



## **TEACHING AND LEARNING WITH TECHNOLOGY: A CRITICAL REVIEW**

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### **Abstract**

*Information communication technology will assist teachers to respond to the global need to replace traditional teaching methods with technology-based teaching-learning tools and facilities. ICT is considered as one of the core elements in transforming the country into a better future development. ICTs provide an array of powerful tools that may help in transforming the present isolated, teacher-centered, and text-bound classrooms into rich, student-focused interactive knowledge environments. India will have largest young population in the world followed by China and USA. In addition, UK has vast opportunity to collaborate in India with education sector. The new technologies challenge traditional conceptions both of teaching and learning and by reconfiguring how teachers and learners gain access to knowledge have the potential to transform teaching and learning processes. In the present scenario of digital era, the use of ICT in the classroom has become more important to give students the opportunity to learn at a greater pace and to keep up with the outside the world with technology.*

*In spite of tremendous benefits of ICT, there are many obstacles regarding the proper use of information and communication technologies. The aim of this study to find out the relevance of information and communication technology, barriers of ICT in teacher perspective and student's perspectives on teaching-learning process. Therefore, it becomes important to study the challenges and issues related to the use of ICT, so that these obstacles can be overcome and learning process can be more effective.*

**Key words:** *ICT integration, Teaching-learning, Education*

### **Introduction**

The term technology is more crucial issue in many fields including education. This is because technology has become the more powerful tool to knowledge transfer in most of the countries. In the present era, Technology integration has gone through innovations and transformed our societies that has totally changed the way people think, work and live (Ghavifekr & Rosdy, 2015; Grabe, & Grabe, 2007). As part of this, schools and other educational institutions which are supposed to prepare the students to live in a knowledge society need to consider the ICT integration in their curriculum (Ghavifekr, Afshari & Amla Salleh, 2012). ICT is playing a major role in shaping education in the 21st century and making

humongous impact on tertiary education. ICT today is increasingly being used to expand access to education, strengthen the relevance of education to the increasingly digital workplace, raise educational and elevating teaching and learning to an engaging, active process connected to real life. The rapid growth in ICT have brought remarkable changes in modern-day education (particularly professional education) and changed the way society views education. It is certainly a useful tool facilitating linking various learning communities together in new and different ways. Educators commonly agree that ICT has the potential to improve student's learning outcome and effectiveness. In the era of globalization, the explosion of technologies is impacting the world in more ways that can be imagined. For example, the way industries and economies are managed have considerably changed. The rapid transmission of data and information has enabled cross-border collaborations to be more efficiently executed, thus allowing businesses to be run more efficiently. Out-sourcing thus becomes more prevalent and new economies such as those of China and India have prospered as a result. Technology has facilitated and, in some cases, caused paradigm shift in the way business used to be operated (**Friedman, 2006**). Creative and critical thinking as well as and problem-solving skills are now much more in demand. In the face of changing demands on the type of human resource that should be developed, educators are also emphasizing these new skills in educational curricular reviews. The use of information and communication technologies (ICTS) in education is seen to produce a more educated knowledge-based work force. The UNESCO World Education Report (**1998**) notes that the new technologies challenge traditional conceptions both of teaching and learning and by reconfiguring how teachers and learners gain access to knowledge have the potential to transform teaching and learning processes. ICTs provide an array of powerful tools that may help in transforming the present isolated, teacher-centered, and text-bound classrooms into rich, student-focused interactive knowledge environments. ICTs are a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. Communication and information are at the very heart of the educational process, in formal and non-formal settings, in programmes provided by governmental agencies, public and private educational institutions, profit corporations and non-profit groups, and secular and religious communities.

In this environment, the need for technologically literate citizens and workers increases every year. Skilled people in the 21st century need to understand how to use technology tools including computers, networking, and other technologies, plus audio, video, and other media and multimedia tools which enable people to perform effectively at work and in their daily

lives, using such tools as spread sheets for calculation, budgeting and building scenarios, graphic and multimedia programme for presentations; data bases for research; and networks for communicating with others. One of the most cited reasons for using ICTs in the class- room has been to better prepare the current generation of students for a workplace where ICTs, particularly computers, the internet and related technologies, are becoming more and more ubiquitous. Technological literacy, or the ability to use ICTs effectively and efficiently, is thus seen as representing a competitive edge in an increasingly globalizing job market. The Indian Higher Education System has established itself as the largest system in the world in terms of number of institutions and third largest in terms of student enrolment (after China and USA). While several new institutions have emerged due to significant increase in private sector participation over the last few years, concerns remain regarding the quality of education being imparted to students. There is vast potential of change in the HE system in the country. Presently over six hundred million population of India is young and below the age of 25. There is huge capacity requirement for the youth to undergo the latest education system. The middle class of India had started focusing on quality education of their wards. It is both financially as well as educationally feasible for the parents to provide high quality of education to their children and this will have huge impact on the present infrastructure, however with the help of ICT and communication this problem can be taken care off. The data shows that in the next five years, India will have largest young population in the world followed by China and USA. In addition, UK has vast opportunity to collaborate in India with education sector. Government of India plans are in place to transform the sector over the next five years. Every aspect of higher education is being reorganized and remodelled: funding, leadership and management, quality assurance, accountability, relationships with industry, international collaboration and the way research and teaching are conducted. If these reforms succeed, the breadth and depth of the change will be transformational in the field of education.

### **Teachers' perspectives on Technology-based Teaching and Learning**

Development of technologies is as a tool for learning in the late 20th century, the educational system and leaning outcomes has undergone rapid changes. This work is done, due to the ability of technology to provide an active, and to provide immersive teaching and learning environment. In this context, Ministries of Education across the world provide a lot of facilities and training to enhance for use of advanced technologies in the teaching and learning process of countries. To improve the whole education system, a very huge budget has been kept for providing necessary equipment's for the teachers. In spite of all the efforts, most of

the countries are facing the same problem of teachers not making optimum use of the technology provided (**Albirini, 2006**). This has become a serious matter as much previous research have proved that usage of ICT in teaching and learning process can improve the achievement of students (**Nakayama, 2011, Jamieson-Proctor et al., 2013**). Many, many researchers have attempted to analyze the factors that influence teachers' acceptance of ICT use in classrooms (**Capen, 2012; Virkus, 2008; Zhang, 2013; Dudeney, 2010**). This shows that, the major barrier to implementation was teachers' confidence as teachers are the ones who implement the change in their teaching and learning process. Furthermore, previous research (**Kasim and Obono, 2011**) suggests that teachers' confidence and ICT use have a high correlation. The role of teachers is becoming more important especially in the use of ICT in pedagogy which can enhance the achievement of students, their creativity and thinking skills. Furthermore, research by Chien, Wu and Hsu (2014) has shown that students in school are having high expectation on ICT integration in classroom as the new generation are born and grown with technologies and could be define as the digital – native phenomenon. The younger the students, the higher their expectation are on ICT integration in classroom. It also proved that the integration of ICT is mostly dependent on the personal factors which define as self-perceptions. This research also shows that the acceptance of ICT of teachers and students in classroom and outside of classroom whereby both are more likely to use technologies outside the classroom. They found that the barriers of ICT integration in classroom are confidence, competence and attitudes of teachers reduce the percentage of ICT integration.

As a result of previous research, it is known that teachers only need a traditional-centred approach when developing ICT skills in the classroom (**Ghavifekr et. al, 2014**). Teachers have high confidence and competence in using ICT in the classroom, even if the equipment they use does not represent the type of ICT. Because they believe that ICT is a tool that can help in the learning process especially related to real life practices. Thus, the teaching methodology has been improved by integrating ICT to build knowledge for the students. The relationship between competence and self-confidence may reflect a balance between training- and academically focused approaches to ICT professional development. With this, school management can ensure that adequate support is provided for teachers to integrate ICT in the classroom.

However, years of working experience and age of teachers affect the skills of teachers in urban schools (**Cuban, 2001; Keengwe, Onchwari, & Wachira, 2008**). With years of experience and aging the effectiveness of teachers is decreasing but any type of reduction and

the belief of effectiveness depends on the school management. Here school management means using instructional resources based on collegial interaction. Schools that can provide opportunities for teachers to reflect on teaching and learning with their partners and for administrators and teachers to collaborate and communicate as well as support the use of instructional resources. Teachers' belief in efficacy depends on school management and culture. Therefore, if the school always implements a culture of change and teachers are always sent for training to upgrade themselves, it will be easier to increase the integration of ICT in the classroom.

### **Students' perspectives on Technology-based Teaching and Learning**

A technology-enabled classroom should provide instruction based on individual abilities and aptitude. It should be noted that instruction does not mean that different sets of interventions are provided to different learners. Instead, teachers should make a tremendous effort to notice and accommodate individual differences during the classroom. Three themes fall into this category: first, individualized instruction, Second, continuous monitoring of student learning, and third, continuous teacher self-reflection. Technology plays an essential role in the classroom when it comes to the learning differences of individual learners. Various tools and online resources are used by teachers to provide students with a variety of activities to provide individual support or enrichment for students. For example, a teacher works with a student who is shy and afraid to participate in class to encourage him to speak up. while others in a smaller group can present their work and ideas while the teacher records their presentation. Student presentation recordings can be uploaded by the teacher to the online classroom community, allowing other students to interact with each other indirectly. Thus, teachers can use technologies as teaching tools to maximize the learning process of the students.

### **Conclusion**

ICT for education refers to the development of information and communication technology specifically for teaching-learning process, while the ICTs in education involve the adoption of general components of information and communication technologies in the teaching-learning process. This paper has sought to explore the role of ICT in educational progress in to the 21<sup>st</sup> century. ICTs have impacted on educational practice in education to date in quite small ways but that the impact will grow considerably in years to come, and that ICT will become a strong agent for change among many educational practices. Extrapolating current activities and practices, the continued use and development of ICTs within education will have a strong impact on ICT and teaching learning process, quality, and accessibility of

education, learning motivation, learning environment and ICT usage and academic performance. The adoption and use of ICTs in education have a positive impact on teaching, learning and research. ICT can affect the delivery of education and enable wider access to the same. In addition, it will increase flexibility so that learners can access to the same. In addition, it will increase flexibility so that learners can access the education regardless of time and geographical barriers. It can influence the way students are taught and how they learn. It would provide the rich environment and motivation for teaching learning process which seems to have a profound impact on the process of learning in education by offering new possibilities for learners and teachers. These possibilities can have an impact on student performance and achievement. Similarly wider availability of best practices and best course material in education, which can be shared by means of ICT, can foster better teaching, and improved academic achievement of students. The overall literature suggests that it is possible when successful ICT integration in education.

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