self-paced, self-directed problem-based or constructivist learning experiences; and also test student learning in new, interactive, and engaging ways that may better assess their understanding of the content.

A second way to assess the merit of ICT use in education is to consider what its use enables students and teachers to do that they would not otherwise be able to do.

To explore this question, we consider five aspects of the educational use of ICT –

- supporting new pedagogical methods
- accessing remote resources
- enabling collaboration
- extending educational programs and
- developing skills for the workplace

Modern constructivist educational theory emphasizes critical thinking, problem solving, “authentic” learning experiences, social negotiation of knowledge, and collaboration – pedagogical methods that change the role of the teacher from disseminator of information to learning facilitator, helping students as they actively engage with information and materials to construct their own understandings. That is, students learn how to learn, not just what to learn (cf. Froman & Pufall, 1988; Newman, Griffin, and Cole, 1989; Piaget, 1973; Resnick, 1989; Strauss, 1994).


References:

UNESCO's World Communication and Information Report 1999 written by Prof C. Blurton from the University of Hong Kong

(Building Capacity of Teachers/Facilitators in Technology-Pedagogy Integration for Improved Teaching and Learning

UNESCO Implemented Project on Training and Professional Development of...
Teachers/Facilitators in the Effective Use of ICTs for Improved Teaching and Learning

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Final Report

Experts’ Meeting on Teachers/Facilitators Training in Technology-Pedagogy Integration

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