

Information and communication technology (ICT) and its role in teaching and learning process and its challenges in Iran

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ABSTRACT

In today's world information and communication technology (ICT) has created a deep transformation in terms of teaching and learning in a way that traditional education methods are replacing by new electronically educations. ICT has a potential ability to enforce the quality and efficiency of teaching and learning process.

Changes in the realm of science and knowledge and technology as the changes in economy and society have led to this reality that to meet the needs of competitive modern world, new educational systems use ICT in teaching and learning. Using these technologies firstly provides alternative methods for educational methods and achieving educational goals with much lower expenses. Secondly, it can help the educational system to meet the growing educational needs. Thirdly, can utilize the opportunities provided by globalization and facilitate the cultural and educational interactions among countries in the world. This paper discusses the role of ICT in teaching and learning process and tries to consider the challenges facing this program in Iran and offer suggestions to solve these challenges.

KEYWORDS; Information and Communication Technology (ICT), Teaching and Learning Process, Education and Training, New Educations

INTRODUCTION

Science and technology are both creators of human civilization, and each ones development is not possible without the other one. Science means understanding the universe and finding the governing rules on the nature but technology means applying science and scientific findings using regular studies and approaches for satisfying worldly needs and quests which mostly accompany with inventions, tools and equipment. Technology is about how to do something and is a creative process in which tools, resources and systems are used to solve issues in order to increase the human's control in natural fields and improve the human life [1].

Educational systems have always been affected by the technology revolutions. In fact as one of the criterion of pioneer systems in education and training can bold the new capacities caused by the technology revolutions [2]. Today the main expectation for ICT can be find in teaching and learning process [3] because by applying ICT the teaching and learning process can be facilitate and fast [4].

Rapid growth and technological advances not only was effective in lifestyle and establishing communications but it also was very effective in our teaching, learning and training methods. The arrival of PCs and widespread access to the internet has provided such an atmosphere that bounded the teaching and learning systems around the world to major changes in their educational structures [5].

One of the applications of ICT which is visible in all matters is its speed and development that is due to the relatively appropriate communicational context available all around the world. Using the ICT as the development tool receives more attention by the users. Converting paper documents to the electronic ones, creating multimedia compact discs are its obvious examples [6].

Main advantages of applying ICT

According to the above and using the evidences the main advantages of applying ICT in world's education systems in order to enhancing growth and development are increasing communication channels via tools such as email, panel discussion projects and chat rooms [7], improving learning style, facilitating curriculum, increasing and improving academic reports to parents, increasing productivity and improving quality through more cooperation with educational materials and mentors [8].

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Impact of ICT on education

ICT has close us together beyond what can be imagined and learning opportunities in each level at any time and place for both sexes are practically and realistically provided. Although not a long time has passed from the usage of ICT in education but it has able even in this short period of time to provide the condition for fulfilling some of the old education dreams and goals. Some of these dreams and goals are:

1. Making the learning environment close to the learner instead of bringing the learner to the learning environment
2. Focus on the strengths and needs of individual learners
3. Creating a continuous and lifelong learning environment

By extensive and high facilities which ICT has provided for teaching and learning, nature of education has dramatically changed including changes in physical space. In last three decades it was not thought that each child could have easily access to a means of communication and be able to use computers at school and home. Or each person, no matter where he is, could connect to the internet by telephone or mobile. But what is certain is that there is a vast literature on virtual reality, virtual schools and virtual organizations [9].

The necessity of applying ICT in teaching and learning process

According to the experts, changes in learning prospective from behaviorism to constructivism have led to the engagement of learners in the teaching and learning process [10]. Traditional learning approaches were based on presenting limited principal facts and concepts and memorizing them by the learners [11]. While new and contemporary approaches have a special focus on making and creating knowledge based on personal experiences, mental structures and beliefs. Learning in new approaches is learner-oriented [12]. Taking advantages from ICT, especially computer realizes the objectives of this new arena.

According to the Lancy's report to the UNESCO, computers and IT have been effective in development of high-level thinking skills like determining issues, detecting information, solving problems and projecting the results. These tools can be used in information gathering process, research and cooperation not only be available as a trace of direct training in curricula [13]. So the first rationale for using IT is that increases the educational benefit. Unfortunately calculating the educational productivity due to the difficulty of measuring training outcomes value is not an easy matter. The second rationale for using ICT in education is that increases the learner's IT literacy, in other words the current condition of society requires everyone to have adequate knowledge and skills to perform their duties effectively and efficiently in the society. And finally the third rationale of applying ITC in education refers to facilitating and supporting the teaching and learning process and programs [14].

There are several reasons in choosing and applying ICT for learners in teaching and learning process including strengthening and improving the teaching and learning process, increased flexibility in business activity due to the elimination of time and place limitations, continuous interaction and providing new areas for creativity in educational activities [15].

RESEARCH LITERATURE

As mentioned above, using ICT in education field especially in teaching and learning process does not have a long history and researches in this context returns back to the late decades of twentieth century and early 21st. Regarding this kind of educating by the Education Commission in 2000 the researches became serious and later on such investigations evolved and flourished. The most prominent of these studies can be outlined as follows;

1. Herman. David, 2001. modern tools and their effect on active learning
2. Stone. Braine, 2001. learning by the internet

These two researches provided groundwork for further researches like;

1. Bondy et al., [12] Developing education and training programs
2. Jung [4] IT and educating teachers for training
3. Robinson. et al, 2005. Teachers and challenges facing education systems

Here in Iran researches about applying IT returns to 60s but in early 70s some researchers like Sha'bani [16, 17], Faramanesh and Mohammad Ahady an entered into new arena.

Challenges facing ICT in teaching and learning process

The ICT development in all aspects has brought many changes that one of the most important one is changing in education. In this new form of education there is no more need to be in educational centers with closed walls but it can be widely available to everyone regardless of particular time and place. Despite of all facilities and attractions, this new kind of education has many challenges too which requires lots of theoretical and field researches. Just the use of ICT won't improve learning but for a proper use of technology in the field of education, planning requirements for educational activities in various aspects should be considered. For example in ICT-based training spaces, how the learning environment, educational content, teaching methods, educational activities, instructional design and educational assessment

should be. It is important to note how to use ICT and to have a good attitude with it in training. The use of new technologies in the field of education and training generally and in the curriculum particularly makes significant changes and causes learning to become more extent and enriched [18].

Although technology causes a significant educational interactions but it cannot increase learning and teaching quality on its own. It means that learning and teaching environment, content presentation, learning activities, implementation of learning activities, learners' performance measurement process and feedback process shall be appropriately formed. Otherwise there is no guarantee that the educational goals be realized [19].

Challenges facing use of ICT in Iran

There are numerous challenges facing the education system to take advantage of ICT teaching and learning process and education in general in Iran that some of them are cited below;

1. Lack of fully preparation of the education system in applying new technologies
2. Lack of positive attitude of teachers to make use of ICT in classrooms
3. Inadequate attention to the growth and strength increase of coaches and inadequate attention to the role of technological thinking in improving the lives
4. Failure to strengthen the managers' attitudes toward the use of technology in schools
5. Unchanged attitude toward the role of teachers of the time of using technology in teaching
6. Misconceptions of traditional educating centers about the role of ICT
7. Not on time and quick changes in educational content an textbooks suited to e-learning and technological environment
8. Lack of improving in specialized awareness of teachers in accordance with the growing changes in new technologies
9. Incompatibility to innovation by managers, senior managers and other beneficiaries
10. Inappropriateness of schools' facilities and equipment with IT
11. Lack of interaction between the education system and national media to benefit from the training capacity of ICT
12. Structural problems in establishment of smart schools
13. Lack of sufficient interaction between educational institutions for the use of ICT
14. Lack of motivation and willingness of teachers in the use of such technologies
15. Regarding technology as a goal not as means by some people
16. Lack of local community involvement in equipping schools

As indicated in different sections, the education system faces several problems in using ICT that slows down the process of accelerating and developing the education. But what is much more obvious is the rejection of this issue by the involved civil society like the power shaft, which is of the main reasons for damage and delay in this matter.

Due to the deprivation of many parts of the country it requires a long time to be spent on culture. But regarding what is happening in relevant organization the matter of using ICT in education not only doesn't move forward but it has a downside trend.

The necessity of using ICT in teaching and learning in Iran

According to the Nouraninejad and et al and in former report of digital opportunities, Iran ranked 94 but in 2008 with 11 steps descending reached to the position of 105 among 181 counties of the world. Iran doesn't have an ideal condition in Middle East and has got low ranking.

ICT development and expansion model in the Fifth Development Plan for Education

In this model which is called "A plan for the future, an action plan in the prospect of 2015", equipping schools with usable and available computers considers as the most important goal of the education system. Achieving this goal, an infrastructure with six subsets is required;

1. Development of the information distribution network
2. Development of satellite communications
3. Development of teaching methods
4. Professional development of teachers
5. Designing and promoting programs to learn
6. Web-based training

In general, move in this direction requires administrative activities of the government and the private sector's participation which should be accompany with widespread supports.

DISCUSSION AND CONCLUSION

Planning and curriculum experts consider the use of ICT in educational structure as a one of the main indicators and signs of developed higher education. Today, teaching and learning environments cannot be totally mixed up with traditional

methods. In addition, development and expansion of knowledge and awareness is linked with the application of ICT. Such a way that by using of ICT learners takes new roles in teaching and learning environments.

According to the above, applying ICT in teaching and learning process is very useful and can be very helpful. Despite of the limitations which are relatively solvable the point that should be consider is that applying technology cause not a deep and effective learning.

On the other hand, traditional educations have some advantages beside their limitation like the connection between past and present experiences of learners, accelerating the process of getting information and receiving feedback from others which cannot be completely abandoned. But due to the various challenges facing educational systems there is a very small opportunity for ICT to be involved in teaching and learning process.

Our suggestions in order to accelerate the more and better development of ICT in education are as follows;

1. Improving the public culture for more and better use of ICT in education
2. Strengthening the attitude of managers and teachers and motivate them to use the ICT
3. In-service courses to raise the IT awareness of teachers and trainers
4. Revising the context of textbooks emphasizing the importance of ICT
5. Equipping and renovating schools and improving their quality and quantity in terms of taking advantages of facilities for establishment of ICT systems
6. Benefiting from the civil society organizations and educational institutions to accelerate the use of ICT

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